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Rules and Regulations

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This section of the FEDERAL REGISTER contains regulatory documents having general applicability and legal effect, most of which are keyed to and codified in the Code of Federal Regulations, which is published under 50 titles pursuant to 44 U.S.C. 1510.

The Code of Federal Regulations is sold by the Superintendent of Documents. Prices of new books are listed in the first FEDERAL REGISTER issue of each week.

FEDERAL RETIREMENT THRIFT INVESTMENT BOARD

5 CFR Part 1651

Death Benefits

AGENCY: Federal Retirement Thrift Investment Board.

ACTION: Final rule.

SUMMARY: The Executive Director of the Federal Retirement Thrift Investment Board (Agency) is adopting as final, without change, the Agency's proposed rule to permit the Agency to rely on a participant's marital status as stated on a Federal income tax form when determining whether a deceased participant had a common law marriage.

DATES: This final rule is effective February 28, 2006.

FOR FURTHER INFORMATION CONTACT: John A. Hahn on (202) 942–1630.

SUPPLEMENTARY INFORMATION: The Agency administers the Thrift Savings Plan (TSP), which was established by the Federal Employees' Retirement System Act of 1986 (FERSA), Public Law 99–335, 100 Stat. 514. The TSP provisions of FERSA are codified, as amended, largely at 5 U.S.C. 8351 and 8401–79.

On January 12, 2006, the Agency published a proposed rule with request for comments in the **Federal Register** (71 FR 1984). The Agency received no comments on the proposed rule. Therefore, the Executive Director is publishing the proposed rule as final without change.

Regulatory Flexibility Act

I certify that these regulations will not have a significant economic impact on a substantial number of small entities. They will affect only employees of the Federal Government.

Paperwork Reduction Act

I certify that these regulations do not require additional reporting under the criteria of the Paperwork Reduction Act of 1980.

Unfunded Mandates Reform Act of 1995

Pursuant to the Unfunded Mandates Reform Act of 1995, 2 U.S.C. 602, 632, 653, 1501–1571, the effects of this regulation on state, local, and tribal governments and the private sector have been assessed. This regulation will not compel the expenditure in any one year of $100 million or more by state, local, and tribal governments, in the aggregate, or by the private sector. Therefore, a statement under § 1532 is not required.

Submission to Congress and the General Accounting Office

Pursuant to 5 U.S.C. 801(a)(1)(A), the Board submitted a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States before publication of this rule in the **Federal Register**. This rule is not a major rule as defined at 5 U.S.C. 804(2).

List of Subjects in 5 CFR Part 1651

Employee benefit plans, Government employees, Pensions, Retirement.

Gary A. Amelio,

Executive Director, Federal Retirement Thrift Investment Board.

■ Accordingly, for the reasons set forth in the preamble, section 1651.5 of chapter VI of title 5 of the Code of Federal Regulations is amended as follows:

PART 1651—DEATH BENEFITS

■ 1. The authority citation for part 1651 continues to read as follows:

Authority: 5 U.S.C. 8424(d), 8432(j), 8433(e), 8435(c)(2), 8474(b)(5), and 8474(c)(1).

■ 2. Revise § 1651.5 to read as follows:

§ 1651.5 Spouse of participant.

(a) For purposes of payment under § 1651.2(a)(2), the spouse of the participant is the person to whom the participant was married on the date of death. A person is considered to be married even if the parties are separated, unless a court decree of divorce or annulment has been entered. State law of the participant's domicile will be used to determine whether the participant was married at the time of death.

(b) If a person claims to have a marriage at common law with a deceased participant, the TSP will pay benefits to the putative spouse under § 1651.2(a)(2) in accordance with the marital status shown on the most recent Federal income tax return filed by the participant. Alternatively, the putative spouse may submit a court order or administrative adjudication determining that the common law marriage is valid.

[FR Doc. 06–1864 Filed 2–27–06; 8:45 am]
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FEDERAL RESERVE SYSTEM

12 CFR Part 225

[Regulation Y; Docket No. 1235]

Capital Adequacy Guidelines for Bank Holding Companies; Small Bank Holding Company Policy Statement; Definition of a Qualifying Small Bank Holding Company

AGENCY: Board of Governors of the Federal Reserve System.

ACTION: Final rule.

SUMMARY: The Board of Governors of the Federal Reserve System (Board) is amending the asset size threshold and other criteria for determining whether a bank holding company (BHC) qualifies for the Board's Small Bank Holding Company Policy Statement (Regulation Y, Appendix C) (Policy Statement) and an exemption from the Board's consolidated risk-based and leverage capital adequacy guidelines for BHCs (Regulation Y, Appendices A and D) (Capital Guidelines). The Board is adopting this final rule to address the effects of inflation, industry consolidation, and normal asset growth of BHCs since the Board introduced the Policy Statement in 1980. The final rule increases the asset size threshold from $150 million to $500 million in consolidated assets for determining whether a BHC may qualify for the Policy Statement and an exemption from the Capital Guidelines; modifies the qualitative criteria used in determining whether a BHC that is under the asset size threshold

nevertheless would not qualify for the Policy Statement or the exemption from the Capital Guidelines; and clarifies the treatment under the Policy Statement of subordinated debt associated with trust preferred securities.

DATES: This final rule is effective March 30, 2006.

FOR FURTHER INFORMATION CONTACT: Barbara Bouchard, Deputy Associate Director (202/452–3072 or *barbara.bouchard@frb.gov*), Mary Frances Monroe, Manager (202/452–5231 or *mary.f.monroe@frb.gov*), William Tiernay, Supervisory Financial Analyst (202/872–7579 or *william.h.tiernay@frb.gov*), Supervisory and Risk Policy; Robert Maahs, Manager, Regulatory Reports (202/872–4935 or *robert.maahs@frb.gov*); or Robert Brooks, Supervisory Financial Analyst (202/452–3103 or *robert.brooks@frb.gov*), Applications, Division of Banking Supervision and Regulation; or Mark Van Der Weide, Senior Counsel (202/452–2263 or *mark.vanderweide@frb.gov*), Legal Division. For the hearing impaired *only*, Telecommunication Device for the Deaf (TDD), contact 202/263–4869.

SUPPLEMENTARY INFORMATION:

I. Background

The Board issued the Policy Statement in 1980 to facilitate the transfer of ownership of small community-based banks in a manner that is consistent with bank safety and soundness. The Board generally has discouraged the use of debt by BHCs to finance the acquisition of banks or other companies because high levels of debt at a BHC can impair the ability of the BHC to serve as a source of strength to its subsidiary banks. The Board has recognized, however, that the transfer of ownership of small banks often requires the use of acquisition debt. Accordingly, the Board adopted the Policy Statement to permit the formation and expansion of small BHCs with debt levels that are higher than what would be permitted for larger BHCs. The Policy Statement contains several conditions and restrictions that are designed to ensure that small BHCs that operate with the higher levels of debt permitted by the Policy Statement do not present an undue risk to the safety and soundness of their subsidiary banks.

Currently, the Policy Statement applies to BHCs with pro forma consolidated assets of less than $150 million that (i) are not engaged in any nonbanking activities involving significant leverage; (ii) are not engaged in any significant off-balance sheet activities; and (iii) do not have a significant amount of outstanding debt that is held by the general public (''qualifying small BHCs''). Under the Policy Statement, qualifying small BHCs may use debt to finance up to 75 percent of the purchase price of an acquisition (that is, they may have a debt-to-equity ratio of up to 3:1), but are subject to a number of ongoing requirements. The principal ongoing requirements are that a qualifying small BHC (i) reduce its parent company debt in such a manner that all debt is retired within 25 years of being incurred; (ii) reduce its debt-to-equity ratio to .30:1 or less within 12 years of the debt being incurred; (iii) ensure that each of its subsidiary insured depository institutions is well capitalized; and (iv) refrain from paying dividends until such time as it reduces its debt-to-equity ratio to 1.0:1 or less. The Policy Statement also specifically provides that a qualifying small BHC may not use the expedited applications procedures or obtain a waiver of the stock redemption filing requirements applicable to BHCs under the Board's Regulation Y (12 CFR 225.4(b), 225.14, and 225.23) unless the BHC has a pro forma debt-to-equity ratio of 1.0:1 or less.

The Board adopted the risk-based capital guidelines in 1989 to assist in the assessment of the capital adequacy of BHCs. The risk-based capital guidelines establish for BHCs minimum ratios of tier 1 capital and total capital to risk-weighted assets. One of the Board's principal objectives in adopting the risk-based capital guidelines was to make regulatory capital requirements more sensitive to differences in risk profiles among banking organizations. Supplemental to the risk-based capital guidelines, the Board in 1991 adopted the tier 1 leverage measure, a minimum ratio of tier 1 capital to total average assets, to further assist in the assessment of the capital adequacy of BHCs with the principal objective of placing a constraint on the maximum degree to which a banking organization can leverage its equity capital base. Because qualifying small BHCs may, consistent with the Policy Statement, operate at a level of leverage that generally is inconsistent with the Capital Guidelines, the Capital Guidelines provide an exemption for qualifying small BHCs.

On September 8, 2005, the Board requested comment on a proposed rule that would raise, to $500 million, the asset size threshold for determining whether a small BHC would be subject to the Policy Statement and exempt from the Capital Guidelines (70 FR 53320, September 8, 2005). The Board also proposed several modifications to the criteria under which a BHC that is under the asset size threshold would be ineligible for application of the Policy Statement and would be subject to the Capital Guidelines. The proposed rule also clarified that subordinated debt associated with issuances of trust preferred securities generally would be considered debt for most purposes under the Policy Statement, but provided a transition period for certain currently outstanding subordinated debt associated with these securities.

II. Summary of Comments and Final Rule

The Board received twenty-nine comments on the proposed rule. Commenters included financial institutions, industry associations, and individuals. All commenters generally supported the proposed increase in the asset threshold for determining whether a BHC would qualify for the Policy Statement and an exemption from the Capital Guidelines; however, some commenters urged the Board to increase the asset threshold to $1 billion. Some commenters also recommended that the Board create an indexing mechanism under which the threshold would be raised automatically over time to reflect some measure of the rate of inflation. Some commenters also raised questions about or recommended changes to the proposed qualification criteria under which small BHCs would fail to qualify for the application of the Policy Statement and would be subject to the Capital Guidelines. Finally, a number of commenters recommended changes to the proposed criteria for exempting subordinated debt associated with trust preferred securities during the transition period and extending the transition period. The comments received on the proposed rule are discussed in greater detail below.

New Asset Threshold of $500 Million

As noted above, commenters generally supported the Board's proposal to raise the asset threshold under the Policy Statement from $150 million to $500 million. Six commenters, however, expressed the view that the proposed increase in the asset threshold from $150 million to $500 million would be inadequate and asserted that the threshold should be increased to $1 billion. In support of their view, these commenters generally argued that, until a BHC reaches the $1 billion asset level, it does not have the necessary access to the equity markets that would enable it to finance an acquisition with a lower proportion of debt-to-equity.

After carefully considering the comments received in light of the Board's supervisory experience and the purposes of the Policy Statement and Capital Guidelines, the Board has determined to raise the asset threshold to $500 million in consolidated assets as proposed. The Board is concerned that a further expansion at this time of the definition of qualifying small BHCs beyond $500 million could adversely impact bank safety and soundness and impair the Board's ability to monitor the financial condition of BHCs. The existence of the Policy Statement and the exemption from the Capital Guidelines for qualifying small BHCs are major departures from the Board's general policy of limiting BHC leverage and reflect a careful balance of the special difficulties small banks may face in the transfer of ownership with the prudential and supervisory concerns of the Board. Consolidated capital standards are a key aspect of the Board's supervisory program and play an important role in helping ensure that a BHC—whether large or small—is able to serve as a source of strength for its subsidiary depository institutions. For this reason, the Board believes that exemptions from these standards (and related reporting obligations) should be narrowly tailored and granted only when clearly warranted. This is particularly true for small BHCs because the Board's risk-focused supervision program for smaller BHCs (whether or not qualifying small BHCs for the purposes of the Policy Statement) relies heavily on off-site monitoring rather than on-site examiner reviews.

Moreover, raising the asset threshold to $500 million as set forth in this final rule will allow approximately 85 percent of all BHCs to qualify for the Policy Statement, a substantial increase from the 55 percent that were eligible to qualify under the $150 million threshold.

Finally, since the Policy Statement was originally adopted, the legal framework governing the ownership and branching of banking organizations has changed dramatically, increasing market liquidity. The Board's supervisory experience indicates that many banks with assets in excess of $500 million are attractive for acquisition by organizations that have the means to make acquisitions without the use of excessive debt.

The Board expects to review at least once every five years the asset threshold in the final rule to determine whether this threshold should be further adjusted. In considering whether to modify the asset threshold, the Board will consider several factors which may include, among other things, the rate of growth of aggregate bank assets, the overall financial condition of the banking industry, and structural changes in the role of banking organizations in the overall economy. The Board believes that this periodic review will allow the Board to consider the full range of factors that may be relevant to identifying the level below which a BHC should be subject to the Policy Statement and exempt from the Capital Guidelines. In this regard, the Board believes that measures of price inflation are not necessarily appropriate determinants of what constitutes a small BHC for capital and prudential purposes.

Other Criteria for Identifying a Qualifying Small BHC

The Board also proposed to modify the qualitative criteria for determining whether a BHC that otherwise meets the asset threshold nevertheless should not qualify for application of the Policy Statement and exemption from the Capital Guidelines to reflect changes to the banking industry over the last two decades, including the nature of the operations of many smaller BHCs. As proposed, BHCs with less than $500 million in consolidated assets would not qualify for the Policy Statement and would be subject to the Capital Guidelines if the BHC (i) is engaged in significant nonbanking activities either directly or through a nonbank subsidiary, (ii) conducts significant off-balance sheet activities, including securitizations or managing or administering assets for third parties, either directly or through a nonbank subsidiary, or (iii) has a material amount of debt or equity securities (other than trust preferred securities) outstanding that are registered with the Securities and Exchange Commission (SEC).

A few commenters indicated that more clarity would be helpful in quantifying ''significant'' nonbanking activities, ''significant'' off-balance sheet activities, or ''material'' amounts of debt and equity securities. For example, one commenter suggested the use of more absolute quantitative thresholds or limits, such as total nonbank assets, off-balance sheet items, or debt or equity securities as a percentage of Tier 1 capital. Commenters also suggested that the term ''nonbanking activities'' be more specifically defined and exclude nonbanking activities that have been found to be ''closely related to banking'' under the Board's Regulation Y (See 12 CFR 225.28).

Some commenters also requested that the Federal Reserve allow a small BHC to operate under the Policy Statement if the BHC conducts significant nonbanking activities but the activities are found, based on supervisory review, to not pose material additional operational risks.[1] Two commenters noted that SEC registration can be triggered by increases in an institution's shareholder base through inheritance or other inter-generational transfers and, on this basis, argued that the criterion related to SEC-registered debt or equity should be deleted.

After carefully considering the issues raised by commenters, the Board has adopted the changes, as proposed. The Board believes that the changes best reflect the Board's prudential and supervisory interests in ensuring that BHCs remain well capitalized, subject to appropriate financial reporting requirements to facilitate the supervisory process, and able to serve as a source of strength to their subsidiary banks. The Board also believes these changes are necessary or appropriate to reflect changes in the banking industry over the last two decades, including the nature of the operations of many small BHCs. The enactment of the Gramm-Leach-Bliley Act in 1999 expanded significantly the range of nonbanking activities in which BHCs may engage, both directly and through nonbank subsidiaries of the holding company. Such activities may result in a higher level of operational, legal or reputational risk to the banking organization than balance sheet measures would indicate and, in some cases, may contribute significantly to an organization's overall financial performance.[2]

The revision of the criterion to exclude from the Policy Statement any BHC that has outstanding a material amount of SEC-registered debt or equity securities reflects the fact that SEC registrants typically exhibit a degree of complexity of operations and access to multiple funding sources that warrants excluding them from the Policy Statement and subjecting them to the Capital Guidelines. Moreover, the application of consolidated reporting requirements to these BHCs should not

[1] Two commenters urged that any final rule clearly provide that a small BHC is not prohibited from operating under the Policy Statement if it conducts trust activities through trust departments of its subsidiary bank or through a nonbank subsidiary of that bank. The term ''nonbank subsidiary'' as used in the Policy Statement refers to a subsidiary of a BHC other than a bank or a subsidiary of a bank.

[2] The examples provided in the proposed rule—securitizations and managing or administering assets for third parties—simply highlight two off-balance sheet activities that may involve substantial risk. These examples are not intended to be exclusive and other activities may well present similar concerns.

impose significant additional burden, as they are required to have consolidated financial statements for SEC reporting purposes. What constitutes a ''significant'' amount of nonbanking activities or a ''material'' amount of SEC-registered debt or equity for a particular BHC depends on the size, activities and condition of the relevant BHC. In the Board's view, differing levels of risk in varying business lines and practices among institutions precludes the use of fixed measurable parameters of significance or materiality across all institutions. For this reason, the rule provides the Federal Reserve with supervisory flexibility in determining, on a case-by-case basis, the significance or materiality of activities or securities outstanding such that the BHC should be excluded from the Policy Statement and subject to the Capital Guidelines. The Board notes that the current Policy Statement also uses a ''significant'' standard and that application of this standard through the supervisory process has not created substantial difficulty over the years. As a general matter, the Board believes that relatively few small BHCs are likely to be excluded from the Policy Statement and become subject to the Capital Guidelines due to qualitative criteria included in the final rule.

The Board has amended the Policy Statement and the Capital Guidelines to make explicit the Federal Reserve's existing authority to require on a case-by-case basis that a qualifying small BHC meet consolidated capital requirements when such action is warranted for supervisory reasons, as well as the ability of a qualifying small BHC to voluntarily elect to comply with the Capital Guidelines.

Treatment of Subordinated Debt Associated With Trust Preferred Securities

Currently, for purposes of the Policy Statement, subordinated debt on the parent company's balance sheet that is issued in connection with trust preferred securities is not treated as debt; however, the cash-flow impact of such subordinated debt is included in the Board's review of the financial condition of a BHC.[3] The proposed rule provided that subordinated debt associated with trust preferred securities would be considered debt for most purposes under the Policy Statement. In particular, such subordinated debt would be included as debt in determining whether (i) a qualifying small BHC's acquisition debt is 75 percent or less of the purchase price; or (ii) a qualifying small BHC's debt-to-equity ratio is greater than 1.0:1 (the ratio above which a qualifying small BHC is subject to dividend restrictions and is not permitted to use the expedited applications processing procedures or obtain a waiver of stock redemption filing requirements under Regulation Y).[4] However, subordinated debt associated with trust preferred securities would not be included as debt in determining compliance with the 12-year debt reduction and 25-year debt retirement requirements of the Policy Statement.

In order to provide for more equitable treatment between qualifying small BHCs and larger BHCs that are subject to the Capital Guidelines,[5] the proposed rule provided that, for purposes of determining compliance with Policy Statement requirements, a qualifying small BHC could exclude from debt an amount of subordinated debt associated with trust preferred securities equaling up to 25 percent of the small BHC's stockholders' equity (as defined in the Policy Statement) less parent company goodwill.[6] In addition, in order to give qualifying small BHCs sufficient time to conform their debt structures, the Board proposed to provide for a five-year transition period during which all subordinated debt associated with trust preferred securities issued on or prior to the publication date of the proposed rule (September 8, 2005) would not be considered debt under the Policy Statement. However, the proposed rule also provided that this temporary non-debt status would terminate if the qualifying small BHC issued additional subordinated debt associated with a new issuance of trust preferred securities after the date of the proposed rule.

Overall, commenters did not object to the proposed treatment of subordinated debt under the Policy Statement. However, several commenters recommended changes to the transition period and related conditions for existing subordinated debt associated with trust preferred securities. For example, one commenter recommended that existing subordinated debt of this type should be permanently grandfathered, while another recommended extending the transition period to ten years so that small BHCs would have more time to conform their debt structures. Several others recommended that the transition period be amended to include debt outstanding on the date of issuance of the *final* rule (or even up to 90 days after its issuance) so that companies would have time to restructure or complete issuances pending on the date of the proposed rule without being penalized under the rule change. Commenters also recommended that small BHCs be allowed to refinance existing trust preferred securities during the transition period to lower their interest costs without losing the exempted status of any associated subordinated debt.

Several hundred BHCs with assets under $500 million have issued trust preferred securities to date. The Board believes that permanently grandfathering existing subordinated debt associated with trust preferred securities would provide these small BHCs with an unfair competitive advantage and would not be prudent for supervisory purposes. The Board continues to believe that five years is sufficient time for small BHCs to conform their existing debt structures. Such a transition period generally would be consistent with the five-year transition period afforded to larger BHCs to meet the Board's risk-based capital guidelines with respect to trust preferred securities.[7] However, in order to provide for equitable treatment of trust preferred issuances pending on the date of the proposed rule, the Board has decided to provide for a five-year transition period during which subordinated debt associated with trust preferred securities issued on or prior to December 31, 2005, would not be considered debt under the Policy Statement. Small BHCs may also refinance existing issuances of trust preferred securities without losing the exempt status of the related subordinated debt under the Policy Statement during the transition period

[3] Trust preferred securities are undated cumulative preferred securities issued out of a special purpose entity, usually in the form of a trust, in which a BHC owns all of the common securities. The special purpose entity's sole asset is a deeply subordinated note issued by the BHC that typically has a fixed maturity of 30 years.

[4] The Board also would consider subordinated debt associated with the issuance of trust preferred securities as covered by any supervisory debt commitments with the Federal Reserve.

[5] A BHC that is subject to the Capital Guidelines generally may count an amount of qualifying trust preferred securities as tier 1 capital up to 25 percent of the sum of the BHC's core capital elements. 12 CFR part 225, appendix A, § II.A.1.b.

[6] For example, assume the parent company only financial statements of a qualifying small BHC include subordinated debt associated with trust preferred securities of $200, other debt of $75, stockholders' equity of $300, and goodwill of $100. The numerator of the debt to equity ratio of the company for purposes of the Policy Statement would equal $225 or ($75 + ($200 − (($300 − $100) × .25))). The denominator of the debt to equity ratio would be $300.

[7] *See* 12 CFR part 225, appendix A, § II.A.1.b.ii.

as long as the amount of the subordinated debt does not increase.

Small BHC Regulatory Reporting

To assist the Federal Reserve in monitoring the financial health and operations of BHCs, the Board requires all BHCs to file certain regulatory reports with the Federal Reserve. One of the most important of the Federal Reserve reporting requirements is the Financial Statements for Bank Holding Companies (FR Y–9 series of reports; OMB No. 7100–0128). Currently, BHCs that have consolidated assets of less than $150 million (and that also meet qualitative criteria similar to those in the Policy Statement) generally submit limited summary parent-only financial data semiannually on the FR Y–9SP. Currently, BHCs with consolidated assets of $150 million or more must submit parent only financial data on the FR Y–9LP and consolidated financial data on the FR Y–9C quarterly.

The Federal Reserve has issued a notice whereby it has proposed to revise the reporting requirements for the FR Y–9 series of reports for 2006 (2006 proposal).[8] If these reporting revisions are adopted, they would increase the FR Y–9SP reporting threshold from $150 million to $500 million in consolidated assets and conform the FR Y–9SP reporting exception criteria to the proposed qualitative exception criteria under the Policy Statement and the Capital Guidelines. Under the 2006 proposal, BHCs that meet the criteria for filing the FR Y–9SP would be exempt from filing the FR Y–9LP and FR Y–9C. Conversely, BHCs subject to the Capital Guidelines, including small BHCs that do not qualify under the revised Policy Statement and qualifying small BHCs that voluntarily elect to comply with the Capital Guidelines, would file the FR Y–9LP and the FR Y–9C on a quarterly basis.

Conforming Amendments

A number of documentation, filing, and other provisions in Regulation Y are triggered by the consolidated asset threshold established by the Board's Small Bank Holding Company Policy Statement. These provisions include, for example, the notice procedures for one-bank holding company formations in 12 CFR 225.17(a)(6). The Board has made technical and conforming amendments to these provisions to provide that qualifying small BHCs may take advantage of the streamlined informational and notice requirements embodied in these rules. These technical and conforming amendments are a logical outgrowth of the revisions to the Policy Statement and the Capital Guidelines issued for public comment and, moreover, will provide relief to most bank holding companies with consolidated total assets of between $150 million and $500 million.

Regulatory Flexibility Act Analysis

Pursuant to section 605(b) of the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*), the Board has determined the rule would not have a significant impact on a substantial number of small entities, as defined in the Regulatory Flexibility Act. In this regard, the rule would reduce regulatory burden by exempting most BHCs with total consolidated assets of between $150 million and $500 million from the application of the Board's Capital Guidelines. Although the rule will treat subordinated debt associated with trust preferred securities as debt for most purposes under the Policy Statement, the final rule provides a substantial five-year transition period for subordinated debt associated with trust preferred securities issued on or prior to December 31, 2005.

Paperwork Reduction Act

In accordance with the Paperwork Reduction Act of 1995 (44 U.S.C. 3506; 5 CFR 1320 Appendix A.1.), the Board has reviewed this rulemaking under the authority delegated to the Board by the Office of Management and Budget. The Board has determined that the rule does not involve a collection of information pursuant to the provisions of the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*).

Plain Language

Section 722 of the Gramm-Leach-Bliley Act requires the Federal banking agencies to use ''plain language'' in all proposed and final rules published after January 1, 2000. Accordingly, the Board has sought to present the rule in a simple and straightforward manner.

List of Subjects in 12 CFR Part 225

Administrative practice and procedure, Banks, banking, Federal Reserve System, Holding companies, Reporting and recordkeeping requirements, Securities.

Federal Reserve System

12 CFR Chapter II

Authority and Issuance

■ For the reasons set forth in the preamble, part 225 of chapter II of title 12 of the Code of Federal Regulations is amended as set forth below:

PART 225—BANK HOLDING COMPANIES AND CHANGE IN BANK CONTROL (REGULATION Y)

■ 1. The authority citation for part 225 continues to read as follows:

Authority: 12 U.S.C. 1817(j)(13), 1818, 1828(o), 1831i, 1831p–1, 1843(c)(8), 1844(b), 1972(1), 3106, 3108, 3310, 3331–3351, 3907, and 3909; 15 U.S.C. 6801 and 6805.

■ 2. In § 225.2, footnote 2 is revised to read as follows:

§ 225.2 Definitions.

* * * * *

[2] For purposes of this subpart and subparts B and C of this part, a bank holding company with consolidated assets of less than $500 million that is subject to the Small Bank Holding Company Policy Statement in Appendix C of this part will be deemed to be ''well-capitalized'' if the bank holding company meets the requirements for expedited/waived processing in Appendix C.

* * * * *

■ 3. Section 225.4(b)(2)(iii) is revised as follows:

§ 225.4 Corporate practices.

* * * * *

(b) * * *

(2) * * *

(iii) (A) If the bank holding company has consolidated assets of $500 million or more, consolidated *pro forma* risk-based capital and leverage ratio calculations for the bank holding company as of the most recent quarter, and, if the redemption is to be debt funded, a parent-only *pro forma* balance sheet as of the most recent quarter; or

(B) If the bank holding company has consolidated assets of less than $500 million, a *pro forma* parent-only balance sheet as of the most recent quarter, and, if the redemption is to be debt funded, one-year income statement and cash flow projections.

* * * * *

■ 4. Section 225.14(a)(1)(v) is revised as follows:

§ 225.14 Expedited action for certain bank acquisitions by well-run bank holding companies.

(a) * * *

(1) * * *

(v)(A) If the bank holding company has consolidated assets of $500 million or more, an abbreviated consolidated *pro forma* balance sheet as of the most recent quarter showing credit and debit adjustments that reflect the proposed transaction, consolidated *pro forma* risk-based capital ratios for the acquiring bank holding company as of the most recent quarter, and a

[8] 70 FR 66423, November 2, 2005. Comments on this proposal were due by January 3, 2006.

description of the purchase price and the terms and sources of funding for the transaction;

(B) If the bank holding company has consolidated assets of less than $500 million, a *pro forma* parent-only balance sheet as of the most recent quarter showing credit and debit adjustments that reflect the proposed transaction, and a description of the purchase price, the terms and sources of funding for the transaction, and the sources and schedule for retiring any debt incurred in the transaction;

* * * * *

■ 5. In § 225.17, footnote 5 is revised to read as follows:

§ 225.17 Notice procedure for one-bank holding company formations.

* * * * *

[5] For a banking organization with consolidated assets, on a *pro forma* basis, of less than $500 million (other than a banking organization that will control a de novo bank), this requirement is satisfied if the proposal complies with the Board's Small Bank Holding Company Policy Statement (Appendix C of this part).

* * * * *

■ 6. Section 225.23(a)(1)(iii)(A) and (B) are revised as follows:

§ 225.23 Expedited action for certain nonbanking proposals by well-run bank holding companies.

(a) * * *

(1) * * *

(iii) * * *

(A) If the bank holding company has consolidated assets of $500 million or more, an abbreviated consolidated *pro forma* balance sheet for the acquiring bank holding company as of the most recent quarter showing credit and debit adjustments that reflect the proposed transaction, consolidated *pro forma* risk-based capital ratios for the acquiring bank holding company as of the most recent quarter, a description of the purchase price and the terms and sources of funding for the transaction, and the total revenue and net income of the company to be acquired;

(B) If the bank holding company has consolidated assets of less than $500 million, a *pro forma* parent-only balance sheet as of the most recent quarter showing credit and debit adjustments that reflect the proposed transaction, a description of the purchase price and the terms and sources of funding for the transaction and the sources and schedule for retiring any debt incurred in the transaction, and the total assets, off-balance sheet items, revenue and net income of the company to be acquired;

* * * * *

■ 7. Appendix A to part 225 is amended as follows:

■ a. In section I, the fifth undesignated paragraph is revised.

■ b. In section I, footnote 4 is removed and reserved.

■ c. In section IV.A, footnote 64 is revised.

Appendix A to Part 225—Capital Adequacy Guidelines for Bank Holding Companies: Risk-Based Measure

I. Overview

* * * * *

The risk-based guidelines apply on a consolidated basis to any bank holding company with consolidated assets of $500 million or more. The risk-based guidelines also apply on a consolidated basis to any bank holding company with consolidated assets of less than $500 million if the holding company (i) is engaged in significant nonbanking activities either directly or through a nonbank subsidiary; (ii) conducts significant off-balance sheet activities (including securitization and asset management or administration) either directly or through a nonbank subsidiary; or (iii) has a material amount of debt or equity securities outstanding (other than trust preferred securities) that are registered with the Securities and Exchange Commission (SEC). The Federal Reserve may apply the risk-based guidelines at its discretion to any bank holding company, regardless of asset size, if such action is warranted for supervisory purposes.[4]

* * * * *

[4] [Reserved].

* * * * *

IV. Minimum Supervisory Ratios and Standards

* * * * *

A. Minimum Risk-Based Ratio After Transition Period

* * * * *

[64] As noted in section I, bank holding companies with less than $500 million in consolidated assets would generally be exempt from the calculation and analysis of risk-based ratios on a consolidated holding company basis, subject to certain terms and conditions.

* * * * *

■ 8. Appendix C to part 225 is amended as follows:

■ a. In section 1, the first undesignated paragraph is revised.

■ b. In section 1, footnote 1 is removed and reserved.

■ c. In section 2.A., a new paragraph is added after the first paragraph in footnote 3.

Appendix C to Part 225—Small Bank Holding Company Policy Statement

* * * * *

1. * * *

This policy statement applies only to bank holding companies with *pro forma* consolidated assets of less than $500 million that (i) are not engaged in significant nonbanking activities either directly or through a nonbank subsidiary; (ii) do not conduct significant off-balance sheet activities (including securitization and asset management or administration) either directly or through a nonbank subsidiary; and (iii) do not have a material amount of debt or equity securities outstanding (other than trust preferred securities) that are registered with the Securities and Exchange Commission. The Board may in its discretion exclude any bank holding company, regardless of asset size, from the policy statement if such action is warranted for supervisory purposes.[1]

* * * * *

[1] [Reserved].

* * * * *

2. * * *

A. * * *

[3] * * *

Subordinated debt associated with trust preferred securities generally would be treated as debt for purposes of paragraphs 2.C., 3.A., 4.A.i, and 4.B.i. of this policy statement. A bank holding company, however, may exclude from debt an amount of subordinated debt associated with trust preferred securities up to 25 percent of the holding company's equity (as defined below) less goodwill on the parent company's balance sheet in determining compliance with the requirements of such paragraphs of the policy statement. In addition, a bank holding company subject to this Policy Statement that has not issued subordinated debt associated with a new issuance of trust preferred securities after December 31, 2005 may exclude from debt any subordinated debt associated with trust preferred securities until December 31, 2010. Bank holding companies subject to this Policy Statement may also exclude from debt until December 31, 2010, any subordinated debt associated with refinanced issuances of trust preferred securities originally issued on or prior to December 31, 2005, provided that the refinancing does not increase the bank holding company's outstanding amount of subordinated debt. Subordinated debt associated with trust preferred securities will not be included as debt in determining compliance with any other requirements of this policy statement.

* * * * *

■ 9. Appendix D to part 225 is amended as follows:

■ a. In section I., paragraph b. is revised.

■ b. In section I.b., footnote 2 is removed and reserved.

Appendix D to Part 225—Capital Adequacy Guidelines for Bank Holding Companies: Tier 1 Leverage Measure

I. Overview

* * * * *

b. The tier 1 leverage guidelines apply on a consolidated basis to any bank holding company with consolidated assets of $500 million or more. The tier 1 leverage guidelines also apply on a consolidated basis to any bank holding company with

consolidated assets of less than $500 million if the holding company (i) is engaged in significant nonbanking activities either directly or through a nonbank subsidiary; (ii) conducts significant off-balance sheet activities (including securitization and asset management or administration) either directly or through a nonbank subsidiary; or (iii) has a material amount of debt or equity securities outstanding (other than trust preferred securities) that are registered with the Securities and Exchange Commission. The Federal Reserve may apply the tier 1 leverage guidelines at its discretion to any bank holding company, regardless of asset size, if such action is warranted for supervisory purposes.[2]

* * * * *

[2] [Reserved].

* * * * *

By order of the Board of Governors of the Federal Reserve System, February 22, 2006.

Jennifer J. Johnson,

Secretary of the Board.

[FR Doc. 06–1837 Filed 2–27–06; 8:45 am]

BILLING CODE 6210–02–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. NM339; Special Conditions No. 25–313–SC]

Special Conditions: Cessna Aircraft Company Model 501 and 551 Airplanes; High Intensity Radiated Fields (HIRF)

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions; request for comments.

SUMMARY: These special conditions are issued for Cessna Aircraft Company Model 501 and 551 series airplanes modified by Elliott Aviation Technical Product Development, Inc. These airplanes will have novel and unusual design features when compared to the state of technology envisioned in the airworthiness standards for transport category airplanes. The modification incorporates the installation of Universal Aviation Electronic Flight Display Systems. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for the protection of these systems from the effects of high-intensity-radiated fields (HIRF). These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

DATES: The effective date of these special conditions is February 9, 2006. Comments must be received on or before March 30, 2006.

ADDRESSES: Comments on these special conditions may be mailed in duplicate to: Federal Aviation Administration, Transport Airplane Directorate, Attn: Rules Docket (ANM–113), Docket No. NM339, 1601 Lind Avenue, SW., Renton, Washington, 98055–4056; or delivered in duplicate to the Transport Airplane Directorate at the above address. Comments must be marked: Docket No. NM339.

FOR FURTHER INFORMATION CONTACT: Greg Dunn, FAA, Airplane and Flight Crew Interface Branch, ANM–111, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue SW., Renton, Washington, 98055–4056; telephone (425) 227–2799; facsimile (425) 227–1149.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA has determined that notice and opportunity for prior public comment is impracticable because these procedures would significantly delay certification of the airplanes and thus delivery of the affected aircraft. In addition, the substance of these special conditions has been subject to the public comment process in several prior instances with no substantive comments received. The FAA therefore finds that good cause exists for making these special conditions effective upon issuance; however, we invite interested persons to participate in this rulemaking by submitting written comments, data, or views. The most helpful comments reference a specific portion of the special conditions, explain the reason for any recommended change, and include supporting data. We ask that you send us two copies of written comments.

We will file in the docket all comments we receive, as well as a report summarizing each substantive public contact with FAA personnel concerning these special conditions. The docket is available for public inspection before and after the comment closing date. If you wish to review the docket in person, go to the address in the **ADDRESSES** section of this preamble between 7:30 a.m. and 4 p.m. Monday through Friday, except Federal holidays.

We will consider all comments we receive on or before the closing date for comments. We will consider comments filed late if it is possible to do so without incurring expense or delay. We may change these special conditions in light of the comments received.

If you want the FAA to acknowledge receipt of your comments on these special conditions, include with your comments a pre-addressed, stamped postcard on which the docket number appears. We will stamp the date on the postcard and mail it back to you.

Background

On December 6, 2005, Elliott Aviation Technical Product Development, Inc., Quad City Airport, P.O. Box 100, Moline, Illinois 61266, applied for a supplemental type certificate (STC) to modify Cessna Aircraft Company Model 501 and 551 airplanes. These models are currently approved under Type Certificate No. A27CE. These Cessna airplane models are small transport category airplanes. The Cessna Model 501 and 551 series airplanes are powered by turbine engines with a maximum takeoff weight of 11,850 pounds (model 501) and 12,500 pounds (model 551). These airplanes operate with one-to two-pilot crews and seat up to 9 passengers in Model 501 and up to 11 passengers in Model 551. The modification incorporates the installation of the Universal Avionics Electronic Display Systems. The avionics/electronics and electrical systems installed in these airplanes have the potential to be vulnerable to high-intensity radiated fields (HIRF) external to the airplanes.

Type Certification Basis

Under the provisions of 14 CFR 21.101, Elliott Aviation must show that the Cessna Aircraft Company Model 501 and 551 series airplanes, as changed, continue to meet the applicable provisions of the regulations incorporated by reference in Type Certificate No. A27CE, or the applicable regulations in effect on the date of application for the change. The regulations incorporated by reference in the type certificate are commonly referred to as the ''original type certification basis.'' The certification basis for the Cessna Model 501 series airplanes includes part 23 of 14 CFR effective February 1, 1965, as amended by amendments 23–1 through 23–16 except as follows: delete §§ 23.45 through 23.77, 23.831, 23.1091(c)(2), 23.1303, 23.1323, 23.1441 through 23.1449, 23.1581 through 23.1583(f), and 23.1583(h) through 23.1587; and add §§ 23.1385 as amended through amendment 23–20; and add part 25 of 14 CFR effective February 1, 1965, as amended by amendments 25–1 through 25–17; §§ 25.1195, 25.1199 and 25.1203 as amended by amendments 25–1 through 25–37; §§ 25.101 through 25.125, 25.831, 25.934, 25.1091(d)(2),

25.1197, 25.1201, 25.1303, 25.1305(a)(7), 25.1323, 25.1439 through 25.1453, 25.1581 through 25.1583(c)(3), and §§ 25.1583(e) through 25.1587.

The certification basis for the Cessna Model 551 series airplanes includes part 23 of 14 CFR effective February 1, 1965, as amended by amendments 23–1 through 23–16 except as follows: delete §§ 23.21 through 23.31, 23.45 through 23.77, 23.157, 23.171 through 23.177, 23.251, 23.345, 23.351, 23.361, 23.471 through 23.511, 23.571, 23.572, 23.629, 23.679, 23.723 through 23.737, 23.773, 23.775, 23.777, 23.783, 23.807, 23.831, 23.903(c), 23.1091(c)(2), 23.1301, 23.1303, 23.1307, 23.1309, 23.1321, 23.1323, 23.1325, 23.1385(c), 23.1435, 23.1441 through 23.1449, 23.1581 through 23.1583(f), 23.1583(i) through 23.1587; and add §§ 23.1143(e) and 23.1385(c) as amended through amendment 23–18 and 23.1301 and 23.1335 as amended through amendment 23–20; and add from part 25 of 14 CFR effective February 1, 1965, as amended by amendments 25–1 through 25–17, §§ 25.812, 25.863, 25.1195, 25.1199, 25.1203, 25.1309, and 25.1435; as amended by amendment 25–1 through 25–37, §§ 25.21 through 25.31, 25.101 through 25.125, 25.147(c)(e), 25.171 through 25.177, 25.251, 25.305(c), 25.345, 25.351, 25.361, 25.471 through 25.511, 25.571, 25.573, 25.629, 25.679, 25.721 through 25.737, 25.773, 25.775, 25.777, 25.783, 25.807, 25.831, 25.851, 25.903(b)(d), 25.934, 25.1091(d)(2), 25.1189(g)(h), 25.1197, 25.1201, 25.1303, 25.1305(a)(7), 25.1305(c)(4), 25.1307, 25.1321, 25.1323, 25.1325, 25.1439 through 25.1453, 25.1581 through 25.1583(c)(3), 25.1583(f) through 25.1587, and §§ 25.901(c), 25.903(e)(3), and 25.1351(d) as amended through amendment 25–41.

In addition, the certification basis includes certain later amended sections of the applicable part 25 regulations that are not relevant to these special conditions.

If the Administrator finds that the applicable airworthiness regulations (*i.e.*, part 25, as amended) do not contain adequate or appropriate safety standards for modified Cessna Aircraft Company Model 501 and 551 airplanes because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

In addition to the applicable airworthiness regulations and special conditions, the Cessna Model 501 and 551 airplanes must comply with the fuel vent and exhaust emission requirements of 14 CFR part 34 and the noise certification requirements of 14 CFR part 36.

Special conditions, as defined in 14 CFR 11.19, are issued in accordance with § 11.38, and become part of the type certification basis in accordance with § 21.101.

Special conditions are initially applicable to the model for which they are issued. Should Elliott Aviation Technical Product Development, Inc. apply at a later date for a supplemental type certificate to modify any other model included on Type Certificate No. A27CE to incorporate the same novel or unusual design feature, these special conditions would also apply to the other model under the provisions of § 21.101.

Novel or Unusual Design Features

As noted earlier, the Cessna Aircraft Company Model 501 and 551 series airplanes modified by Elliott Aviation will incorporate electronic displays with Universal Aviation Electronic Flight Display Systems that will perform critical functions. These systems may be vulnerable to high-intensity radiated fields external to the airplane. The current airworthiness standards of part 25 do not contain adequate or appropriate safety standards for the protection of this equipment from the adverse effects of HIRF. Accordingly, this system is considered to be a novel or unusual design feature.

Discussion

There is no specific regulation that addresses protection requirements for electronic and electrical systems from HIRF. Increased power levels from ground-based radio transmitters and the growing use of sensitive avionics/electronics and electrical systems to command and control airplanes have made it necessary to provide adequate protection.

To ensure that a level of safety is achieved equivalent to that intended by the regulations incorporated by reference, special conditions are needed for the Cessna Model 501 and 551 airplanes modified by Elliott Aviation. These special conditions require that new avionics/electronics and electrical systems that perform critical functions be designed and installed to preclude component damage and interruption of function due to both the direct and indirect effects of HIRF.

High-Intensity Radiated Fields (HIRF)

With the trend toward increased power levels from ground-based transmitters, and the advent of space and satellite communications, coupled with electronic command and control of the airplane, the immunity of critical digital avionics/electronics and electrical systems to HIRF must be established.

It is not possible to precisely define the HIRF to which the airplane will be exposed in service. There is also uncertainty concerning the effectiveness of airframe shielding for HIRF. Furthermore, coupling of electromagnetic energy to cockpit-installed equipment through the cockpit window apertures is undefined. Based on surveys and analysis of existing HIRF emitters, an adequate level of protection exists when compliance is shown with either HIRF protection special condition paragraph 1 or 2 below:

1. A minimum threat of 100 volts rms (root-mean-square) per meter electric field strength from 10 KHz to 18 GHz.

a. The threat must be applied to the system elements and their associated wiring harnesses without the benefit of airframe shielding.

b. Demonstration of this level of protection is established through system tests and analysis.

2. A threat external to the airframe of the field strengths identified in the table below for the frequency ranges indicated. Both peak and average field strength components from the table are to be demonstrated.

Frequency	Field strength (volts per meter)	
	Peak	Average
10 kHz–100 kHz	50	50
100 kHz–500 kHz	50	50
500 kHz–2 MHz	50	50
2 MHz–30 MHz	100	100
30 MHz–70 MHz	50	50
70 MHz–100 MHz	50	50
100 MHz–200 MHz	100	100
200 MHz–400 MHz	100	100
400 MHz–700 MHz	700	50
700 MHz–1 GHz	700	100
1 GHz–2 GHz	2000	200
2 GHz–4 GHz	3000	200
4 GHz–6 GHz	3000	200
6 GHz–8 GHz	1000	200
8 GHz–12 GHz	3000	300
12 GHz–18 GHz	2000	200
18 GHz–40 GHz	600	200

The field strengths are expressed in terms of peak of the root-mean-square (rms) over the complete modulatoin period.

The threat levels identified above are the result of an FAA review of existing studies on the subject of HIRF, in light of the ongoing work of the Electromagnetic Effects Harmonization Working Group of the Aviation Rulemaking Advisory Committee.

Applicability

As discussed above, these special conditions are applicable to the Cessna Aircraft Company Model 501 and 551

series airplanes. Should Elliott Aviation Technical Product Development apply at a later date for a supplemental type certificate to modify any other model included on Type Certificate No. A27CEU to incorporate the same or similar novel or unusual design feature, these special conditions would apply to that model as well under the provisions of § 21.101.

Conclusion

This action affects only certain novel or unusual design features on the Cessna Model 501 and 551 series airplanes modified by Elliott Aviation Technical Product Development. It is not a rule of general applicability and affects only the applicant who applied to the FAA for approval of these features on the airplane.

The substance of the special conditions for these airplanes has been subjected to the notice and comment procedure in several prior instances and has been derived without substantive change from those previously issued. Because a delay would significantly affect the certification of the airplane, which is imminent, the FAA has determined that prior public notice and comment are unnecessary and impracticable, and good cause exists for adopting these special conditions upon issuance. The FAA is requesting comments to allow interested persons to submit views that may not have been submitted in response to the prior opportunities for comment described above.

List of Subjects in 14 CFR Part 25

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

■ The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701, 44702, 44704.

The Special Conditions

■ Accordingly, pursuant to the authority delegated to me by the Administrator, the following special conditions are issued as part of the supplemental type certification basis for the Cessna Aircraft Company Model 501 and 551 airplanes modified by Elliott Aviation Technical Product Development, Inc.

1. *Protection from Unwanted Effects of High-Intensity Radiated Fields (HIRF).* Each electronic and electrical system that performs critical functions must be designed and installed to ensure that the operation and operational capability of these systems to perform critical functions are not adversely affected when the airplane is exposed to high intensity radiated fields.

2. For the purpose of these special conditions, the following definition applies: *Critical Functions:* Functions whose failure would contribute to or cause a failure condition that would prevent the continued safe flight and landing of the airplane.

Issued in Renton, Washington, on February 9, 2006.

Kalene C. Yanamura,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 06–1810 Filed 2–27–06; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. NM338, Special Conditions No. 25–312–SC]

Special Conditions: Raytheon Aircraft Company Model BAe.125 Series 800A; High-Intensity Radiated Fields (HIRF)

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions; request for comments.

SUMMARY: These special conditions are issued for Raytheon Aircraft Company Model BAe.125 Series 800A airplanes modified by Duncan Aviation Inc. These modified airplanes will have a novel or unusual design feature when compared to the state of technology envisioned in the airworthiness standards for transport category airplanes. The modification incorporates the installation of the Honeywell Primus Epic CDS/R Display System. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for protecting these systems from the effects of high-intensity radiated fields (HIRF). These special conditions contain the additional safety standards the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

DATES: The effective date of these special conditions is February 9, 2006. We must receive your comments by March 30, 2006.

ADDRESSES: You must mail two copies of your comments to: Federal Aviation Administration, Transport Airplane Directorate, Attention: Rules Docket (ANM–113), Docket No. NM338, 1601 Lind Avenue SW., Renton, Washington 98055–4056. You may deliver two copies to the Transport Airplane Directorate at the address indicated above. You must mark your comments: Docket No. NM388. You can inspect comments in the Rules Docket weekdays, except Federal Holidays, between 7:30 a.m. and 4 p.m.

FOR FURTHER INFORMATION CONTACT: Greg Dunn, FAA, Airplane and Flight Crew Interface Branch, ANM–111, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue SW., Renton, Washington 98055–4056; telephone (425) 227–2799; facsimile (425) 227–1320.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA has determined that notice and opportunity for prior public comment is impracticable because these procedures would significantly delay certification of the airplane and thus delivery of the affected aircraft. In addition, the substance of these special conditions has been subject to the public comment process in several prior instances with no substantive comments received. The FAA therefore finds that good cause exists for making these special conditions effective upon issuance; however, we invite interested persons to take part in this rulemaking by sending written comments, data, or views. The most helpful comments reference a specific portion of the special conditions, explain the reason for any recommended change, and include supporting data. We ask that you send us two copies of written comments.

We will file in the docket all comments we receive, as well as a report summarizing each substantive public contact with FAA personnel concerning these special conditions. You may inspect the docket before and after the comment closing date. If you wish to review the docket in person, go to the address in the **ADDRESSES** section of this preamble between 7:30 a.m. and 4 p.m., Monday through Friday, except Federal holidays.

We will consider all comments we receive by the closing date for comments. We will consider comments filed late if it is possible to do so without incurring expense or delay. We may change these special conditions based on the comments we receive.

If you want the FAA to acknowledge receipt of your comments on these special conditions, include with your comments a pre-addressed, stamped postcard on which the docket number appears. We will stamp the date on the postcard and mail it back to you.

Background

On October 15, 2005, Duncan Aviation, Inc., 3701 Aviation Road, Lincoln, NE 68524, applied for a supplemental type certificate (STC) to modify Raytheon Aircraft Company Model BAe.125 Series 800A airplanes currently approved under Type Certificate No. A3EU. The Model BAe.125 Series 800A airplanes are small transport category airplanes. They are powered by two turbojet engines, with maximum takeoff weight of 31,000 pounds as modified by Modification No. 253379A or 26,866 pounds as modified by Modification No. 25B047A. These airplanes operate with 2-person crew and can seat up to 15 passengers. The proposed modification is to install Honeywell Primus EPIC Cockpit Display System. The avionics/electronics and electrical systems installed in this airplane have the potential to be vulnerable to high-intensity radiated fields (HIRF) external to the airplane.

Type Certification Basis

Under 14 CFR 21.101, Duncan Aviation, Inc. must show the Raytheon Aircraft Company Model BAe.125 Series 800A aircraft, as changed, continue to meet the applicable provisions of the regulations incorporated by reference in Type Certificate No. A3EU. They must also continue to meet the applicable regulations in effect on the date of application for the change. We commonly refer to the regulations incorporated by reference in the type certificate as the ''original type certification basis.'' The regulations incorporated by reference in Type Certificate No. A3EU include Part 10 of the British Civil Airworthiness Requirements. This certification is equivalent to Civil Air Regulations (CAR) 4b dated December 1953, as amended by Amendment 4b-1 through Amendment 4b-11, exclusive of CAR 4b 350(e). It includes Special Regulation SR 422B. In addition, the certification basis includes certain later amendments to 14 CFR part 25 that are not relevant to these special conditions.

If the Administrator finds that the applicable airworthiness regulations (i.e., part 25, amended) do not contain adequate or appropriate safety standards for the Duncan Aviation, Inc., Raytheon Aircraft Company Model Bae.125, Series 800A airplanes, because of a novel or unusual design feature, special conditions are prescribed under § 21.16.

Besides the applicable airworthiness regulations and special conditions, the Raytheon Aircraft Company Model BAe.125, Series 800A airplanes, must comply with the fuel vent exhaust emission requirements of 14 CFR part 34. It must also comply with the noise certification requirements of 14 CFR part 36.

We issue special conditions, as defined in 14 CFR 11.19, under § 11.38 and they become part of the type certification basis under § 21.101.

Special conditions are initially applicable to the model for which they are issued. Should Duncan Aviation Inc., apply later for a supplemental type certificate to modify any other model included on Type Certificate No. A3EU to incorporate the same or similar novel or unusual design feature, these special conditions would also apply to the other model under § 21.101.

Novel or Unusual Design Features

As noted earlier, the Raytheon Aircraft Company Model BAe.125 Series 800A aircraft, as modified by Duncan Aviation, Inc., will incorporate the Honeywell Primus EPIC Cockpit Display System. The EPIC Displays perform critical functions. These systems may be vulnerable to high-intensity radiated fields external to the airplane. The current airworthiness standards of part 25 do not contain adequate or appropriate safety standards for the protection of this equipment from the adverse effects of HIRF. Therefore, we consider this system to be a novel or unusual design feature.

Discussion

There is no specific regulation that addresses protection requirements for electrical and electronic systems from HIRF. Increased power levels from ground-based radio transmitters and the growing use of sensitive avionics/electronics and electrical systems to command and control airplanes have made it necessary to provide adequate protection.

To ensure that a level of safety is achieved equivalent to that intended by the regulations incorporated by reference, special conditions are needed for the Raytheon Aircraft Company Model BAe.125 Series 800A airplanes as modified by Duncan Aviation, Inc. These special conditions require that new avionics/electronics and electrical systems that perform critical functions be designed and installed to preclude component damage and interruption of function because of both the direct and indirect effects of HIRF.

High-Intensity Radiated Fields (HIRF)

With the trend toward increased power levels from ground-based transmitters, and the advent of space and satellite communications, coupled with electronic command and control of the airplane, the immunity of critical avionics/electronics and electrical systems to HIRF must be established.

It is not possible to precisely define the HIRF to which the airplane will be exposed in service. There is also uncertainty concerning the effectiveness of airframe shielding for HIRF. Furthermore, coupling of electromagnetic energy to cockpit-installed equipment through the cockpit window apertures is undefined. Based on surveys and analysis of existing HIRF emitters, an adequate level of protection exists when compliance with the HIRF protection special condition is shown with either paragraph 1 OR 2 below:

1. A minimum threat of 100 volts rms (root-mean-square) per meter electric field strength from 10 KHz to 18 GHz.

a. The threat must be applied to the system elements and their associated wiring harnesses without the benefit of airframe shielding.

b. Demonstration of this level of protection is established through system tests and analysis.

2. A threat external to the airframe of the field strengths identified in the table below for the frequency ranges indicated. Both peak and average field strength components from the table are to be demonstrated.

Frequency	Field strength (volts per meter)	
	Peak	Average
10 kHz–100 kHz	50	50
100 kHz–500 kHz	50	50
500 kHz–2 MHz	50	50
2 MHz–30 MHz	100	100
30 MHz–70 MHz	50	50
70 MHz–100 MHz	50	50
100 MHz–200 MHz	100	100
200 MHz–400 MHz	100	100
400 MHz–700 MHz	700	50
700 MHz–1 GHz	700	100
1 GHz–2 GHz	2000	200
2 GHz–4 GHz	3000	200
4 GHz–6 GHz	3000	200
6 GHz–8 GHz	1000	200
8 GHz–12 GHz	3000	300
12 GHz–18 GHz	2000	200
18 GHz–40 GHz	600	200

The field strengths are expressed in terms of peak of the root-mean-square (rms) over the complete modulation period.

The threat levels identified above are the result of an FAA review of existing studies on the subject of HIRF, in light of the ongoing work of the Electromagnetic Effects Harmonization Working Group of the Aviation Rulemaking Advisory Committee.

Applicability

As discussed above, these special conditions are applicable to Raytheon Aircraft Company Model BAe.125 Series

800A airplanes modified by Duncan Aviation, Inc. Should Duncan Aviation, Inc. apply later for a supplemental type certificate to modify any other model included on Type Certificate No. A3EU to incorporate the same or similar novel or unusual design feature, these special conditions would apply to that model as well under § 21.101.

Conclusion

This action affects only certain novel or unusual design features on Raytheon Aircraft Company Model BAe.125 Series 800A airplanes as modified by Duncan Aviation, Inc. It is not a rule of general applicability and affects only the applicant who applied to the FAA for approval of these features on the airplane.

The substance of these special conditions has been subjected to the notice and comment procedure in several prior instances and has been derived without substantive change from those previously issued. Because a delay would significantly affect the certification of the airplane, which is imminent, the FAA has determined that prior public notice and comment are unnecessary and impracticable, and good cause exists for adopting these special conditions upon issuance. The FAA is requesting comments to allow interested persons to send views that may not have been sent in response to the prior opportunities for comment described above.

List of Subjects in 14 CFR Part 25

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701, 44702, 44704.

The Special Conditions

Accordingly, pursuant to the authority delegated to me by the Administrator, the following special conditions are issued as part of the supplemental type certification basis for Raytheon Aircraft Company Model BAe.125 Series 800A airplanes modified by Duncan Aviation, Inc.

1. *Protection from Unwanted Effects of High-Intensity Radiated Fields (HIRF).* Each electrical and electronic system that performs critical functions must be designed and installed to ensure that the operation and operational capability of these systems to perform critical functions are not adversely affected when the airplane is exposed to high-intensity radiated fields.

2. For the purpose of these special conditions, the following definition applies: *Critical Functions:* Functions whose failure would contribute to or cause a failure condition that would prevent the continued safe flight and landing of the airplane.

Issued in Renton, Washington, on February 9, 2006.

Kalene C. Yanamura,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 06–1808 Filed 2–27–06; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Parts 47 and 49

Federal Aviation Administration, Civil Aviation Registry, Aircraft Registration Branch Practices Related to the Cape Town Treaty

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice in regards to processes at the FAA, Civil Aviation Registry, Aircraft Registration Branch (Registry), in relation to implementation of the Cape Town Treaty (Treaty).

SUMMARY: On January 3, 2005, the FAA published final rules implementing the Cape Town Treaty. on February 17, 2006, the FAA published a notice advising that the Cape Town Treaty becomes effective for the United States on March 1, 2006. The FAA is publishing this document to advise interested persons of certain procedures in the Aircraft Registration Branch related to the Cape Town Treaty.

DATES: *Effective Date:* March 1, 2006.

FOR FURTHER INFORMATION CONTACT: Walter Binkley, Manager, Aircraft Registration Branch (AFS–750), Mike Monroney Aeronautical Center, Federal Aviation Administration (AFS–750), Post Office Box 25504, Oklahoma City, OK 73125. Telephone (405) 954–3131.

SUPPLEMENTARY INFORMATION: The Cape Town Treaty Implementation Act of 2004, Public Law 108–297, required conforming changes to the regulations concerning registration and deregistration of aircraft, among other things. The amendments have been made and published. The Registry is taking this opportunity to advise interested persons of the Registry's practices for processing certain documents related to the Cape Town Treaty. These matters are largely procedural in nature.

Acceptance of Instruments for Aircraft Objects Subject to the Treaty

Pursuant to amendments made to 14 CFR part 49, to include § 49.63, FAA requires that documents representing transactions meeting the requirements of subpart C of this part accompany the completed Entry Point Filing Form—International Registry, AC Form 8050–135, unless the form is submitted in connection with a notice of a prospective international interest. Because the Treaty does not enter into force for the United States until March 1, 2006, instruments completed prior to March 1, 2006, will continue to be processed in accordance with the Geneva Convention.

Interim List of Eligible Aircraft

Article 2 of the Convention on International Interests in Mobile Equipment provides for an international interest in certain categories of mobile equipment and associated rights. The convention refers to uniquely identifiable objects as designated in the Aircraft protocol to the Convention on International Interests in Mobile Equipment on Matters Specific to Aircraft Equipment (Protocol). Designated aircraft equipment includes:

(1) Airframes, that when appropriate aircraft engines are installed thereon, are type certified by the competent aviation authority to transport at least eight (8) persons including crew; or goods in excess of 2750 kilograms;

(2) Helicopters, heavier-than-air machines, supported in flight chiefly by the reactions of the air on one or more power-driven rotors on substantially vertical axes and which are type certified by the competent aviation authority to transport at least five (5) persons including crew; or goods in excess of 450 kilograms; and

(3) Aircraft engines, powered by jet propulsion or turbine or piston technology and:

(a) in the case of jet propulsion aircraft engines, have at least 1750 lb of thrust or its equivalent; and

(b) in the case of turbine-powered or piston-powered aircraft engines, have at least 550 rated take-off shaft horsepower or its equivalent.

Since a sanctioned comprehensive list prepared by an appropriate authority containing the manufacturer, model and serial number for each aircraft object subject to the Treaty has not yet been provided to the Contracting States; FAA will begin accepting documents related to the Cape Town Treaty on March 1, 2006, based on an interim updatable list of eligible aircraft objects compiled by the FAA. The eligibility of any aircraft

object not on the FAA list must be established before FAA will complete processing of documents related to the Cape Town Treaty.

Acceptance of FAA Entry Point Filing Form—International Registry, AC 8050–135

The FAA Civil Aviation Registry was designated by Congress as the exclusive entry point for transmitting information to the International Registry as provided for in the Treaty. The Cape Town Treaty Implementation Act of 2004 (Pub. L. 108–297) directed the FAA to establish a system for filing notices of international and prospective international interests, and authorizing parties to transmit information to the International Registry. To implement these requirements, the Registry requires the submission of a completed FAA Entry Point Filing Form—International Registry, AC Form 8050–135, to issue an authorization code. This code allows for the transmission of information to the International Registry with respect to civil aircraft of the United States, aircraft assigned a U.S. identification number (for prospective interests only), and aircraft engines with a rated takeoff horsepower of at least 550. Pursuant to 14 CFR part 49 subpart F, the acceptance of the FAA Entry Point Filing Form—International Registry, AC 8050–135, does not indicate agreement with or acceptance of any representations on the form.

Irrevocable De-Registration and Export Request Authorization (IDERA)

The Protocol provides for the acceptance and recordation of an IDERA that is substantially in the form annexed to the Protocol. FAA will not accept an IDERA that is not substantially in the form annexed to the Protocol. FAA will not accept an IDERA that is not linked to a specific instrument on file with the FAA. If the IDERA is not attached to and made a part of the instrument it relates to, it must include sufficient detail to identify the instrument (*e.g.,* reference to a recorded conveyance by number) to which it is linked.

Acknowledgment of acceptance of an IDERA by FAA is demonstrated by (1) the recording of the instrument that the IDERA is attached to and made a part of, or (2) if not filed as part of the instrument, but filed at a later time, the IDERA will be stamped with an ID/date stamp of an FAA Legal Instruments Examiner.

Written Certification Regarding Registered Interests Ranking in Priority

A written certification made pursuant to 14 CFR part 47, § 47.47(a)(3), must include the specific language contained in § 47.47(a)(3), in its entirety. However, a written certification made by the aircraft owner may be appropriately varied.

Additional Evidence To Deregister and Export Aircraft Subject to the Treaty

An authorized party under an IDERA on file with the FAA who requests deregistration and export of an aircraft must support the certification made under § 47.47(a)(3) by submitting a copy of the relevant International Registry Search Certificate along with evidence of the consent to export or discharge of lien from each registered lien holder ranking in priority to that of the requester, as evidenced by the Search Certificate.

An aircraft owner eligible to request deregistration and export of an aircraft subject to the Treaty must likewise support the certification made under § 47.47(a)(3) by submitting evidence of the consent to export or discharge of lien from each outstanding lien holder of any consensual lien on file in the aircraft record at the FAA.

The party requesting deregistration and export must be either the aircraft owner, as evidenced by documents on file at the FAA, or the authorized party under an IDERA on file at the FAA.

Issued in Oklahoma City, OK, on February 21, 2006.

Mark Lash,

Manager, Civil Aviation Registry.

[FR Doc. 06–1809 Filed 2–22–06; 3:55 pm]

BILLING CODE 4910–13–M

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 71

[Docket No. FAA–2005–23075; Airspace Docket No. 05–ASO–12]

Establishment of Class E Airspace; Nicholasville, KY

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: This action establishes Class E airspace at Nicholasville, KY. Area Navigation (RNAV) Global Positioning System (GPS) Standard Instrument Approach Procedures (SIAP) Runway (RWY) 9 and RWY 27 have been developed for Lucas Field Airport. As a result, controlled airspace extending upward from 700 feet Above Ground Level (AGL) is needed to contain the SIAPs and for Instrument Flight Rules (IFR) operations at Lucas Field Airport. The operating status of the airport will change from Visual Flight Rules (VFR) to include IFR operations concurrent with the publication of the SIAP.

DATES: *Effective Date:* 0901 UTC, June 8, 2006.

FOR FURTHER INFORMATION CONTACT: Mark D. Ward, Manager, Airspace and Operations Branch, Eastern En Route and Oceanic Service Area, Federal Aviation Administration, P.O. Box 20636, Atlanta, Georgia 30320; telephone (404) 305–5586.

SUPPLEMENTARY INFORMATION:

History

On December 14, 2005, the FAA proposed to amend part 71 of the Federal Aviation Regulations (14 CFR part 71) by establishing Class E airspace at Nicholasville, KY, (70 FR 73959). This action provides adequate Class E airspace for IFR operations at Lucas Field Airport. Designations for Class E airspace areas extending upward from 700 feet or more above the surface of the earth are published in FAA Order 7400.9N, dated September 1, 2005, and effective September 16, 2005, which is incorporated by reference in 14 CFR part 71.1. The Class E designations listed in this document will be published subsequently in the Order.

Interested parties were invited to participate in this rulemaking proceeding by submitting written comments on the proposal to the FAA. No comments objecting to the proposal were received.

The Rule

This amendment to part 71 of the Federal Aviation Regulations (14 CFR part 71) establishes Class E airspace at Nicholasville, KY.

The FAA has determined that this proposed regulation only involves an established body of technical regulations for which frequent and routine amendments are necessary to keep them operationally current. It, therefore, (1) is not a ''significant regulatory action'' under Executive Order 12866; (2) is not a ''significant rule'' under DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979); and (3) does not warrant preparation of a Regulatory Evaluation as the anticipated impact is so minimal. Since this is a routine matter that will only affect air traffic procedures and air navigation, it is certified that this rule, when promulgated, will not have a significant economic impact on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 71

Airspace, Incorporation by reference, Navigation (Air).

Adoption of the Amendment

■ In consideration of the foregoing, the Federal Aviation Administration proposes to amend 14 CFR part 71 as follows:

PART 71—DESIGNATION OF CLASS A, CLASS B, CLASS C, CLASS D, AND CLASS E AIRSPACE AREAS; AIRWAYS; ROUTES; AND REPORTING POINTS

■ 1. The authority citation for part 71 continues to read as follows:

Authority: 49 U.S.C. 106(g); 40103, 40113, 40120; E.O. 10854, 24 FR 9565, 3 CFR, 1959–1963 Comp., p. 389.

§ 71.1 [Amended]

■ 2. The incorporation by reference in 14 CFR 71.1 of Federal Aviation Administration Order 7400.9N, Airspace Designations and Reporting Points, dated September 1, 2005, and effective September 16, 2005, is amended as follows:

Paragraph 6005 Class E Airspace Areas Extending Upward from 700 feet or More Above the Surface of the Earth.

* * * * *

ASO KY E5 Nicholasville, KY [NEW]
Lucas Field Airport, KY
(Lat. 37°52′16″ N, long. 84°36′39″ W)

That airspace extending upward from 700 feet above the surface within a 6.5-radius of Lucas Field Airport; excluding that airspace within the Lexington, KY, Class E airspace area.

* * * * *

Issued in College Park, Georgia, on February 10, 2006.

Mark D. Ward,

Acting Area Director, Air Traffic Division, Southern Region.

[FR Doc. 06–1813 Filed 2–27–06; 8:45 am]

BILLING CODE 4910–13–M

DEPARTMENT OF LABOR

Occupational Safety and Health Administration

29 CFR Parts 1926 and 1928

[Docket No. S–270–A]

RIN 1218–AC15

Roll-Over Protective Structures

AGENCY: Occupational Safety and Health Administration (OSHA), Labor.

ACTION: Final rule; confirmation of effective date.

SUMMARY: OSHA is confirming the effective date of its direct final rule reinstating its original construction and agriculture standards that regulate the testing of roll-over protective structures used to protect employees who operate wheel-type tractors. The direct final rule stated that it would become effective on February 27, 2006 unless significant adverse comment was received by January 30, 2006. OSHA received only one comment on the direct final rule, which it has determined is not a significant adverse comment.

DATES: The direct final rule published on December 29, 2005 is effective February 27, 2006. For the purpose of judicial review, OSHA considers February 28, 2006 as the date of issuance.

FOR FURTHER INFORMATION CONTACT: *Press Inquiries:* Kevin Ropp, OSHA Office of Communications, Room N–3647, U.S. Department of Labor, 200 Constitution Avenue, NW., Washington, DC 20210; telephone: (202) 693–1999. *General and technical information:* Mark Hagemann, Acting Director, Office of Safety Systems, Directorate of Standards and Guidance, Occupational Safety and Health Administration, U.S. Department of Labor, Room N–3609, 200 Constitution Avenue, NW., Washington, DC 20210; telephone (202) 693–2255.

ADDRESSES: In compliance with 28 U.S.C. 2112(a), OSHA designates the Associate Solicitor for Occupational Safety and Health as the recipient of petitions for review of the final standard. The Associate Solicitor may be contacted at the Office of the Solicitor, Room S–4004, U.S. Department of Labor, 200 Constitution Avenue, NW., Washington, DC 20210, telephone: (202) 693–5445.

SUPPLEMENTARY INFORMATION: On March 7, 1996, OSHA published a technical amendment in the **Federal Register** that revised a number of its standards, including the construction and agriculture standards that regulate testing of roll-over protective structures (''ROPS'') (61 FR 9228); employers use these structures to protect employees who operate wheel-type tractors. The revision removed the original, detailed ROPS-testing standards and referred instead to national consensus standards for substantive ROPS-testing requirements.

Several years after issuing the 1996 technical amendment, the Agency determined that differences existed between its original construction and agriculture ROPS standards and the ROPS standards adopted under the 1996 technical amendment, and that these differences have a substantial impact on the regulated community. Based on this determination, OSHA found that reinstating the original OSHA standards through a direct final rule was necessary and appropriate; it published this direct final rule in the **Federal Register** on December 29, 2005 (70 FR 76979).

The Agency stated in the direct final rule that it would consider as significant adverse comments only those comments that addressed: (1) The lawfulness of the procedures used to promulgate the 1996 technical amendment as these procedures related to the ROPS testing provisions; and (2) whether a few minor revisions made to the original ROPS standards were unreasonable or inappropriate. OSHA received only one public comment on the direct final rule, which it has determined is not a significant adverse comment. The commenter recommended several technical clarifications to the original ROPS provisions and accompanying figures. The Agency will address these recommendations in a subsequent **Federal Register** notice. In the present notice, OSHA is confirming that the effective date for the December 29, 2005 direct final rule on ROPS is February 27, 2006. For purposes of judicial review, OSHA considers February 28, 2006 to be the date of issuance.

List of Subjects

29 CFR Part 1926

Construction industry, Motor vehicle safety, Occupational safety and health.

29 CFR Part 1928

Agriculture, Motor vehicle safety, Occupational safety and health.

Authority and Signature

This document was prepared under the direction of Jonathan L. Snare, Acting Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, 200 Constitution Avenue, NW., Washington, DC 20210. The Agency is issuing this final rule under the following authorities: Sections 4, 6, and 8 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); Section 3704 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3701 *et seq.*); Secretary of Labor's Order 5–2002 (67 FR 65008); and 29 CFR Part 1911.

Signed at Washington, DC on February 21, 2006.

Jonathan L. Snare,

Acting Assistant Secretary of Labor.

[FR Doc. 06–1835 Filed 2–27–06; 8:45 am]

BILLING CODE 4510–26–P

DEPARTMENT OF DEFENSE

Office of the Secretary

32 CFR Parts 174, 175, and 176

DOD–2006–OS–0020

[RIN 0790–AH91]

Revitalizing Base Closure Communities and Addressing Impacts of Realignment

AGENCY: Department of Defense (DoD).

ACTION: Final rule.

SUMMARY: The Department of Defense (DoD) is amending its regulations governing the disposal of property at installations being closed and realigned and how to address the impacts of realignment at receiving installations. This final rule contains amendments to address changes in the laws governing base closure and realignment (BRAC) made since the current regulations were promulgated. This final rule also amends DoD policy and addresses various environmental requirements not previously addressed in the regulations.

DATES: *Effective Date:* This final rule is effective on February 28, 2006.

FOR FURTHER INFORMATION CONTACT: Mr. Steven N. Kleiman at (703) 571–9085.

SUPPLEMENTARY INFORMATION:

Preamble Outline

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I. Authority

This action is authorized by the Defense Base Closure and Realignment Act of 1990, Title XXIX of the National Defense Authorization Act for Fiscal Year 1991, Pub. L. 101–510; the Base Closure Community Redevelopment and Homeless Assistance Act of 1994, Pub. L. 103–421; the Military Construction Authorization Act for Fiscal Year 1994, Division B of Pub. L. 103–160; and 10 U.S.C. § 113.

II. Background

The Department of Defense (hereinafter the Department) developed the original rule, which this rule would amend, in conjunction with prior rounds of base closures and realignments. The Department published this amendment in the **Federal Register** as a proposed rule on August 9, 2005, at 70 FR 46116.

In the preamble for the proposed rule, the Department explained that the rule was a counterpart to two Department issuances: DoD Directive 4165.66, Revitalizing Base Closure Communities and Community Assistance, and DoD Instruction 4165.67, Revitalizing Base Closure Communities—Base Closure Community Assistance. The Department further advised that these two issuances were being revised in conjunction with the proposed rule. During the public comment period, the Department further considered the need for such counterpart issuances and determined that there was no need for either the DoD Directive or the DoD Instruction. Consequently, DoD Directive 4165.66 and DoD Instruction 4165.67 have been canceled. For purposes of ensuring the necessary and appropriate delegations of authority, DoD Directive 5134.01, Under Secretary of Defense for Acquisition, Technology, and Logistics (USD (AT&L)), has been revised to include delegation language specific to the base closure process. The cancellations of DoD Directive 4165.66 and DoD Instruction 4165.67 do not affect in any way the validity, applicability, or enforceability of the rule but merely reduces the number of additional internal publications issued by the Department.

The public comment period for the proposed rule ended October 11, 2005. Thirty-one commenters submitted comments on the proposed rule. Several commenters submitted comments after the close of the public comment period; to the extent the Department was able to respond to these comments without significantly interfering with the timely publication of this final rule, those comments were also considered. The preamble to this final rule consists mainly of an explanation of the Department's responses to these comments. Therefore, both this preamble and the preamble to the proposed rule should be reviewed should a question arise as to the meaning or intent of the final rule.

The preamble to the final rule provides a discussion of each proposed rule section on which comments were received. Where changes in the rule are being made, specific reference is made to those changes in the discussion. Where no such specific reference is made in the discussion, no change to the rule is being made. Revisions to the proposed rule that are simply editorial or that do not reflect substantive changes are not addressed in this preamble.

All comments the Department received are presented in a document available at either *http://www.defenselink.mil/brac/* or *http://www.oea.gov.*

III. Summary of Significant Changes to the Final Rule

The Department made a number of changes to the proposed rule that are reflected in this final rule. A detailed explanation of modifications is provided in the preamble.

IV. Response to Comments

This section contains the Department's responses to the comments received on the proposed rule, organized by the structure of the proposed and final rules.

The primary purpose of the rule is to bring the Department's regulatory framework into line with statutory enactments made subsequent to the promulgation of the existing regulation. Many of the items of concern noted by commenters are, in fact, changes made to comply with the base closure laws as they have been amended, and such changes have been incorporated into the rule whenever applicable and appropriate. The Department does not see the disposal process as a ''zero-sum'' arrangement. The purpose of the implementation provisions of the base closure laws and associated provisions of law are to provide an ordered process to achieve a number of Congressional goals. Among these goals (and not in any order of importance) is to ensure a meaningful role for local communities in planning the reuse of the installation, ensure efficient use of excess Federal property, provide support to homeless

providers, promote job generation at closing facilities, require appropriate and timely environmental remediation, and recoup the taxpayers' investment in installations. Some of the goals may well be better accomplished if the local redevelopment authority (LRA) is not the transferee but focuses on planning redevelopment. Many of the most contentious provisions in the rule, judging from the comments, actually represent language taken almost verbatim from the base closure laws. The Department has carefully considered the many comments it has received. Its responses follow:

A. General

Several commenters asked the Department to commit to a specific date for publication of the Base Redevelopment and Realignment Manual (BRRM). As a subordinate document to this rule, the BRRM cannot be published in final form until after this rule is published in final form. The Department intends to publish the BRRM as soon as reasonably possible after the publication of this final rule.

Several commenters stated that the rule was directed at maximizing the Department's monetary return, as opposed to promoting economic recovery by transfer of properties to local communities. The Department disagrees. Promoting monetary return to the Department for use either at the particular location or at other locations and rapid property transfer to encourage job generation are not mutually exclusive. The rule conforms with the base closure laws and with other applicable statutes and regulations such as those of the General Services Administration (GSA). Unlike the current regulation which it would replace, the rule does not give any particular preference to one form of disposal over another. It conforms to the base closure laws in its order of actions; *i.e.*, screening with the DoD Components and the U.S. Coast Guard and with other Federal agencies, followed by disposal actions heavily influenced by the local redevelopment plan. Some commenters have observed that, *e.g.*, requiring Federal agencies to pay fair market value for property received is an example of trying to maximize the Department's monetary return. The GSA regulations governing transfers between Federal agencies require such payments unless waived, and the rule complies with this standard. The Department believes that the most likely effect of conforming to this requirement is that more property will be available for transfer to non-Federal entities for redevelopment than would otherwise be available. The rule also provides, as do the base closure laws, for economic development conveyances (EDCs), either at fair market value or at no cost. The decision regarding making an EDC will normally occur before a property is considered for public sale, and, although this does not represent a preference of one type of disposal over another, it does represent the rules' conformance to the order of disposal actions provided for in the base closure laws. The rule does conform to statutory changes that eliminated the stated preference for no-cost or reduced-cost EDCs; but conforming to those statutory changes does not represent an effort by the Department to seek greater monetary return. It simply represents the Department's effort to conform its rule to the statute.

Several commenters suggested that the Department contract with local entities to take advantage of their special expertise in closing or realigning an installation. The Department's authority to contract is provided for and qualified, as appropriate, in the laws governing the Department's procurement actions and in the Federal Acquisition Regulation. In addition, the Congress has provided a preference for local and small businesses in section 2912 of Pub. L. 103–160. Such preferences are properly addressed in those regulations governing procurement, as opposed to this rule.

Several commenters recommended that the Department commit to adopt or conform to any cleanup standards or levels provided by the local redevelopment plan, even though they might be greater than those required by current use or required by law. Cleanup standards are established pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and its implementing regulation, the National Contingency Plan (NCP). Those legal requirements provide for a thorough list of factors to be considered in determining the cleanup standard at each location and include, among many others, the reasonably anticipated future uses of the property. As with any private party, the Department must comply with these requirements in establishing a cleanup level. This process is overseen by Federal and state environmental regulators. Consequently, the cleanup levels established for any particular site will be in complete conformance with all legal requirements. The Congress has clearly directed the Department to conform to the requirements of CERCLA and the NCP, and the Department will do so in its cleanup program.

Several commenters believe that the local redevelopment plan should be given greater weight in either the environmental analysis process or in the disposal plan. Some would like the local redevelopment plan to be a preferred alternative or the primary factor in developing the proposed Federal action in the National Environmental Policy Act (NEPA) process. The base closure laws are clear on the role of the local redevelopment plan in the NEPA process. The plan is part of the proposed Federal action. This means it is a basis for developing the action to be analyzed. In other words, it is what is being analyzed, so it plays a far greater role than it would if it were merely a preferred alternative (one way to achieve the proposed action) or the primary factor in developing the proposed action. These suggestions would have the unintended consequence of actually diluting the role of the local redevelopment plan, while the governing statute clearly and explicitly states the role that the plan has in the NEPA process.

Several commenters recommended that the rule describe the roles of environmental regulators, the LRA, and others in the restoration program. The roles of these entities in the restoration program are established in the various environmental laws, primarily CERCLA and the NCP. It is outside of the Department's authority to specify the roles of these entities under those laws.

One commenter suggested the desirability of using fixed price remediation agreements with privatized financial assumption, including liability assumption. Agreements to have the property recipient assume responsibility for environmental matters are provided for in section 2905(e) of Pub. L. 101–510. Such agreements would be fixed price with privatized financial assumption, including liability assumption, but would also be subject to the other requirements of that subsection. The rule does not specifically address this matter because the Department has no requirements to add beyond those of the statute.

Several commenters have observed that the rule does not integrate environmental cleanup with property disposal and reuse planning. The Department recognizes the importance of integrating environmental cleanup with property disposal and redevelopment planning. Cleanup standards are tied to future land use and established pursuant to CERCLA and the NCP. Future land use is informed by the property disposal plan. As stated earlier, the local redevelopment plan is a basis for any proposed Federal action.

Therefore, the redevelopment planning, property disposal, and environmental cleanup are integrated. The cleanup process is overseen by Federal and state environmental regulators. Consequently, the cleanup levels established for any particular site will be in complete conformance with all legal requirements. In addition, the public has a chance to comment on proposed cleanup standards in the public participation venues required by CERCLA.

Several commenters suggested that the rule address timely release of environmental information. The Department does not believe that specific regulatory requirements can or should be imposed to create timelines for these activities. The BRRM does provide guidance to the Military Departments and other interested parties as to when and how to release environmental information.

One commenter suggested that the Department schedule a meeting with ''stakeholders'' to discuss the Department's environmental policies before issuing final regulations. The Department has been meeting with various interested parties with regard to its environmental policies, and will continue to do so. However, it cannot delay the realignment and closure implementation process for this purpose.

One commenter complained that the rule only requires the Department to consult with the LRA and others such as the Governor, not obtain their agreement, over future land uses, environmental restoration decisions, etc. Neither the base closure laws nor the various environmental statutes require obtaining agreement from the LRA. Likewise, section 2905(b)(2)(D) of the base closure law explicitly states that the Secretary shall ''consult with the Governor of the State and the heads of the local governments'' as opposed to obtaining their agreement. The Department will continue to consult with the LRA and other appropriate officials over future land uses, environmental restoration decisions, etc.

One commenter suggested that an additional section be added to clarify the Department's responsibilities regarding environmental contamination under CERCLA. The recommendation was to add language that addressed the Department's continuing liability for contamination on the property. The Department disagrees with the suggestion to add language. The Department's liability under CERCLA (and other applicable environmental laws) will be established for each location depending on the law and facts of the site. This could include not only numerous Federal laws, but state and local laws as well. The process used to determine liability under CERCLA, including as between the Department and its contractors, is highly complex and virtually impossible to accurately describe in the context of this rule. Furthermore, the rules governing such liability are found in statutes and regulations for which the Department does not exercise primary authority. It would be inappropriate and likely to create confusion for the Department to attempt to define its CERCLA liability in this rule.

One commenter observed that the rule does not address how the Department will mitigate or resolve effects on base closures and realignments on tribal nations affected by such actions. The Department believes the rule is consistent with the law. We have added text in response to another similar comment to paragraph 174.4(f). Under current law, an Indian tribe may acquire closed real property only through a request for excess property in accordance with section 105(f)(3) of the Indian Self-Determination and Education Assistance Act (which must be made by the Secretary of the Interior on behalf of the tribe) or through the purchase of real property at a public sale. In addition, a tribe may seek to participate in the redevelopment planning process as a member of the LRA, which is primarily a local matter.

B. Definitions

Several commenters suggested that those definitions contained in section 174.3 that are incorporated by reference to other sources be written out in full text. To ensure complete consistency, the rule will continue to incorporate those definitions by reference. However, the BRRM will contain the full text of the sources to facilitate ease of use.

One commenter suggested that a definition for the National Historic Preservation Act be included in the rule. The National Historic Preservation Act is not referred to directly in the rule. The reference in section 174.18 is to the Act's implementing regulations in the Code of Federal Regulations and includes the specific citation to the regulations. Because the Act is not directly referred to in the rule and the only indirect reference is to its implementing regulations for which the citation is provided, there is no need to include a specific definition.

One commenter requested that the term ''disposal plan'' be defined. The Department does not believe such a definition is necessary or desirable. The disposal plan can take many forms and will reflect the manner of implementation by each Military Department at each location. The term is not readily susceptible to a meaningful definition because of the wide variety of forms it may take.

C. Policy

Several commenters suggested that the rule may change the focus of disposal actions by not placing paramount importance on economic recovery. The base closure law does not mention economic recovery as one of its goals, but does refer to ''job generation'' in the case of EDCs. The primary reason for proposing this revision of the rule is to bring it into line with amendments made to the base closure laws. Those amendments reflect a desire by Congress to encourage economic recovery by expediting the transfer (and subsequent redevelopment) of installations. The Department believes the current policy statements in section 174.4, which are taken from the Secretary of Defense's recommendations to the Defense Base Closure and Realignment Commission, accurately reflect both the statutory direction provided by Congress and the policy determinations made by the Secretary of Defense.

One commenter expressed concern that the statements of policy in section 174.4 do not adequately recognize the importance of public benefit conveyances. The Department does not agree. Paragraph 174.4(b) explicitly refers to public benefit conveyances as one of the appropriate means to transfer property. The need for consideration of public benefit conveyances is not overcome by the policy statement of paragraph 174.4(c) relating to reliance on market forces, which, incidentally, refers to *''any anticipated demand* for surplus military land and facilities.'' [Emphasis added.]

One commenter suggested that section 174.4(d) reflect a more accurate list of the entities with whom the Department must collaborate for successful redevelopment to occur. The Department notes that the intent of this paragraph is to emphasize collaboration with affected local communities regarding the redevelopment of the installation. While the Department does collaborate with the other entities, their role is established in other parts of the rule. The focus of this paragraph of the rule is on the redevelopment planning process and most of our collaboration in this area is with the local community.

One commenter noted that reference to substantial growth in section 174.4(f) is difficult to define and could lead to confusion. The Department agrees and

has struck the beginning clause of the sentence consisting of ''If installation growth is substantial, * * *''.

One commenter observed that in many places an installation's growth due to realignment may not only affect the immediate locality but may also increase infrastructure demands regionally, requiring coordination with regional as well as local officials. The Department agrees and has further modified paragraph 174.4(f) to refer to regional officials, including, *e.g.*, State and tribal officials, and to regional planning.

D. Responsibilities

Several commenters suggested that the rule delegates too much authority to the Secretaries of the Military Departments, leaves the Office of the Secretary of Defense (OSD) out of the process, and undermines the policy to ''speak with one voice.'' It is essential to the effective implementation of the process that appropriate delegations of authority be provided to the Military Departments, as the implementing agencies, and this is done in the rule. This rule is consistent with other delegations to the Military Departments as installation and real property managers within DoD. The current regulation that is being revised by this rule also delegates, and much more generally, implementation authority to the Military Departments. The delegation language in the rule is actually somewhat less broad than the language it will be replacing. The delegation to the Secretaries of the Military Departments in the rule is subject to the superior delegations to the Under Secretary of Defense for Acquisition, Technology, and Logistics and the Deputy Under Secretary of Defense (Installations and Environment). These OSD officials will retain their oversight roles and, when needed, review disputed matters and enforce uniformity among the Military Departments in their implementing activities.

Several commenters suggested that if an LRA qualifies for a no-cost EDC, the Federal Government should shoulder the cost of recording deeds and other transfer documents as well as associated surveys. The rule in paragraph 174.5(e) only addresses the cost of recording deeds and other transfer documents, which is normally the responsibility of the property recipient in real estate transactions. It does not address the responsibility of paying for any needed surveys. The cost of surveys, in the case of an EDC, will be subject to agreement between the parties.

One commenter suggested that the requirement of paragraph 174.5(e) explicitly include reference to recordation of land use restrictions that are part of an environmental remedy. The Department notes that the paragraph only addresses the cost of recording deeds and other transfer documents; it does not address in detail all the documents that might be included in that category. What documents must be recorded will be determined by State law and local rule and will vary accordingly. To the extent land use restrictions are included in a deed, which would be necessary for them to have meaningful effect, they will be part of the recorded instruments.

E. LRA and the Redevelopment Plan

Several commenters inquired as to what would constitute ''appropriate environmental documentation'' in section 174.6(c). This reference would include any NEPA environmental analyses, as well as associated documentation that might be required to formulate a disposal plan. Since we cannot predict at this time the entire universe of potential documents, particularly given the great variety of locations where they might be required, the Department chose to use as broad a term as possible.

Several commenters suggested that the 12 months allotted for completion of an environmental impact statement may prove inadequate. Section 174.6(c) qualifies the 12 month requirement with the words ''to the extent practicable'', taken from the underlying statutory provision of section 2911 of Pub. L. 103–160.

Several commenters observed that the timeframe for the production of the local redevelopment plan is likely to be too short. The language in the rule is in strict compliance and consistent with the base closure laws, section 2905(b)(7)(F)(iv) of Pub. L. 101–510, which also allows an extension of time to be granted by the Deputy Under Secretary of Defense (Installations & Environment), section 2905(b)(7)(N). In all instances, the date arrived at from section 2905(b)(7)(F)(iv) will be after the screening of property by Federal agencies. The Department notes that many, if not most, LRAs begin their planning process shortly after the closure decisions become final, which allows for a much more lengthy period of time than would be available if no advance effort is made.

Several commenters noted that the requirement that there be a single LRA for each installation may be problematic for some installations that have large parcels located in other jurisdictions. The language in the proposed rule uses the term ''generally,'' which provides flexibility for exceptions where geographic situations warrant, such as distinct, non-contiguous parcels in separate jurisdictions.

Several commenters recommended that the base cleanup team specifically include the LRA as a member. The base cleanup team is not addressed by the rule, nor is it based in statute. Information on environmental cleanup may be found in the BRRM.

F. Retention for DoD Component Use and Transfer to Other Federal Agencies

Several commenters noted that some locations such as Fort Monroe, Virginia, are subject to a reversionary interest in the state or local government and recommended specific language be inserted addressing this situation. The Department cannot dispose of a property interest it does not own. To the extent a location is subject to a reversionary interest, any screening or disposal action can only occur to the extent they are consistent with the reversionary language of the original deed. For instance, screening might be limited to only DoD Components after which the property might then have to be offered back to the reversionary interest holder. Because this will vary at each location depending on the specific provisions of the reversionary interest, it is neither practicable nor necessary to provide specific language dealing with this situation. The Military Departments are expected to know the nature of the real property interests they hold and to act accordingly with regard to any disposal actions.

One commenter suggested that early and widespread communication would be beneficial and specifically objected to language in paragraph 174.7(b) that conditioned release of some information ''upon request''. The Department determined that it was not going to provide to other Federal agencies a notice of potential availability of property upon submission by the President of his recommendations to the Congress. Consequently, those provisions of section 174.7, and particularly its former paragraph (b), addressing this subject have been deleted from the rule.

One commenter recommended that a firm time period of 6 months be set for the identification of Federal property interests in real property. Section 174.7(m) of the proposed rule does provide a time period of six months from the date of approval of closure or realignment within which a surplus determination should be made, which means that Federal agency interests in

property must be identified prior to that time.

Several commenters suggested that other Federal agencies seeking to obtain excess real property should be required, as opposed to being encouraged, to consult with the LRA. The statute that required consultation has expired [Section 2905(b)(5)(C) of Pub. L. 101–510]. However, because the Department believes it is to everyone's benefit, it encourages consultation. It is to the benefit of a Federal agency to consult with the LRA and any other interested entity when seeking excess real property. The Department believes it unnecessary to require such consultation. In addition, such a requirement could generate legal conflicts as to what constituted consultation in particular cases and at what specific time periods consultation was performed.

Several commenters objected to the requirement that other Federal agencies accept any excess property in its existing condition, viewing this as a burden on their resources or an attempt by Department to avoid its cleanup responsibilities. This is in conformance with the Interdepartmental Waiver Doctrine which notes that all Federal property belongs to the United States and it is the determination of Congress as to the adequacy of funding for individual agencies to perform their missions. See Matter of: Use of One Agency's Real Property by Another—Liability for Damage, B–194861, Comptroller General of the United States, 59 Comp. Gen. 93, November 20, 1979. The general rule is that an agency must have the resources to accept property it is voluntarily seeking or forego the opportunity. This is also indicated in other requirements of section 174.7(h) such as the requirement that the request does not establish a new program, current real property holdings cannot satisfy the agency's needs, and that the request be economically viable. The receiving agency must also pay fair market value, unless waived, which would potentially include a reduction of value because of contamination (see the discussion on appraisals and fair market value). Nothing in the requirement that a receiving Federal agency take the property in its existing condition changes the liability of the United States for cleanup.

One commenter asserted that, in transfers between Federal agencies, in order to accurately reflect section 120 of CERCLA, a statement should be added in both subparagraphs (9) and (10) of paragraph 174.7(h) that would exclude the costs for remedies needed to address environmental contamination present on the property at the time of transfer, unless an agreement has been reached with the other agency to take responsibility for such actions and costs. The commenter further asserted that a Federal agency's ultimate environmental liability cannot be transferred to other agencies of the Federal Government. The Department disagrees. The Department does not believe that section 120(h) of CERCLA has any application to the question of responsibility as between Federal agencies for contamination on Federal real property transferred between them. There is no provision of applicable law or regulation preventing the Department from requiring another agency to accept property transferred ''as-is,'' as a mutually agreed condition of the transfer. If the receiving agency is unwilling to accept responsibility for any needed cleanup, it has no obligation to take the property and Department can proceed to other means of property disposal.

G. Screening Properties After Declaration of Surplus

One commenter suggested specific language be added to the rule relating to the process after a declaration of surplus, and specifically relating to the process for public benefit conveyances and to consultation with the LRA and communities. These aspects of the property disposal process are governed by 32 CFR part 176, which is not being amended by this rulemaking (other than a ministerial change). The Department anticipates that it will propose amendments to part 176 in the future to ensure its conformance to changes in the law. At that time, it would be appropriate for the commenter to raise issues that are relevant to that regulation.

H. Economic Development Conveyances

Several commenters are concerned that the rule requires the Secretary concerned to seek fair market value in an EDC. This is a clear change from the existing regulation which the rule would replace. The requirement to seek to obtain fair market value is clearly stated in section 2905(b)(4)(B) of Pub. L. 101–510. This is a change made by Congress to the law since the publication of the existing regulation. The changes made in the rule are in strict conformance with the statute.

Several commenters noted that the rule does not provide for below-cost EDCs (other than no-cost EDCs). Section 2905(b)(4) of Pub. L. 101–510 addresses the nature of EDCs that can be offered by Department. There is no provision for a ''below-cost'' EDC. Consequently, the rule does not provide for such an EDC.

Several commenters objected to the requirements imposed by the rule on those submitting EDC applications, and the Department's consideration of those applications. These, largely information, requirements are necessary to allow the Department to make an informed judgment as to whether the application can meet the statutory requirements for an EDC as well as whether a no-cost EDC, if sought, is appropriate under the circumstances. Given the potentially significant financial impact of EDCs on both the Department and the LRA, it is appropriate to require a reasonable submission of information to ensure the EDC's success. It is understood by the Department that some of the information requested may not be available or available in adequate time and accuracy, but the LRA should attempt to submit as much and as accurate information as it can to address the factors for consideration of an EDC. The Department will use the best information available to evaluate EDC applications according to the statute and rule. This is consistent with prior practice of the Department.

Several commenters objected to the provisions relating to an appraisal of fair market value. Commenters objected to the use of the Uniform Appraisal Standards, to appraisals conducted under criteria set by the Military Department without the LRA's agreement, and to the application of highest and best use criteria. Additionally, it was suggested that an independent entity conduct the appraisal, that the appraisal include liabilities associated with, *e.g.*, environmental contamination or demolition of buildings, that all appraisal information be shared with the LRA, that special consideration be given to rural areas, and that multiple appraisals be accomplished for EDCs based on differing assumptions. Although the Uniform Appraisal Standards were drafted primarily for the acquisition of property by the Federal Government, no cogent reasons have been advanced as to why they would not apply with equal validity to appraising lands being disposed of. The rule does require the Secretary concerned to consult with the LRA about valuation assumptions and other factors, but the base closure laws explicitly provide that the fair market value will be as determined by the Secretary, not by the LRA or an independent entity. The law does not provide, for instance, for multiple appraisals of fair market value, although an entity seeking property is certainly

free to conduct its own appraisal. The rule does seek an appraisal based on the highest and best use, as provided in the Uniform Appraisal Standards and the governing GSA regulations. The Uniform Appraisal Standards include consideration of all relevant valuation factors such as reduction in value due to contamination, existing land use controls that limit potential development, and location.

Several commenters asserted that only by obtaining the property through an EDC can the LRA maintain control to provide job generation. According to the statute, an LRA is any entity (including an entity established by a State or local government) recognized by the Secretary of Defense as the entity responsible for developing the redevelopment plan with respect to the installation or for directing the implementation of such plan. In some instances, taking possession of the property may be one way of furthering this goal, but it is not the only means, or even necessarily the most likely to succeed. Jobs can often be generated by rapid conveyance to private parties at least as effectively as by transfer to the LRA. The statutory framework clearly envisions that the LRA's primary function is the redevelopment planning process. Seeking EDCs is a function to be performed at the LRA's discretion and certainly does not foreclose the LRA or other appropriate local agencies from exercising any necessary controls to ensure job generation.

One commenter noted that subparagraph (7) of paragraph 174.9(e) could be interpreted as requiring an LRA to exercise more authority than it would normally have, *e.g.*, zoning or other approval powers. The Department agrees and has added language to this subparagraph to clarify that the LRA need only demonstrate that it has the necessary approvals for items such as zoning, as opposed to actually having the authority to grant such approvals.

I. Leasing of Real Property to Non-Federal Entities

Several commenters were concerned that the rule would discourage long-term leasing at closed installations, thereby reducing the likelihood of promoting new employment. As with the other provisions of the rule, section 174.11 is designed to expedite property transfer in order to encourage rapid job generation. In the past, long-term leases were primarily the result of difficulty in transferring property that still had environmental contamination. With statutory authority to engage in ''early transfers'' under CERCLA, it should be possible to avoid the need for long-term leases in most if not all situations.

J. Leasing of Transferred Real Property by Federal Agencies

Several commenters were concerned that a ''lease-back'' would be at no rental cost to the Federal agency occupying the leased facility, thereby removing any incentive to engage in this type of transaction. The requirement for a no cost lease is a provision of the statute, section 2905(b)(4)(e)(iii) of Pub. L. 101–510.

One commenter inquired as to how real property will be declared as surplus when a ''lease-back'' cannot be successfully concluded. The authority to lease to a Federal agency, at no cost, real property that has been transferred to an LRA is a unique alternative form of property disposal. If the process fails to result in agreement, the Department presumes, until shown otherwise, that the requesting Federal agency still requires the property, in which case it is not surplus. If the requesting Federal agency is only willing to accept the use of the real property under a lease and an agreement cannot be reached, the real property would be considered as surplus.

K. Personal Property

One commenter noted the use of ''community redevelopment plan'' in section 174.13(a). This reference will be changed to ''redevelopment plan'' to conform to the usage elsewhere in the rule.

One commenter inquired whether the personal property inventory will occur 6 months after the closure decision or 6 months after the actual closure of the installation. Section 174.13(b) provides that the inventory will be compiled 6 months after the date of approval of closure or realignment. The term ''date of approval'' is defined in section 174.3 and refers to the date the Commission's recommendations become final, as opposed to the date of actual closure of the installation.

One commenter inquired as to the timelines for an LRA's submittal of a request for a personal property EDC as opposed to a real property EDC that includes personal property. The commenter was concerned that the local redevelopment plan might be submitted prior to the completion of the inventory. Since the inventory is required to be completed within 6 months of the date of approval of the closure, and the local redevelopment plan is not required until quite some time later, it would be very unlikely for an LRA to submit the local redevelopment plan prior to completion of the personal property inventory. This is in part due to the screening period for other Federal uses during the first 6 months after the date of approval.

L. Maintenance and Repair

One commenter inquired as to the citation for the Federal Management Regulations of the GSA, referred to in section 174.14. The regulations can be found at chapter 102 of title 41, Code of Federal Regulations. Additional information on these regulations will be provided in the BRRM. The citation will be added to the rule.

Several commenters expressed concern that the level of maintenance might not be adequate in relation to various locations, *e.g.*, humidity levels left uncontrolled could result in damaging mold. Section 174.14(b)(3) provides that the initial levels of maintenance cannot be ''less than the minimum levels required to support the use of such facilities or equipment for nonmilitary purposes; * * *''. The Department believes this provision addresses the concern noted by the commenters.

Several commenters noted that maintenance levels provided by section 174.14 should conform to appropriate requirements of the National Historic Preservation Act and any agreements thereunder with, *e.g.*, the state historic preservation officer. Section 174.14 provides maintenance procedures to preserve and protect facilities located on closing installations needed for economical reuse. Nothing in that section should be interpreted as supplanting any requirement of the National Historic Preservation Act or its implementing regulations. The Department expects actions relating to historic preservation to be fully vetted with the interested agencies and organizations in line with both the requirements of the Act and its implementing regulations and the direction of the rule to, *e.g.*, consult with the LRA. As noted in previous responses to comments, it is not the purpose of this rule to replace other statutory or regulatory requirements. Given the limited purpose of section 174.14, the Department is satisfied that it has addressed the issue that needs to be addressed in the context of this rule.

Several commenters asserted that the Department should properly maintain all installation assets until the time of transfer. The rule strictly complies with the statutory requirements for maintenance. Those statutory requirements include specific time limits governing the initial levels of maintenance. The rule provides flexibility in allowing the Secretary

concerned to extend the time period for the initial levels of maintenance and repair for property still under military control if the LRA is actively implementing its redevelopment plan.

Several commenters objected that maintenance requirements would be shifted to the local community even before the installation was closed. This is incorrect. Section 174.14(e) provides that reductions in maintenance levels will not apply to facilities still being used for Department missions, *i.e.*, pre-closure. After facilities are no longer required for Department missions, the minimum standard prescribed by GSA requires that the Government's value be preserved. The community would not be expected to maintain facilities until they have possession through either a deed or lease. The statutory timelines reflected in the rule are designed to encourage rapid transfer to effect productive civilian reuse.

Several commenters suggested that the level of maintenance and repair be linked to the local redevelopment plan. The Department disagrees. Such a requirement would be contrary to the base closure laws' time limitations on maintenance and repair. The rule already provides for an appropriate level of maintenance and repair which will consider, to the extent it is known, the proposed reuses in the local redevelopment plan. The period of maintenance and repair, however, is set by statute.

One commenter expressed concern that any limitations on maintenance and repair might apply to environmental remediation efforts underway on the installation. The Department categorically states that ''Maintenance and repair'' as used in this section has no application to environmental remedies. An interpretation to the contrary would be entirely inconsistent with the base closure laws and with CERCLA.

M. Indemnification Under Section 330 of the National Defense Authorization Act for Fiscal Year 1993

Several commenters observed that requiring any documents referring to section 330 of Pub. L. 102–484 to be reviewed by the DoD Office of General Counsel would cause delay and, instead, model language should be provided with only deviations being reviewed by the General Counsel's Office. The Department disagrees. The insertion of language even mentioning section 330 in a deed or other transfer document creates a contract right that otherwise would not exist and for which section 330 does not provide.

One commenter asserted that the Department does not have discretion with regard to insertion of language dealing with section 330 of Pub. L. 102–484 and suggested changes that would require ''* * * Section 330 indemnification language under every instance specified by * * *'' section 330. Review of section 330 readily demonstrates that it does not require or even hint at the need to include language relating to its provisions in any document. In fact, section 330 is self-executing and stands alone without the need for additional discussion or exposition in transfer documents. It is even questionable whether such further discussion or exposition has any legal basis since it must, virtually by definition, either expand or contract the rights of a potential claimant under the statute and the Department has authority to do neither.

N. Real Property Containing Explosive or Chemical Agent Hazards

Several commenters recommended that the requirement for review of explosive safety plans under section 174.16 be extended to private entities conducting a remediation in place of the Department. The Department is prepared to review, on a case-by-case basis, those locations where such a safety plan is likely to be required and determine whether the circumstances of that location should require plan review and approval. Such requirements, if found to be necessary, can be included in any contract with the entity conducting the remedial action.

One commenter expressed concern that the language of the rule could allow the submission of an explosives safety plan but not actually require approval of the plan by the DoD Explosives Safety Board prior to transfer of the property. Although the language of the rule could be interpreted as requiring submission but not actual approval of the plan before real property transfer, the uniform practice of the Military Departments has been to wait on actual approval of the plan before proceeding to transfer property. The language of this section has been modified to more accurately refer to the governing DoD Directive as well as the documents being submitted.

O. NEPA

One commenter suggested that the LRA be given the opportunity to serve as a ''cooperating agency'' during the NEPA analysis. The Department interprets this as a request that the LRA be guaranteed the right to be a cooperating agency if it so desires. (This assumption is based on the fact that an LRA may already qualify as a cooperating agency under the Council on Environmental Quality regulations implementing NEPA; 32 CFR 1508.5.) Being a cooperating agency in a NEPA analysis carries with it certain obligations and requires certain expertise. The Department does not believe it appropriate to mandate in all circumstances that an LRA be a cooperating agency and believes it more appropriate to allow each situation to be judged on its own merits under existing regulations implementing NEPA.

Several commenters suggested that the NEPA process allow an LRA, if it was not satisfied with the schedule of the Military Department, to enter into an agreement with the Government to conduct the analysis itself but consistent with the Military Department's NEPA regulation. The cost expended by the LRA would qualify as a credit in any future EDC, or, in the case of a no-cost EDC, be attributable to economic redevelopment. This suggestion is premised on the availability, or lack thereof, of funds to pay for the NEPA analysis. There has been no demonstration that such funding has been unavailable in the past, nor is there any indication it will be unavailable in the future. By statute, the Military Departments are required to complete NEPA analysis within 12 months, if possible. The NEPA regulations of the Military Departments have sufficient flexibility to allow those departments to ensure prompt and compliant NEPA analyses.

P. Historic Preservation

Several commenters raised concerns with the lack of more extensive discussion of historic preservation. The provisions in section 174.18 are solely intended to clarify that the Military Departments have authority to engage in the types of preservation activities discussed. Nothing in that section should be interpreted as supplanting any requirement of the National Historic Preservation Act or its implementing regulations. The Department expects actions relating to historic preservation to be fully vetted with the interested agencies and organizations in line with both the requirements of the Act and its implementing regulations and the direction of the rule to, *e.g.*, consult with the LRA. As noted in previous responses to comments, it is not the purpose of this rule to replace other statutory or regulatory requirements. Given the limited purpose of section 174.18, the Department is satisfied that it has addressed the issue that needs to be addressed in the context of this rule.

V. Administrative Requirements

A. Regulatory Impact Analysis Pursuant to Executive Order 12866

Executive Order 12866 (58 FR 51735 [October 4, 1993]) requires each agency taking regulatory action to determine whether that action is ''significant.'' The agency must submit any regulatory actions that qualify as ''significant'' to the Office of Management and Budget (OMB) for review, assess the costs and benefits anticipated as a result of the proposed action, and otherwise ensure that the action meets the requirements of the Executive Order. The Order defines ''significant regulatory action'' as one that is likely to result in a rule that may (1) Have an annual effect on the economy of $ 100 million or more or adversely effect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities; (2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; (3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or (4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

The Department has determined that the rule is not a significant rule under Executive Order 12866 because it is not likely to result in a rule that will meet any of the four prerequisites.

(1) The rule will not have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities. The major effects of base closure and realignment actions is the result of the decisions to close and realign installations. This rule does not affect those decisions to the extent they were made by the Defense Base Closure and Realignment Commission, approved by the President, and not disapproved by the Congress. This rule only implements those decisions in accordance with applicable law. As such, its requirements do not create a significant economic impact.

For these reasons, the Department has determined that the rule will not adversely affect, in a material way, the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities.

(2) The rule will not create a serious inconsistency or otherwise interfere with an action taken or planned by another agency.

Implementation of the rule will not create a serious inconsistency or otherwise interfere with another agency's action because the Department has lead authority for implementing the base closure statutes and because the rule's requirements do not override, but are in addition to, legal requirements established by other agencies. As discussed in more detail in the response to comments, the rule does not, *e.g.*, establish requirements in place of the Historic Preservation Act, but provides additional authority to the Military Departments to implement that Act in accordance with its terms and with its implementing regulations. Similarly, the rule does not override or provide inconsistent requirements for environmental restoration, but, as discussed in more detail in the response to comments, is premised on applicability of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and the National Contingency Plan. Several subjects raised by commenters are not addressed in the rule in order to avoid the possibility of inconsistency with the authorities and actions of other agencies.

(3) The rule will not materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof.

The rule will not materially alter the budgetary impact of entitlements, grants, user fees, or loan programs, or the rights and obligations of recipients thereof because no entitlements, grants, user fees, or loan programs are invoked in the rule.

(4) The rule will not raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

Finally, the rule does not raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order. Congress has provided extensive and detailed guidance for implementation of the base closure and realignment process. The rule is merely a means for the Department to address some areas not addressed by Congress and provide some clarity in procedures to enable potential property recipients and others interested in the base closure and realignment process to harmonize their actions with those of the Department. The Department has identified no novel legal or policy issues that this rule will create on either a base closure and realignment basis or overall. Nor has the Department identified any novel legal or policy issues arising out of the President's priorities or principles set forth in the Regulatory Impact Analysis.

B. Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*, as amended by the Small Business Regulatory Enforcement Fairness Act [SBREFA] of 1996), requires that an agency conduct a regulatory flexibility analysis when publishing a notice of rulemaking for any proposed or final rule. The regulatory flexibility analysis determines the impact of the rule on small entities (*i.e.*, small businesses, small organizations, and small governmental jurisdictions). SBREFA amended the Regulatory Flexibility Act to require federal agencies to state the factual basis for certifying that a rule will not have a significant economic impact on a substantial number of small entities.

The Department hereby certifies that the rule will not have a significant economic impact on a substantial number of small entities. The nature of the rule provides the factual basis for a determination that no regulatory flexibility analysis is required. The potential for a significant impact on a substantial number of small entities would result, if at all, because of the decision to close or realign an installation. This rule does not address those decisions. No costs are directly imposed on small entities nor is any action directly required of small entities through this rule. Since the Department will apply this rule for the purpose of disposing of real and personal property, the rule does not impose any requirements on small entities. For the foregoing reasons, the Department believes that the rule, if promulgated, would not have a significant economic impact on a substantial number of small entities.

C. Unfunded Mandates

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104–4, requires Federal agencies to assess the effects of their regulatory actions on state, local, and tribal governments and the private sector. Section 202 of the UMRA requires that, prior to promulgating proposed and final rules with ''federal mandates'' that may result in expenditures by state, local, and tribal governments, in the aggregate, or by the private sector, of $100 million or more in any one year, the agency must prepare a written

statement, including a cost-benefit analysis of the rule. Under Section 205 of the UMRA, the Department must also identify and consider a reasonable number of regulatory alternatives to the rule and adopt the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule. Certain exceptions to Section 205 exist. For example, when the requirements of Section 205 are inconsistent with applicable law, Section 205 does not apply. In addition, an agency may adopt an alternative other than the least costly, most cost-effective, or least burdensome in those cases where the agency publishes with the final rule an explanation of why such alternative was not adopted. Section 203 of the UMRA requires that the agency develop a small government agency plan before establishing any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments. The small government agency plan must include procedures for notifying potentially affected small governments, providing officials of affected small governments with the opportunity for meaningful and timely input in the development of regulatory proposals with significant federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

The Department has determined that the rule does not contain a Federal mandate that may result in expenditures of $100 million or more for State, local, and tribal governments in the aggregate, or by the private sector in any one year. The term ''federal mandate'' means any provision in statute or regulation or any Federal court ruling that imposes ''an enforceable duty'' upon State, local, or tribal governments, and includes any condition of federal assistance or a duty arising from participation in a voluntary federal program that imposes such a duty. The rule does not contain a Federal mandate because it imposes no enforceable duty upon state, tribal, or local governments. The base closure laws provide local governments the opportunity to participate in the implementation of the base closure and realignment process by establishing a LRA. There is no statutory requirement that an LRA be established; it is simply a means to allow the maximum local participation in the planning process for installations being closed. Since the establishment of an LRA and any actions taken by the LRA are entirely within the discretion of the local governments in the vicinity of a closing installation, there is no mandate involved in this rule, funded or unfunded. The Department does note that virtually all LRAs are provided planning assistance funds by the Department of Defense Office of Economic Adjustment to assist them in establishing and operating the LRA. To the extent that environmental restoration actions taken by the Department at an installation being closed or realigned are subject to state regulatory oversight, that oversight is due to statutory requirements outside of the base closure and realignment process. This rule, itself, does not require such oversight. To the degree such oversight is required, it is required by preexisting law on which the rule has no effect.

D. Paperwork Reduction Act

The Paperwork Reduction Act (PRA), 44 U.S.C. 3501 *et seq.*, prohibits a Federal agency from conducting or sponsoring a collection of information that requires OMB approval, unless such approval has been obtained and the collection request displays a currently valid OMB control number. Nor is any person required to respond to an information collection request that has not complied with the PRA. The term ''collection of information'' includes collection of information from ten or more persons. The Department has determined that the PRA does not apply to this rule because the Department will not be seeking information from the public under the rule. The information that would be collected will be in the form of applications for EDCs and similar property transfers and will, in all instances, be entirely voluntary and be the result of members of the public seeking real or personal property under the disposal process. Therefore, the PRA does not apply to the rule.

E. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTTAA), Public Law 104–113, Section 12(d) (15 U.S.C. 272 note), directs Federal agencies to use technical standards developed by voluntary consensus standards bodies in its regulatory activities, except in those cases in which using such standards would be inconsistent with applicable law or otherwise impractical. ''Technical standards'' means performance-based or design-specific technical specifications and related management systems practices. Voluntary consensus means that the technical standards are developed or adopted by voluntary consensus standards organizations. In those cases in which a Federal agency does not use voluntary consensus standards that are available and applicable, the agency must provide OMB with an explanation.

The rule does not involve performance-based or design-specific technical specifications or related management systems practices. The rule is therefore in compliance with the NTTAA.

F. Environmental Justice Requirements Under Executive Order 12898

Under Executive Order 12898, ''Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,'' a Federal agency must, where practicable and appropriate, collect, maintain, and analyze information assessing and comparing environmental and human health risks borne by populations identified by race, national origin, or income. To the extent practical and appropriate, Federal agencies must then use this information to determine whether their activities have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations.

The Department believes that implementation of the rule does not implicate environmental justice concerns. As noted earlier, the significant impact of base closure and realignment is the decision to close or realign, which this rule does not address. This rule does not mandate environmental restoration, which is controlled by other laws outside of the base closure and realignment process, nor does it involve decisions dealing with human health. It may be that during the planning process for disposal and reuse, issues relating to environment and human health may arise, but they would do so in the context of any required analysis under the National Environmental Policy Act and would be fully considered in that document.

At this time, the Department believes that no action will directly result from the rule that will have a disproportionately high and adverse human health and environmental effect on any segment of the population.

G. Federalism Considerations Under Executive Order 13132

Executive Order 13132, entitled ''Federalism'' (64 FR 43255, August 10, 1999), establishes certain requirements for Federal agencies issuing regulations, legislative comments, proposed legislation, or other policy statements or

actions that have ''federal implications.'' Under the Executive Order, any of these agency documents or actions have ''federal implications'' when they have ''substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.'' Section 6 of the Executive Order prohibits any agency from issuing a regulation that has federal implications, imposes substantial direct compliance costs on state and local governments, and is not required by statute. Such a regulation may be issued only if the Federal Government provides the funds necessary to pay the direct compliance costs incurred by state and local governments, or the agency consults with state and local officials early in the process of developing the proposed regulation. Further, a Federal agency may issue a regulation that has federalism implications and preempts state law only if the agency consults with state and local officials early in the process of developing the proposed regulation.

The rule does not have federalism implications because it will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government. The only role the rule assigns to state or local government is for the establishment of an LRA and that action is entirely voluntary on the part of local government and explicitly provided for in the base closure laws. This rule does not change the relationship between the Federal Government and state or local government nor does it change the distribution of power between those entities. To the extent changes in the rule relate to the role of an LRA, those changes are mandated by statute and the rule only reflects the statutory provisions. The rule does not impose direct compliance costs on state or local governments and the Department actually provides grants to state and local governments to support their voluntary participation in the base closure and realignment planning process. Therefore, the requirements of the Executive Order, Section 6, do not apply to the rule.

List of Subjects in 32 CFR Parts 174, 175, and 176

Community development, Surplus Government property.

■ Accordingly, 32 CFR part 174 is revised, part 175 is removed, and part 176 is amended to read as follows:

■ 1. Part 174 is revised to read as follows:

PART 174—REVITALIZING BASE CLOSURE COMMUNITIES AND ADDRESSING IMPACTS OF REALIGNMENT

Subpart A—General

Sec.
174.1 Purpose.
174.2 Applicability.
174.3 Definitions.

Subpart B—Policy

174.4 Policy.
174.5 Responsibilities.

Subpart C—Working with Communities and States

174.6 LRA and the redevelopment plan.

Subpart D—Real Property

174.7 Retention for DoD Component use and transfers to other Federal agencies.
174.8 Screening for properties covered by the Base Closure Community Redevelopment and Homeless Assistance Act of 1994, cross-reference.
174.9 Economic development conveyances.
174.10 Consideration for economic development conveyances.
174.11 Leasing of real property to non-Federal entities.
174.12 Leasing of transferred real property by Federal agencies.

Subpart E—Personal Property

174.13 Personal property.

Subpart F—Maintenance and Repair

174.14 Maintenance and repair.

Subpart G—Environmental Matters

174.15 Indemnification under Section 330 of the National Defense Authorization Act for Fiscal Year 1993.
174.16 Real property containing explosive or chemical agent hazards.
174.17 NEPA.
174.18 Historic preservation.

Authority: 10 U.S.C. 113 and 10 U.S.C. 2687 *note.*

Subpart A—General

§ 174.1 Purpose.

This part:

(a) Establishes policy, assigns responsibilities, and implements base closure laws and associated provisions of law relating to the closure and the realignment of installations. It does not address the process for selecting installations for closure or realignment.

(b) Authorizes the publication of DoD 4165.66–M, ''Base Redevelopment and Realignment Manual,'' in accordance with DoD 5025.1–M[1], ''DoD Directive System Procedures,'' March 2003.

§ 174.2 Applicability.

This part applies to:

(a) The Office of the Secretary of Defense, the Military Departments, the Chairman of the Joint Chiefs of Staff and the Joint Staff, the Combatant Commands, the Office of the Inspector General of the Department of Defense, the Defense Agencies, the DoD Field Activities, and all other organizational entities in the Department of Defense (hereafter referred to collectively as the ''DoD Components'').

(b) Installations in the United States selected for closure or realignment under a base closure law.

(c) Federal agencies and non-Federal entities that seek to obtain real or personal property on installations selected for closure or realignment.

§ 174.3 Definitions.

(a) *Base closure law.* This term has the same meaning as provided in 10 U.S.C. § 101(a)(17)(B) and (C).

(b) *Closure.* An action that ceases or relocates all current missions of an installation and eliminates or relocates all current personnel positions (military, civilian, and contractor), except for personnel required for caretaking, conducting any ongoing environmental cleanup, or property disposal. Retention of a small enclave, not associated with the main mission of the base, is still a closure.

(c) *Consultation.* Explaining and discussing an issue, considering objections, modifications, and alternatives; but without a requirement to reach agreement.

(d) *Date of approval.* This term has the same meaning as provided in section 2910(8) of the Defense Base Closure and Realignment Act of 1990, Pub. L. 101–510.

(e) *Excess property.* This term has the same meaning as provided in 40 U.S.C. § 102(3).

(f) *Installation.* This term has the same meaning as provided in the definition for ''military installation'' in section 2910(4) of the Defense Base Closure and Realignment Act of 1990, Pub. L. 101–510.

(g) *Local Redevelopment Authority* (LRA). This term has the same meaning as provided in the definition for ''redevelopment authority'' in section 2910(9) of the Defense Base Closure and Realignment Act of 1990, Pub. L. 101–510.

[1] Copies may be obtained at *http://www.dtic.mil/whs/directives/corres/publ.html.*

(h) *Military Department.* This term has the same meaning as provided in 10 U.S.C. 101(a)(8).

(i) *National Environmental Policy Act (NEPA).* The National Environmental Policy Act of 1969, Pub. L. 91–190, 42 U.S.C. 4321 *et seq.*, as amended.

(j) *Realignment.* This term has the same meaning as provided in section 2910(5) of the Defense Base Closure and Realignment Act of 1990, Pub. L. 101–510.

(k) *Secretary concerned.* This term has the same meaning as provided in 10 U.S.C. 101(a)(9)(A), (B), and (C).

(l) *Surplus property.* This term has the same meaning as provided in 40 U.S.C. 102(10).

(m) *Transition coordinator.* This term has the same meaning as used in section 2915 of the National Defense Authorization Act for Fiscal Year 1994, Public Law 103–160.

Subpart B—Policy

§ 174.4 Policy.

It is DoD policy to:

(a) Act expeditiously whether closing or realigning. Relocating activities from installations designated for closure will, when feasible, be accelerated to facilitate the transfer of real property for community reuse. In the case of realignments, the Department will pursue aggressive planning and scheduling of related facility improvements at the receiving location.

(b) Fully utilize all appropriate means to transfer property. Federal law provides the Department with an array of legal authorities, including public benefit transfers, economic development conveyances at cost and no cost, negotiated sales to state or local government, conservation conveyances, and public sales, by which to transfer property on closed or realigned installations. Recognizing that the variety of types of facilities available for civilian reuse and the unique circumstances of the surrounding communities does not lend itself to a single universal solution, the Department will use this array of authorities in a way that considers individual circumstances.

(c) Rely on and leverage market forces. Community redevelopment plans and military conveyance plans should be integrated to the extent practical and should take account of any anticipated demand for surplus military land and facilities.

(d) Collaborate effectively. Experience suggests that collaboration is the linchpin to successful installation redevelopment. Only by collaborating with the local community can the Department close and transfer property in a timely manner and provide a foundation for solid economic redevelopment.

(e) Speak with one voice. The Department of Defense, acting through the DoD Components, will provide clear and timely information and will encourage affected communities to do the same.

(f) Work with communities to address growth. The Department will work with the surrounding community so that the public and private sectors can provide the services and facilities needed to accommodate new personnel and their families. The Department recognizes that installation commanders and local officials, as appropriate (*e.g.*, State, county, and tribal), need to integrate and coordinate elements of their local and regional growth planning so that appropriate off-base facilities and services are available for arriving personnel and their families.

§ 174.5 Responsibilities.

(a) The Under Secretary of Defense for Acquisition, Technology, and Logistics shall issue DoD Instructions as necessary to further implement applicable public laws affecting installation closure and realignment implementation and shall monitor compliance with this part. All authorities and responsibilities of the Secretary of Defense—

(1) Vested in the Secretary of Defense by a base closure law, but excluding those provisions relating to the process for selecting installations for closure or realignment;

(2) Delegated from the Administrator of General Services relating to base closure and realignment matters;

(3) Vested in the Secretary of Defense by any other provision relating to base closure and realignment in a national defense authorization act, a Department of Defense appropriations act, or a military construction appropriations act, but excluding section 330 of the National Defense Authorization Act for Fiscal Year 1993; or

(4) Vested in the Secretary of Defense by Executive Order or regulation and relating to base closure and realignment, are hereby delegated to the Under Secretary of Defense for Acquisition, Technology, and Logistics.

(b) The authorities and responsibilities of the Secretary of Defense delegated to the Under Secretary of Defense for Acquisition, Technology, and Logistics under paragraph (a) of this section are hereby re-delegated to the Deputy Under Secretary of Defense (Installations and Environment).

(c) The Heads of the DoD Components shall ensure compliance with this part and any implementing guidance.

(d) Subject to the delegations in paragraphs (a) and (b) of this section, the Secretaries concerned shall exercise those authorities and responsibilities specified in subparts C through G of this part.

(e) The cost of recording deeds and other transfer documents is the responsibility of the transferee.

Subpart C—Working with Communities and States

§ 174.6 LRA and the redevelopment plan.

(a) The LRA should have broad-based membership, including, but not limited to, representatives from those jurisdictions with zoning authority over the property. Generally, there will be one recognized LRA per installation.

(b) The LRA should focus primarily on developing a comprehensive redevelopment plan based upon local needs. The plan should recommend land uses based upon an exploration of feasible reuse alternatives. If applicable, the plan should consider notices of interest received under a base closure law. This section shall not be construed to require a plan that is enforceable under state and local land use laws, nor is it intended to create any exemption from such laws.

(c)(1) The Secretary concerned will develop a disposal plan and, to the extent practicable, complete the appropriate environmental documentation no later than 12 months after receipt of the redevelopment plan. The redevelopment plan will be used as part of the proposed Federal action in conducting environmental analyses required under NEPA.

(2) In the event there is no LRA recognized by DoD or if a redevelopment plan is not received from the LRA within 9 months from the date referred to in section 2905(b)(7)(F)(iv) of Pub. L. 101–510, (unless an extension of time has been granted by the Deputy Under Secretary of Defense (Installations and Environment)), the Secretary concerned shall, after required consultation with the governor and heads of local governments, proceed with the disposal of property under applicable property disposal and environmental laws and regulations.

Subpart D—Real Property

§ 174.7 Retention for DoD Component use and transfer to other Federal agencies.

(a) To speed the economic recovery of communities affected by closures and realignments, the Department of Defense will identify DoD and Federal interests

in real property at closing and realigning installations as quickly as possible. The Secretary concerned shall identify such interests. The Secretary concerned will keep the LRA informed of these interests. This section establishes a uniform process, with specified timelines, for identifying real property that is available for use by DoD Components (which for purposes of this section includes the United States Coast Guard) or is excess to the needs of the Department of Defense and available for use by other Federal agencies, and for the disposal of surplus property for various purposes.

(b) The Secretary concerned should consider LRA input, if provided, in making determinations on the retention of property (location and size of cantonment area).

(c) Within one week of the date of approval of the closure or realignment, the Secretary concerned shall issue a notice of availability to the DoD Components and other Federal agencies covering closing and realigning installation buildings and property available for transfer to the DoD Components and other Federal agencies. The notice of availability should describe the property and buildings available for transfer. Withdrawn public domain lands which the Secretary of the Interior has determined are suitable for return to the jurisdiction of the Department of the Interior (DoI) will not be included in the notice of availability.

(d) To obtain consideration of a requirement for such available buildings and property, a DoD Component or Federal agency is required to provide a written, firm expression of interest for buildings and property within 30 days of the date of the notice of availability. An expression of interest must explain the intended use and the corresponding requirement for the buildings and property.

(e)(1) Within 60 days of the date of the notice of availability, the DoD Component or Federal agency expressing interest in buildings or property must submit an application for transfer of such property to a Military Department or Federal agency. In the case of a DoD Component that would normally, under the circumstances, obtain its real property needs from the Military Department disposing of the real property, the application should indicate the property would not transfer to another Military Department but should be retained by the current Military Department for the use of the DoD Component. To the extent a different Military Department provides real property support for the requesting DoD Component, the application must indicate the concurrence of the supporting Military Department.

(2) Within 90 days of the notice of availability, the Federal Aviation Administration (FAA) should survey the air traffic control and air navigation equipment at the installation to determine what is needed to support the air traffic control, surveillance, and communications functions supported by the Military Department, and to identify the facilities needed to support the National Airspace System. FAA requests for property to manage the National Airspace System will not be governed by paragraph (h) of this section. Instead, the FAA shall work directly with the Military Department to prepare an agreement to assume custody of the property necessary for control of the airspace being relinquished by the Military Department.

(f) The Secretary concerned will keep the LRA informed of the progress in identifying interests. At the same time, the LRA is encouraged to contact Federal agencies which sponsor public benefit conveyances for information and technical assistance. The Secretary concerned will provide to the LRA points of contact at the Federal agencies.

(g) DoD Components and Federal agencies are encouraged to discuss their plans and needs with the LRA, if an LRA exists. If an LRA does not exist, the consultation should be pursued with the governor or the heads of the local governments in whose jurisdiction the property is located. DoD Components and Federal agencies are encouraged to notify the Secretary concerned of the results of this consultation. The Secretary concerned, the Transition Coordinator, and the DoD Office of Economic Adjustment Project Manager are available to help facilitate communication between the DoD Components and Federal agencies, and the LRA, governor, and heads of local governments.

(h) An application for property from a DoD Component or Federal agency must contain the following information:

(1) A completed GSA Form 1334, *Request for Transfer* (for requests from DoD Components, a DD Form 1354 will be used). This must be signed by the head of the Component or agency requesting the property. If the authority to acquire property has been delegated, a copy of the delegation must accompany the form;

(2) A statement from the head of the requesting Component or agency that the request does not establish a new program (*i.e.*, one that has never been reflected in a previous budget submission or Congressional action);

(3) A statement that the requesting Component or agency has reviewed its real property holdings and cannot satisfy its requirement with existing property. This review must include all property under the requester's accountability, including permits to other Federal agencies and outleases to other organizations;

(4) A statement that the requested property would provide greater long-term economic benefits for the program than acquisition of a new facility or other property;

(5) A statement that the program for which the property is requested has long-term viability;

(6) A statement that considerations of design, layout, geographic location, age, state of repair, and expected maintenance costs of the requested property clearly demonstrate that the transfer will prove more economical over a sustained period of time than acquiring a new facility;

(7) A statement that the size of the property requested is consistent with the actual requirement;

(8) A statement that fair market value reimbursement to the Military Department will be made at the later of January of 2008, or at the time of transfer, unless this obligation is waived by the Office of Management and Budget and the Secretary concerned, or a public law specifically provides for a non-reimbursable transfer (this requirement does not apply to requests from DoD Components);

(9) A statement that the requesting DoD Component or Federal agency agrees to accept the care and custody costs for the property on the date the property is available for transfer, as determined by the Secretary concerned; and

(10) A statement that the requesting agency agrees to accept transfer of the property in its existing condition, unless this obligation is waived by the Secretary concerned.

(i) The Secretary concerned will make a decision on an application from a DoD Component or Federal agency based upon the following factors:

(1) The requirement must be valid and appropriate;

(2) The proposed use is consistent with the highest and best use of the property;

(3) The proposed transfer will not have an adverse impact on the transfer of any remaining portion of the installation;

(4) The proposed transfer will not establish a new program or substantially increase the level of a Component's or agency's existing programs;

(5) The application offers fair market value for the property, unless waived;

(6) The proposed transfer addresses applicable environmental responsibilities to the satisfaction of the Secretary concerned; and

(7) The proposed transfer is in the best interest of the Government.

(j) When there is more than one acceptable application for the same building or property, the Secretary concerned shall consider, in the following order—

(1) The need to perform the national defense missions of the Department of Defense and the Coast Guard;

(2) The need to support the homeland defense mission; and

(3) The LRA's comments as well as other factors in the determination of highest and best use.

(k) If the Federal agency does not meet its commitment under paragraph (h)(8) of this section to provide the required reimbursement, and the requested property has not yet been transferred to the agency, the requested property will be declared surplus and disposed of in accordance with the provisions of this part.

(l) Closing or realigning installations may contain ''public domain lands'' which have been withdrawn by the Secretary of the Interior from operation of the public land laws and reserved for use by the Department of Defense. Lands deemed suitable for return to the public domain are not real property governed by title 40, United States Code, and are not governed by the property management and disposal provisions of a base closure law. Public domain lands are under the jurisdiction of the Secretary of the Interior and administered by the Bureau of Land Management (BLM) unless the Secretary of the Interior has withdrawn the lands and reserved them for another Federal agency's use.

(1) The Secretary concerned will provide the BLM with information about which, if any, public domain lands will be affected by the installation's closure or realignment.

(2) The BLM will review the information to determine if any installations contain withdrawn public domain lands. The BLM will review its land records to identify any withdrawn public domain lands at the closing installations. Any records discrepancies between the BLM and Military Departments should be resolved. The BLM will notify the Secretary concerned as to the final agreed upon withdrawn and reserved public domain lands at an installation.

(3) Upon agreement as to what withdrawn and reserved public domain lands are affected at closing installations, the BLM will initiate a screening of DoI agencies to determine if these lands are suitable for programs of the Secretary of the Interior.

(4) The Secretary concerned will transmit a Notice of Intent to Relinquish (see 43 CFR Part 2370) to the BLM as soon as it is known that there is no DoD Component interest in reusing the public domain lands. The BLM will complete the suitability determination screening process within 30 days of receipt of the Secretary's Notice of Intent to Relinquish. If a DoD Component is approved to reuse the public domain lands, the BLM will be notified and BLM will determine if the current authority for military use of these lands needs to be modified or amended.

(5) If BLM determines the land is suitable for return, it shall notify the Secretary concerned that the intent of the Secretary of the Interior is to accept the relinquishment of the land by the Secretary concerned.

(6) If BLM determines the land is not suitable for return to the DoI, the land should be disposed of pursuant to base closure law.

(m) The Secretary concerned should make a surplus determination within six (6) months of the date of approval of closure or realignment, and shall inform the LRA of the determination. If requested by the LRA, the Secretary may postpone the surplus determination for a period of no more than six (6) additional months after the date of approval if the Secretary determines that such postponement is in the best interests of the communities affected by the closure or realignment.

(1) In unusual circumstances, extensions beyond six months can be granted by the Deputy Under Secretary of Defense (Installations and Environment).

(2) Extensions of the surplus determination should be limited to the portions of the installation where there is an outstanding interest, and every effort should be made to make decisions on as much of the installation as possible, within the specified timeframes.

(n) Once the surplus determination has been made, the Secretary concerned shall follow the procedures in part 176 of this title.

(o) Following the surplus determination, but prior to the disposal of property, the Secretary concerned may, at the Secretary's discretion, withdraw the surplus determination and evaluate a Federal agency's late request for excess property.

(1) Transfers under this paragraph shall be limited to special cases, as determined by the Secretary concerned.

(2) Requests shall be made to the Secretary concerned, as specified under paragraphs (h) and (i) of this section, and the Secretary shall notify the LRA of such late request.

(3) Comments received from the LRA and the time and effort invested by the LRA in the planning process should be considered when the Secretary concerned is reviewing a late request.

§ 174.8 Screening for properties covered by the Base Closure Community Redevelopment and Homeless Assistance Act of 1994, cross-reference.

The Departments of Defense and Housing and Urban Development have promulgated regulations to address state and local screening and approval of redevelopment plans for installations covered by the Base Closure Community Redevelopment and Homeless Assistance Act of 1994 (Pub. L. 103–421). The Department of Defense regulations can be found at part 176 of this title. The Department of Housing and Urban Development regulations can be found at 24 CFR part 586.

§ 174.9 Economic development conveyances.

(a) The Secretary concerned may transfer real property and personal property to the LRA for purposes of job generation on the installation. Such a transfer is an Economic Development Conveyance (EDC).

(b) For installations having a date of approval for closure after January 1, 2005, the Secretary concerned shall seek to obtain consideration in connection with any transfer under this section in an amount equal to the fair market value of the property.

(c) An LRA is the only entity able to receive property under an EDC.

(d) A properly completed application will be used to decide whether an LRA will be eligible for an EDC. An LRA may submit an EDC application only after it adopts a redevelopment plan. The Secretary concerned shall establish a reasonable time period for submission of an EDC application after consultation with the LRA. The Secretary will review the application and make a decision whether to make an EDC based on the criteria specified in paragraph (g) of this section; such decision will only be made after the Secretary has notified and obtained the concurrence of the Deputy Under Secretary of Defense (Installations & Environment) of the proposed decision. The terms and conditions of the EDC will be negotiated between the Secretary and the LRA.

(e) The application should explain why an EDC is necessary for job generation on the installation. In addition to the following elements, after the Secretary concerned reviews the application, additional information may be requested to allow for a better evaluation of the application:

(1) A copy of the adopted redevelopment plan.

(2) A project narrative including the following:

(A) A general description of the property requested.

(B) A description of the intended uses.

(C) A description of the economic impact of closure or realignment on the local community.

(D) A description of the financial condition of the community and the prospects for redevelopment of the property.

(E) A statement of how the EDC is consistent with the overall redevelopment plan.

(3) A description of how the EDC will contribute to short- and long-term job generation on the installation, including the projected number and type of new jobs it will assist in generating.

(4) A business/operational plan for the EDC parcel, including such elements as:

(A) A development timetable, phasing schedule, and cash flow analysis.

(B) A market and financial feasibility analysis describing the economic viability of the project, including an estimate of net proceeds over a fifteen-year period, the proposed consideration or payment to the Department of Defense, and the estimated present fair market value of the property.

(C) A cost estimate and justification for infrastructure and other investments needed for the development of the EDC parcel.

(D) Local investment and proposed financing strategies for the development.

(5) A statement describing why other authorities, such as public or negotiated sales and public benefit conveyances for education, parks, public health, aviation, historic monuments, prisons, and wildlife conservation, cannot be used to accomplish the job generation goals.

(6) Evidence of the LRA's legal authority to acquire and dispose of the property.

(7) Evidence that the LRA has full authority to perform all of the actions required of it pursuant to the terms of the EDC, can demonstrate through agreements or assurances that the LRA has the appropriate local government approvals to implement the approved reuse plan, and that the officers executing the EDC documents on behalf of the LRA have full authority to do so.

(8) Proof the LRA has obtained sufficient financing for acquiring the EDC property and carrying out the LRA's redevelopment objectives.

(f) Upon receipt of an application for an EDC, the Secretary concerned will determine whether an EDC is needed for purposes of job generation and examine whether the terms and conditions proposed are fair and reasonable. The Secretary may also consider information independent of the application, such as views of other Federal agencies, appraisals, caretaker costs, and other relevant material. The Secretary may propose and negotiate any alternative terms or conditions that the Secretary considers necessary seeking always to obtain an amount equal to the fair market value.

(g) The following factors will be considered, as appropriate, in evaluating the application and the terms and conditions of the proposed transfer, including price, time of payment, and other relevant methods of compensation to the Federal government.

(1) Adverse economic impact of closure or realignment on the region and potential for economic recovery through an EDC.

(2) Extent of short- and long-term job generation.

(3) Consistency with the entire redevelopment plan.

(4) Financial feasibility of the development, including market analysis and need and extent of proposed infrastructure and other investments.

(5) Extent of state and local investment, level of risk incurred, and the LRA's ability to implement the plan.

(6) Current local and regional real estate market conditions.

(7) Incorporation of other Federal agency interests and concerns, and applicability of, and conflicts with, other Federal surplus property disposal authorities.

(8) Relationship to the overall Military Department disposal plan for the installation.

(9) Economic benefit to the Federal Government, including protection and maintenance cost savings and anticipated consideration from the transfer.

(10) Compliance with applicable Federal, state, interstate, and local laws and regulations.

(h) Before making an EDC, the Secretary concerned shall prepare an estimate of the fair market value of the property.

(1) In preparing the estimate of fair market value, the Secretary concerned shall use the most recent edition of the *Uniform Appraisal Standards for Federal Land Acquisitions*, published by the Appraisal Institute in cooperation with the U.S. Department of Justice.

(2) The Secretary concerned shall consult with the LRA on valuation assumptions, guidelines, and on instructions given to the appraiser.

(3) The Secretary concerned is fully responsible for completion of the valuation. The Secretary, in preparing the estimate of fair market value shall consider the proposed uses identified in the redevelopment plan to the extent that they are not inconsistent with the highest and best use.

§ 174.10 Consideration for economic development conveyances.

(a) For conveyances made pursuant to § 174.9 of this part, the Secretary concerned will review the application for an EDC and negotiate the terms and conditions of each transaction with the LRA. The Secretary will have the discretion and flexibility to enter into agreements that specify the form of payment and the schedule. The consideration may be in cash or in-kind and may be paid over time.

(b) The Secretary concerned shall seek to obtain consideration at least equal to the fair market value, as determined by the Secretary.

(c) Any amount paid in the future should take into account the time value of money and include repayment of interest.

(d) Additional provisions may be incorporated in the conveyance documents to protect the Department's interest in obtaining the agreed upon consideration, including such items as predetermined release prices, or other appropriate clauses designed to ensure payment and protect against fraudulent transactions.

(e)(1) An EDC without consideration may only be made if—

(i) The LRA agrees that the proceeds from any sale or lease of the property (or any portion thereof) received by the LRA during at least the first seven years after the date of the initial transfer of property shall be used to support economic redevelopment of, or related to, the installation; and

(ii) The LRA executes the agreement for transfer of the property and accepts control of the property within a reasonable time after the date of the property disposal record of decision.

(2) The following purposes shall be considered a use to support economic redevelopment of, or related to, the installation—

(i) Road construction;

(ii) Transportation management facilities;

(iii) Storm and sanitary sewer construction;

(iv) Police and fire protection facilities and other public facilities;

(v) Utility construction;

(vi) Building rehabilitation;

(vii) Historic property preservation;

(viii) Pollution prevention equipment or facilities;

(ix) Demolition;

(x) Disposal of hazardous materials generated by demolition;

(xi) Landscaping, grading, and other site or public improvements; and

(xii) Planning for or the marketing of the development and reuse of the installation.

(f) Every agreement for an EDC without consideration shall contain provisions allowing the Secretary concerned to recoup from the LRA such portion of the proceeds from its sale or lease as the Secretary determines appropriate if the LRA does not use the proceeds to support economic redevelopment of, or related to, the installation for the period specified in paragraph (e)(1) of this section.

§ 174.11 Leasing of real property to non-Federal entities.

(a) Leasing of real property to non-Federal entities prior to the final disposition of closing and realigning installations may facilitate state and local economic adjustment efforts and encourage economic redevelopment, but the Secretary concerned will always concentrate on the final disposition of real and personal property.

(b) In addition to leasing property at fair market value, to assist local redevelopment efforts the Secretary concerned may also lease real and personal property, pending final disposition, for less than fair market value if the Secretary determines that:

(1) A public interest will be served as a result of the lease; and,

(2) The fair market value of the lease is unobtainable or not compatible with such public benefit.

(c) Pending final disposition of an installation, the Secretary concerned may grant interim leases which are short-term leases that make no commitment for future use or ultimate disposal. When granting an interim lease, the Secretary will generally lease to the LRA but can lease property directly to other entities. If the interim lease (after complying with NEPA) is entered into prior to completion of the final disposal decisions, the term may be for up to five years, including options to renew, and may contain restrictions on use. Leasing should not delay the final disposal of the property. After completion of the final disposal decisions, the term of the lease may be longer than five years.

(d) If the property is leased for less than fair market value to the LRA and the interim lease permits the property to be subleased, the interim lease shall provide that rents from the subleases will be applied by the lessee to the protection, maintenance, repair, improvement, and costs related to the property at the installation consistent with 10 U.S.C. 2667.

§ 174.12 Leasing of transferred real property by Federal agencies.

(a) The Secretary concerned may transfer real property that is still needed by a Federal agency (which for purposes of this section includes DoD Components) to an LRA provided the LRA agrees to lease the property to the Federal agency in accordance with all statutory and regulatory guidance.

(b) The decision whether to transfer property pursuant to such a leasing arrangement rests with the Secretary concerned. However, a Secretary shall only transfer property subject to such a leasing arrangement if the Federal agency that needs the property agrees to the leasing arrangement.

(c) If the subject property cannot be transferred pursuant to such a leasing arrangement (*e.g.*, the relevant Federal agency prefers ownership, the LRA and the Federal agency cannot agree on terms of the lease, or the Secretary concerned determines that such a lease would not be in the Federal interest), such property shall remain in Federal ownership unless and until the Secretary concerned determines that it is surplus.

(d) If a building or structure is proposed for transfer pursuant to this section, that which is leased by the Federal agency may be all or a portion of that building or structure.

(e) Transfers pursuant to this section must be to an LRA.

(f) Either existing Federal tenants or Federal agencies desiring to locate onto the property after operational closure may make use of such a leasing arrangement. The Secretary concerned may not enter into such a leasing arrangement unless:

(1) In the case of a Defense Agency, the Secretary concerned is acting in an Executive Agent capacity on behalf of the Agency that certifies that such a leasing arrangement is in the interest of that Agency; or,

(2) In the case of a Military Department, the Secretary concerned certifies that such a leasing arrangement is in the best interest of the Military Department and that use of the property by the Military Department is consistent with the obligation to close or realign the installation in accordance with the recommendations of the Defense Base Closure and Realignment Commission.

(g) Property eligible for such a leasing arrangement is not surplus because it is still needed by the Federal Government. Even though the LRA would not otherwise have to include such property in its redevelopment plan, it should include the property in its redevelopment plan anyway to take into account the planned Federal use of such property.

(h) The terms of the LRA's lease to the Federal Government should afford the Federal agency rights as close to those associated with ownership of the property as is practicable. The requirements of the General Services Administration (GSA) Federal Acquisition Regulation (48 CFR Part 570) are not applicable to the lease, but provisions in that regulation may be used to the extent they are consistent with this part. The terms of the lease are negotiable subject to the following:

(1) The lease shall be for a term of no more than 50 years, but may provide for options for renewal or extension of the term at the request of the Federal Government. The lease term should be based on the needs of the Federal agency.

(2) The lease, or any renewals or extensions thereof, shall not require rental payments.

(3) Notwithstanding paragraph (h)(2) of this section, if the lease involves a substantial portion of the installation, the Secretary concerned may obtain facility services for the leased property and common area maintenance from the LRA or the LRA's assignee as a provision of the lease.

(A) Such services and common area maintenance shall be provided at a rate no higher than the rate charged to non-Federal tenants of the transferred property.

(B) Such services and common area maintenance shall not include—

(i) Municipal services that a State or local government is required by law to provide to all landowners in its jurisdiction without direct charge, including police protection; or

(ii) Firefighting or security-guard functions.

(C) The Federal agency may be responsible for services such as janitorial, grounds keeping, utilities, capital maintenance, and other services normally provided by a landlord. Acquisition of such services by the Federal agency is to be accomplished through the use of Federal Acquisition Regulation procedures or otherwise in

accordance with applicable statutory and regulatory requirements.

(4) The lease shall include a provision prohibiting the LRA from transferring fee title to another entity during the term of the lease, other than one of the political jurisdictions that comprise the LRA, without the written consent of the Federal agency occupying the leased property.

(5)(i) The lease shall include an option specifying that if the Federal agency no longer needs the property before the expiration of the term of the lease, the remainder of the lease term may be satisfied by the same or another Federal agency that needs property for a similar use. (''Similar use'' is a use that is comparable to or essentially the same as the use under the original lease, as determined by the Secretary concerned.)

(ii)(B) If the tenant is a DoD Component, before notifying GSA of the availability of the leasehold, it shall determine whether any other DoD Component has a requirement for the leasehold; in doing so, it shall consult with the LRA. If another DoD Component has a requirement for the leasehold, that DoD Component shall be allowed to assume the leasehold for the remainder of its term. If no DoD Component has a requirement for the leasehold, the tenant shall notify GSA in accordance with paragraph (h)(5)(ii)(A) of this section.

(A) The Federal tenant shall notify the GSA of the availability of the leasehold. GSA will then decide whether to exercise this option after consulting with the LRA or other property owner. The GSA shall have 60 days from the date of notification in which to identify a Federal agency to serve out the term of the lease and to notify the LRA or other property owner of the new tenant. If the GSA does not notify the LRA or other property owner of a new tenant within such 60 days, the leasehold shall terminate on a date agreed to by the Federal tenant and the LRA or other property owner.

(B) If the GSA decides not to exercise this option after consulting with the LRA or other property owner, the leasehold shall terminate on a date agreed to by the Federal tenant and the LRA or other property owner.

(6) The terms of the lease shall provide that the Federal agency may repair and improve the property at its expense after consultation with the LRA.

(i) Property subject to such a leasing arrangement shall be conveyed in accordance with the existing EDC procedures. The LRA shall submit the following in addition to the application requirements outlined in § 174.9(e) of this part:

(1) A description of the parcel or parcels the LRA proposes to have transferred to it and then to lease to a Federal agency;

(2) A written statement signed by an authorized representative of the Federal agency that it agrees to accept the lease of the property; and,

(3) A statement explaining why such a leasing arrangement is necessary for the long-term economic redevelopment of the installation property.

(j) The exact amount of consideration, or the formula to be used to determine that consideration, as well as the schedule for payment of consideration must be agreed upon in writing before transfer pursuant to this section.

Subpart E—Personal Property

§ 174.13 Personal property.

(a) This section outlines procedures to allow transfer of personal property to the LRA for the effective implementation of a redevelopment plan. Personal property does not include fixtures.

(b) The Secretary concerned, supported by DoD Components with personal property on the installation, will take an inventory of the personal property, including its condition, within 6 months after the date of approval of closure or realignment. This inventory will be limited to the personal property located on the real property to be disposed of by the Military Department. The inventory will be taken in consultation with LRA officials. If there is no LRA, the Secretary concerned shall consult with the local government in whose jurisdiction the installation is wholly located, or a local government agency or a State government agency designated for that purpose by the Governor of the State. Based on these consultations, the installation commander will determine the items or category of items that have the potential to enhance the reuse of the real property.

(c) Except for property subject to the exemptions in paragraph (e) of this section, personal property with potential to enhance the reuse of the real property shall remain at an installation being closed or realigned until the earlier of:

(1) One week after the Secretary concerned receives the redevelopment plan;

(2) The date notified by the LRA that there will be no redevelopment plan;

(3) 24 months after the date of approval of the closure or realignment of the installation; or

(4) 90 days before the date of the closure or realignment of the installation.

(d) National Guard property under the control of the United States Property and Fiscal Officer is subject to inventory and may be made available for redevelopment planning purposes.

(e) Personal property may be removed upon approval of the installation commander or higher authority, as prescribed by the Secretary concerned, after the inventory required in paragraph (b) of this section has been sent to the LRA, when:

(1) The property is required for the operation of a unit, function, component, weapon, or weapons system at another installation;

(2) The property is uniquely military in character and is likely to have no civilian use (other than use for its material content or as a source of commonly used components). This property consists of classified items; nuclear, biological, and chemical items; weapons and munitions; museum property or items of significant historic value that are maintained or displayed on loan; and similar military items;

(3) The property is not required for the reutilization or redevelopment of the installation (as jointly determined by the Secretary concerned and the LRA);

(4) The property is stored at the installation for purposes of distribution (including spare parts or stock items) or redistribution and sale (DoD excess/surplus personal property). This property includes materials or parts used in a manufacturing or repair function but does not include maintenance spares for equipment to be left in place;

(5) The property meets known requirements of an authorized program of a DoD Component or another Federal agency that would have to purchase similar items, and is the subject of a written request by the head of the DoD Component or other Federal agency. If the authority to acquire personal property has been delegated, a copy of the delegation must accompany the request. (For purposes of this paragraph, ''purchase'' means the DoD Component or Federal agency intends to obligate funds in the current quarter or next six fiscal quarters.) The DoD Component or Federal agency must pay packing, crating, handling, and transportation charges associated with such transfers of personal property;

(6) The property belongs to a nonappropriated fund instrumentality (NAFI) of the Department of Defense; separate arrangements for communities to purchase such property are possible

and may be negotiated with the Secretary concerned;

(7) The property is not owned by the Department of Defense, *i.e.*, it is owned by a Federal agency outside the Department of Defense or by non-Federal persons or entities such as a State, a private corporation, or an individual; or,

(8) The property is needed elsewhere in the national security interest of the United States as determined by the Secretary concerned. This authority may not be re-delegated below the level of an Assistant Secretary. In exercising this authority, the Secretary may transfer the property to any DoD Component or other Federal agency.

(f) Personal property not subject to the exemptions in paragraph (e) of this section may be conveyed to the LRA as part of an EDC for the real property if the Secretary concerned makes a finding that the personal property is necessary for the effective implementation of the redevelopment plan.

(g) Personal property may also be conveyed separately to the LRA under an EDC for personal property. This type of EDC can be made if the Secretary concerned determines that the transfer is necessary for the effective implementation of a redevelopment plan with respect to the installation. Such determination shall be based on the LRA's timely application for the property, which should be submitted to the Secretary upon completion of the redevelopment plan. The application must include the LRA's agreement to accept the personal property after a reasonable period and will otherwise comply with the requirements of §§ 174.9 and 174.10 of this part. The transfer will be subject to reasonable limitations and conditions on use.

(h) Personal property that is not needed by a DoD Component or a tenant Federal agency or conveyed to an LRA (or a state or local jurisdiction in lieu of an LRA), or conveyed as related personal property together with the real property, will be transferred to the Defense Reutilization and Marketing Office for disposal in accordance with applicable regulations.

(i) Useful personal property not needed by the Federal Government and not qualifying for transfer to the LRA under an EDC may be donated to the community or LRA through the appropriate State Agency for Surplus Property (SASP) under 41 CFR part 102–37 surplus program guidelines. Personal property donated under this procedure must meet the usage and control requirements of the applicable SASP.

Subpart F—Maintenance and Repair

§ 174.14 Maintenance and repair.

(a) Facilities and equipment located on installations being closed are often important to the eventual reuse of the installation. This section provides maintenance procedures to preserve and protect those facilities and items of equipment needed for reuse in an economical manner that facilitates installation redevelopment.

(b) In order to ensure quick reuse, the Secretary concerned, in consultation with the LRA, will establish initial levels of maintenance and repair needed to aid redevelopment and to protect the property for the time periods set forth in paragraph (c) of this section. Where agreement between the Secretary and the LRA cannot be reached, the Secretary will determine the required levels of maintenance and repair and its duration. In no case will these initial levels of maintenance:

(1) Exceed the standard of maintenance and repair in effect on the date of approval of closure or realignment;

(2) Be less than maintenance and repair required to be consistent with Federal Government standards for excess and surplus properties as provided in the Federal Management Regulations of the GSA, 41 CFR part 102;

(3) Be less than the minimum levels required to support the use of such facilities or equipment for nonmilitary purposes; or,

(4) Require any property improvements, including construction, alteration, or demolition, except when the demolition is required for health, safety, or environmental purposes, or is economically justified in lieu of continued maintenance expenditures.

(c) Unless the Secretary concerned determines that it is in the national security interest of the United States, the levels of maintenance and repair specified in paragraph (b) of this section shall not be changed until the earlier of:

(1) One week after the Secretary concerned receives the redevelopment plan;

(2) The date notified by the LRA that there will be no redevelopment plan;

(3) 24 months after the date of approval of the closure or realignment of the installation; or

(4) 90 days before the date of the closure or realignment of the installation.

(d) The Secretary concerned may extend the time period for the initial levels of maintenance and repair for property still under the Secretary's control for an additional period, if the Secretary determines that the LRA is actively implementing its redevelopment plan, and such levels of maintenance are justified.

(e) Once the time period for the initial or extended levels of maintenance and repair expires, the Secretary concerned will reduce the levels of maintenance and repair to levels consistent with Federal Government standards for excess and surplus properties as provided in the Federal Management Regulations of the GSA, except in the case of facilities still being used to perform a DoD mission.

Subpart G—Environmental Matters

§ 174.15 Indemnification under Section 330 of the National Defense Authorization Act for Fiscal Year 1993.

Section 330 of the National Defense Authorization Act for Fiscal Year 1993, Pub. L. 102–484, as amended, provides for indemnification of transferees of closing Department of Defense properties under circumstances specified in that statute. The authority to implement this provision of law has been delegated by the Secretary of Defense to the General Counsel of the Department of Defense; therefore, this provision of law shall only be referred to or recited in any deed, sales agreement, bill of sale, lease, license, easement, right-of-way, or transfer document for real or personal property after obtaining the written concurrence of the Deputy General Counsel (Environment and Installations), Office of the General Counsel, Department of Defense.

§ 174.16 Real property containing explosive or chemical agent hazards.

The DoD Component controlling real property known to contain or suspected of containing explosive or chemical agent hazards from past DoD military munitions-related or chemical warfare-related activities shall, prior to transfer of the property out of Department of Defense control, obtain the DoD Explosives Safety Board's approval of measures planned to ensure protectiveness from such hazards, in accordance with DoD Directive 6055.9E, *Explosives Safety Management and the DoD Explosives Safety Board*.

§ 174.17 NEPA.

At installations subject to this part, NEPA analysis shall comply with the promulgated NEPA regulations of the Military Department exercising real property accountability for the installation, including any requirements relating to responsibility for funding the analysis. See 32 CFR parts 651 (for the Army), 775 (for the Navy), and 989 (for

the Air Force). Nothing in this section shall be interpreted as releasing a Military Department from complying with its own NEPA regulation.

§ 174.18 Historic preservation.

(a) The transfer, lease, or sale of National Register-eligible historic property to a non-Federal entity at installations subject to this part may constitute an ''adverse effect'' under the regulations implementing the National Historic Preservation Act (36 CFR 800.5(a)(2)(vii)). One way of resolving this adverse effect is to restrict the use that may be made of the property subsequent to its transfer out of Federal ownership or control through the imposition of legally enforceable restrictions or conditions. The Secretary concerned may include such restrictions or conditions (typically a real property interest in the form of a restrictive covenant or preservation easement) in any deed or lease conveying an interest in historic property to a non-Federal entity. Before doing so, the Secretary should first consider whether the historic character of the property can be protected effectively through planning and zoning actions undertaken by units of State or local government; if so, working with such units of State or local government to protect the property through these means is preferable to encumbering the property with such a covenant or easement.

(b) Before including such a covenant or easement in a deed or lease, the Secretary concerned shall consider—

(1) Whether the jurisdiction that encompasses the property authorizes such a covenant or easement; and

(2) Whether the Secretary can give or assign to a third party the responsibility for monitoring and enforcing such a covenant or easement.

PART 175—[REMOVED AND RESERVED]

■ 2. Part 175 is removed and reserved.

PART 176—REVITALIZING BASE CLOSURE COMMUNITIES AND COMMUNITY ASSISTANCE—COMMUNITY REDEVELOPMENT AND HOMELESS ASSISTANCE

■ 3. The authority citation for part 176 continues to read as follows:

Authority: 10 U.S.C. 2687 *note.*

§ 176.20 [AMENDED]

■ 4. Section 176.20(b) is amended by revising ''32 CFR part 175'' to read ''32 CFR part 174''.

Dated: February 24, 2006.

L.M. Bynum,

Alternate OSD Federal Register Liaison Officer, DoD.

[FR Doc. 06–1902 Filed 2–24–06; 12:08 pm]

BILLING CODE 5001–06–P

DEPARTMENT OF DEFENSE

Department of the Navy

32 CFR Part 706

Certifications and Exemptions Under the International Regulations for Preventing Collisions at Sea, 1972

AGENCY: Department of the Navy, DOD.

ACTION: Final rule.

SUMMARY: The Department of the Navy is amending its certifications and exemptions under the International Regulations for Preventing Collisions at Sea, 1972 (72 COLREGS), to reflect that the Deputy Assistant Judge Advocate General of the Navy (Admiralty and Maritime Law) has determined that Causeway Ferry Power Modules (CFPM) and Warping Tugs (WT) are vessels of the Navy which, due to their special construction and purpose, cannot fully comply with certain provisions of the 72 COLREGS without interfering with their special function as naval ships. The intended effect of this rule is to warn mariners in waters where 72 COLREGS apply.

DATES: *Effective Date:* September 9, 2005.

FOR FURTHER INFORMATION CONTACT: Commander Gregg A. Cervi, JAGC, U.S. Navy, Deputy Assistant Judge Advocate General (Admiralty and Maritime Law), Office of the Judge Advocate General, 1322 Patterson Avenue, Suite 3000, Washington Navy Yard, DC 20374–5066, telephone 202–685–5040.

SUPPLEMENTARY INFORMATION: Pursuant to the authority granted in 33 U.S.C. 1605, the Department of the Navy amends 32 CFR part 706. This amendment provides notice that the Deputy Assistant Judge Advocate General of the Navy (Admiralty and Maritime Law), under authority delegated by the Secretary of the Navy, has certified that Causeway Ferry Power Modules (CFPM) and Warping Tugs (WT) are vessels of the Navy which, due to their special construction and purpose, cannot fully comply with the following specific provisions of the 72 COLREGS without interfering with their special function as naval ships: Rule 21(a), pertaining to the placement of masthead lights over the fore and aft centerline of the vessel; Rule 23(a)(i) and Annex I paragraph 3(c), pertaining to placement of the masthead light in the forward part of the ship; Annex I, paragraph 3(b), pertaining to the placement of sidelights aft of the masthead light and at or near the side of the vessel; and Annex I, paragraph 2(i)(i), pertaining to placement of task lights in a vertical line not less than 2 meters apart. The Deputy Assistant Judge Advocate General of the Navy (Admiralty and Maritime Law) has also certified that the lights involved are located in closest possible compliance with the applicable 72 COLREGS requirements.

Moreover, it has been determined, in accordance with 32 CFR parts 296 and 701, that publication of this amendment for public comment prior to adoption is impracticable, unnecessary, and contrary to public interest since it is based on technical findings that the placement of lights on these vessels in a manner differently from that prescribed herein will adversely affect the vessels' ability to perform their military functions.

List of Subjects in 32 CFR Part 706

Marine safety, Navigation (water), and Vessels.

■ For the reasons set forth in the preamble, amend part 706 of title 32 of the Code of Federal Regulations as follows:

PART 706—CERTIFICATIONS AND EXEMPTIONS UNDER THE INTERNATIONAL REGULATIONS FOR PREVENTING COLLISIONS AT SEA, 1972

■ 1. The authority citation for 32 CFR part 706 continues to read as follows:

Authority: 33 U.S.C. 1605.

■ 2. Table Two of § 706.2 is amended by adding, in numerical order, the following entries for CFPM (class) and WT (class):

§ 706.2 Certifications of the Secretary of the Navy under Executive Order 11964 and 33 U.S.C. 1605.

* * * * *

TABLE TWO

Vessel	Number	Masthead lights, distance to stbd of keel in meters; Rule 21(a)	Forward anchor light, distance below flight deck in meters; § 2(K), Annex I	Forward anchor light, number of; Rule 30(a)(i)	AFT anchor light, distance below flight deck in meters; Rule 21(e), Rule 30(a)(ii)	AFT anchor light, number of; rule 30(a)(ii)	Side lights, distance below flight deck in meters; § 2(g), Annex I	Side lights, distance forward of forward masthead light in meters; § 3(b), Annex I	Side lights, distance inboard of ship's sides in meters; § 3(b), Annex I
CFPM (class).	CFPM–1 through CFPM–2.	2.32	.....	.....	.....	.....	.....	2.01	[5] 5.73
*	*		*	*		*	*		*
WT (class)	WT–1 through WT–4.	2.32	.....	.....	.....	.....	.....	2.01	[5] 5.73

[5] Port sidelight only.

■ 3. Table Four of § 706.2 is amended by revising paragraph 5 and adding paragraph 21 to read as follows:

§ 706.2 Certifications of the Secretary of the Navy under Executive Order 11964 and 33 U.S.C. 1605.

* * * * *

Table Four

* * * * *

5. The masthead light required by Rule 23(a)(i) and Annex I, Paragraph 3(d), is not located in the forward part of the vessel on the CFPM Class, CSP Class, SLWT Class, and WT Class.

* * * * *

21. On the following ships, the forward towing light array and Restricted Maneuvering light array do not meet the vertical spacing requirements described by Annex I, paragraph 2(i)(i).

Vessel	Forward towing light array, vertical spacing (meters)	Restricted maneuvering light array, vertical spacing (meters)
CFPM–1 through CFPM–2	1.00	1.00
WT–1 through WT–4	1.00	1.00

* * * * *

Approved: September 9, 2005.

Gregg A. Cervi,

Commander, JAGC, U.S. Navy, Deputy Assistant Judge Advocate General (Admiralty and Maritime Law).

[FR Doc. 06–1807 Filed 2–27–06; 8:45 am]

BILLING CODE 3810–FF–P

DEPARTMENT OF HOMELAND SECURITY

Coast Guard

33 CFR Part 165

[COTP KEY WEST 06–029]

RIN 1625–AA87

Security Zone; Atlantic Ocean Five Miles South of Boca Chica, FL

AGENCY: Coast Guard, DHS.

ACTION: Temporary final rule.

SUMMARY: The Coast Guard is establishing a temporary security zone 5 miles south of Boca Chica, Florida, in support of aircraft recovery operations. This security zone is being implemented to ensure the security of the recovery site. All vessels will be excluded from the security zone until salvage operations are complete.

DATES: This rule is effective from 12:01 p.m. on February 7, 2006, through March 10, 2006.

ADDRESSES: Documents mentioned in this preamble as being available in the docket are part of docket COTP KEY WEST 06–029 and are available for inspection and copying at Coast Guard Sector Key West, 100 Trumbo Point, Key West, FL 33040, between 8 a.m. and 4 p.m. EDT, Monday through Friday except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Lieutenant Dan Silvestro at Coast Guard Sector Key West Prevention Department, telephone 305–292–8808.

SUPPLEMENTARY INFORMATION:

Regulatory Information

We did not publish a notice of proposed rulemaking (NPRM) for this regulation. Under 5 U.S.C. 553 (b)(B), the Coast Guard finds that good cause exists for not publishing a NPRM. Publishing a NPRM, which would incorporate a comment period before a final rule could be issued and delay the rule's effective date, is contrary to public interest because immediate action is necessary to protect the public and the waters of the United States. For the same reason, under 5 U.S.C. 553 (d)(3), the Coast Guard finds that good cause exists for making this rule effective less than 30 days after publication in the **Federal Register**. The Coast Guard will issue a broadcast notice to mariners to advise mariners of the restriction.

Background and Purpose

On February 6, 2006, a Navy F–18 aircraft went down in the vicinity of position 21°31′ N, 081°33.76′ W. The purpose of this security zone is to ensure the security of the sensitive information on the aircraft.

Discussion of Rule

This rule creates a temporary security zone 500 yards around position 21°31′ N, 081°33.76′ W. All vessels and persons are prohibited from anchoring, mooring, entering or remaining within the Security Zone unless authorized by the Captain of the Port, Key West, Florida or his designated representative(s). This zone is in effect from February 7, 2006 through March 10, 2006.

Regulatory Evaluation

This rule is not a ''significant regulatory action'' under section 3(f) of Executive Order 12866, Regulatory Planning and Review, and does not require an assessment of potential costs and benefits under section 6(a)(3) of that Order. The Office of Management and Budget has not reviewed it under that Order. It is not ''significant'' under the regulatory policies and procedures of

the Department of Homeland Security (DHS).

We expect the economic impact of this proposed rule to be so minimal that a full Regulatory Evaluation under the regulatory policies and procedures of DHS is unnecessary.

Small Entities

Under the Regulatory Flexibility Act (5 U.S.C. 601–612), we have considered whether this rule would have a significant economic impact on a substantial number of small entities. The term ''small entities'' comprises small businesses, not-for-profit organizations that are independently owned and operated and are not dominant in their fields, and governmental jurisdictions with populations of less than 50,000.

The Coast Guard certifies under 5 U.S.C. 605(b) that this rule will not have a significant economic impact on a substantial number of small entities because the regulations will only be in effect for a short period of time and the impact on routine navigation is expected to be minimal. Vessels wishing to transit the area can simple go around the security zone.

Assistance for Small Entities

Under section 213(a) of the Small Business Regulatory Enforcement Fairness Act of 1996 (Pub. L. 104–121), we offered to assist small entities in understanding the rule so that they could better evaluate its effects on them and participate in the rulemaking process. If the rule will affect your small business, organization, or government jurisdiction and you have questions concerning its provisions or options for compliance, please contact the person listed under **FOR FURTHER INFORMATION CONTACT** for assistance in understanding this rule.

Small businesses may send comments on the actions of Federal employees who enforce, or otherwise determine compliance with, Federal regulations to the Small Business and Agriculture Regulatory Enforcement Ombudsman and the Regional Small Business Regulatory Fairness Boards. The Ombudsman evalutes these actions annually and rates each agency's responsiveness to small business. If you wish to comment on actions by employees of the Coast Guard, call 1–888–REG–FAIR (1–888–734–3247).

Collection of Information

This rule calls for no new collection of information under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501–3520).

Federalism

A rule has implications for federalism under Executive Order 13132, Federalism, if it has a substantial direct effect on State or local governments and would either preempt State law or impose a substantial direct cost of compliance on them. We have analyzed this rule under that Order and have determined that it does not have implications for federalism.

Unfunded Mandates Reform Act

The Unfunded Mandates Reform Act of 1995 (2 U.S.C. 1531–1538) requires Federal agencies to assess the effects of their discretionary regulatory actions. In particular, the Act addresses actions that may result in the expenditure by a State, local, or tribal government, in the aggregate, or by the private sector of $100,000,000 or more in any one year. Though this rule will not result in such an expenditure, we do discuss the effects of this rule elsewhere in this preamble.

Taking of Private Property

This rule will not effect a taking of private property or otherwise have taking implications under Executive Order 12630, Governmental Actions and Interference with Constitutionally Protected Property Rights.

Civil Justice Reform

This rule meets applicable standards in sections 3(a) and 3(b)(2) of Executive Order 12988, Civil Justice Reform, to minimize litigation, eliminate ambiguity, and reduce burden.

Protection of Children

We have analyzed this rule under Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks. This rule is not an economically significant rule and does not create an environmental risk to health or risk to safety that may disproportionately affect children.

Indian Tribal Governments

This rule does not have tribal implications under Executive Order 13175, Consultation and Coordination with Indian Tribal Governments, because it does not have a substantial direct effect on one or more Indian tribes, on the relationship between the Federal Government and Indian tribes, or on the distribution of power and responsibilities between the Federal Government and Indian tribes.

Energy Effects

We have analyzed this rule under Executive Order 13211, Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use. We have determined that it is not a ''significant energy action'' under that order because it is not a ''significant regulatory action'' under Executive Order 12866 and is not likely to have a significant adverse effect on the supply, distribution, or use of energy. The Administrator of the Office of Information and Regulatory Affairs has not designated it as a significant energy action. Therefore, it does not require a Statement of Energy Effects under Executive Order 13211.

Technical Standards

The National Technology Transfer and Advancement Act (NTTAA) (15 U.S.C. 272 note) directs agencies to use voluntary consensus standards in their regulatory activities unless the agency provides Congress, through the Office of Management and Budget, with an explanation of why using these standards would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (*e.g.,* specifications of materials, performance, design, or operation; test methods; sampling procedures; and related management systems practices) that are developed or adopted by voluntary consensus standards bodies.

This rule does not use technical standards. Therefore, we did not consider the use of voluntary consensus standards.

Environment

We have analyzed this rule under Commandant Instruction M16475.lD, which guides the Coast Guard in complying with the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321–4370f), and have concluded that there are no factors in this case that would limit the use of a categorical exclusion under section 2.B.2 of the Instruction. Therefore, this rule is categorically excluded, under figure 2–1, paragraph (34)(g), of the Instruction, from further environmental documentation. A final ''Environmental Analysis Check List'' and a final ''Categorical Exclusion Determination'' are not required for this rule.

List of Subjects in 33 CFR Part 165

Harbors, Marine safety, Navigation (water), Reporting and recordkeeping requirements, Security measures, Waterways.

■ For the reasons discussed in the preamble, the Coast Guard amends 33 CFR part 165 as follows:

PART 165—REGULATED NAVIGATION AREAS AND LIMITED ACCESS AREAS

■ 1. The authority citation for part 165 continues to read as follows:

Authority: 33 U.S.C. 1226, 1231; 46 U.S.C. Chapter 701; 50 U.S.C. 191, 195; 33 CFR 1.05–1(g), 6.04–1, 6.04–6, and 160.5; Pub. L. 107–295, 116 Stat. 2064; Department of Homeland Security Delegation No. 0170.1.

■ 2. Add § 165.T07–029 to read as follows:

§ 165.T07–029 Security Zone; Atlantic Ocean Five Miles South of Boca Chica, Florida

(a) *Regulated Area.* The Coast Guard is establishing a temporary security zone in and on the waters 5 miles south of Boca Chica, Florida within a 500 yard radius of position 21°31′ N, 081°33.76′ W.

(b) *Definitions.* Designated Representative(s) includes Coast Guard Patrol Commanders including Coast Guard coxswains, petty officers, and other officers operating Coast Guard vessels, and Federal, state, and local officers designated by or assisting the Captain of the Port, Key West, Florida with enforcement of this regulation.

(c) *Regulations.* All vessels and persons are prohibited from anchoring, mooring, entering or remaining within the Regulated Area unless authorized by the Captain of the Port, Key West, Florida or designated representative(s). Persons desiring to enter or transit the Regulated Area may contact the Captain of the Port, Key West, Florida via telephone at (305) 292–8727. If permission to transit the regulated area is granted by the Captain of the Port, Key West, Florida or his designated representative(s), all persons and vessels must comply with the instructions of the Captain of the Port, Key West, Florida or his designated representative(s).

(d) *Effective Dates.* This rule is effective from 12:01 p.m. on February 7, 2006, through March 10, 2006.

Dated: February 9, 2006.

P.J. Heyl,

Captain, U.S. Coast Guard, Captain of the Port, Key West, Florida.

[FR Doc. 06–1806 Filed 2–27–06; 8:45 am]

BILLING CODE 4910–15–P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[GA–200533; FRL–8022–4]

Approval and Promulgation of Air Quality Implementation Plans; Georgia Update to Materials Incorporated by Reference

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule; notice of administrative change.

SUMMARY: EPA is publishing this action to provide the public with notice of the update to the Georgia State Implementation Plan (SIP) compilation. In particular, materials submitted by Georgia that are incorporated by reference (IBR) into the Georgia SIP are being updated to reflect EPA-approved revisions to Georgia's SIP that have occurred since the last update.

DATES: This action is effective February 28, 2006.

ADDRESSES: SIP materials which are incorporated by reference into 40 CFR part 52 are available for inspection at the following locations: Environmental Protection Agency, Region 4, 61 Forsyth Street, SW., Atlanta, GA 30303; the EPA, Air and Radiation Docket and Information Center, Air Docket (Mail Code 6102T), 1200 Pennsylvania Avenue, NW., Washington, DC 20460, and the National Archives and Records Administration. For information on the availability of this material at NARA, call 202–741–6030, or go to: *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.*

FOR FURTHER INFORMATION CONTACT: Ms. Stacy Difrank at the above Region 4 address or at (404) 562–9042. E-mail: *difrank.stacy@epa.gov.*

SUPPLEMENTARY INFORMATION: Each state has a SIP containing the control measures and strategies used to attain and maintain the national ambient air quality standards (NAAQS). The SIP is extensive, containing such elements as air pollution control regulations, emission inventories, monitoring networks, attainment demonstrations, and enforcement mechanisms.

Each state must formally adopt the control measures and strategies in the SIP after the public has had an opportunity to comment on them and then submit the SIP to EPA. Once these control measures and strategies are approved by EPA, after notice and comment, they are incorporated into the federally approved SIP and are identified in part 52 ''Approval and Promulgation of Implementation Plans,'' Title 40 of the Code of Federal Regulations (40 CFR part 52). The full text of the state regulation approved by EPA is not reproduced in its entirety in 40 CFR part 52, but is ''incorporated by reference.'' This means that EPA has approved a given state regulation with a specific effective date. The public is referred to the location of the full text version should they want to know which measures are contained in a given SIP. The information provided allows EPA and the public to monitor the extent to which a state implements a SIP to attain and maintain the NAAQS and to take enforcement action if necessary.

The SIP is a living document which the state can revise as necessary to address the unique air pollution problems in the state. Therefore, EPA from time to time must take action on SIP revisions containing new and/or revised regulations as being part of the SIP. On May 22, 1997, (62 FR 27968), EPA revised the procedures for incorporating by reference, into the Code of Federal Regulations, materials submitted by states in their EPA-approved SIP revisions. These changes revised the format for the identification of the SIP in 40 CFR part 52, stream-lined the mechanisms for announcing EPA approval of revisions to a SIP, and stream-lined the mechanisms for EPA's updating of the IBR information contained for each SIP in 40 CFR part 52. The revised procedures also called for EPA to maintain ''SIP Compilations'' that contain the federally-approved regulations and source specific permits submitted by each state agency. These SIP Compilations are contained in 3-ring binders and are updated primarily on an annual basis. Under the revised procedures, EPA is to periodically publish an informational document in the rules section of the **Federal Register** when updates are made to a SIP Compilation for a particular state. EPA's 1997 revised procedures were formally applied to Georgia on May 21, 1999 (64 FR 27699).

This action represents EPA's publication of the Georgia SIP Compilation update, appearing in 40 CFR part 52.

EPA has determined that today's action falls under the ''good cause'' exemption in the section 553(b)(3)(B) of the Administrative Procedure Act (APA) which, upon finding ''good cause,'' authorizes agencies to dispense with public participation and section 553(d)(3) which allows an agency to make an action effective immediately (thereby avoiding the 30-day delayed

effective date otherwise provided for in the APA). Today's administrative action simply codifies provisions which are already in effect as a matter of law in Federal and approved state programs. Under section 553 of the APA, an agency may find good cause where procedures are ''impractical, unnecessary, or contrary to the public interest.'' Public comment for this administrative action is ''unnecessary'' and ''contrary to the public interest'' since the codification only reflect existing law. Immediate notice of this action in the **Federal Register** benefits the public by providing the public notice of the updated Georgia SIP Compilation.

Statutory and Executive Order Reviews

A. General Requirements

Under Executive Order 12866 (58 FR 51735, October 4, 1993), this administrative action is not a ''significant regulatory action'' and is therefore not subject to review by the Office of Management and Budget. This action is not subject to Executive Order 13211, ''Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use'' (66 FR 28355, May 22, 2001) because it is not a significant regulatory action under Executive Order 12866. Because the agency has made a ''good cause'' finding that this action is not subject to notice-and-comment requirements under the APA or any other statute as indicated in the Supplementary Information section above, it is not subject to the regulatory flexibility provisions of the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*), or to sections 202 and 205 of the Unfunded Mandates Reform Act (UMRA) of 1995 (Pub. L. 104–4). In addition, this action does not significantly or uniquely affect small governments or impose a significant intergovernmental mandate, as described in sections 203 and 204 of UMRA. This administrative action also does not have a substantial direct effect on one or more Indian tribes, on the relationship between the Federal government and Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes, as specified by Executive Order 13175 (65 FR 67249, November 9, 2000), nor will it have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132 (64 FR 43255, August 10, 1999). This administrative action also is not subject to Executive Order 13045 (62 FR 19885, April 23, 1997), because it is not economically significant. This administrative action does not involve technical standards; thus the requirements of section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note) do not apply. The administrative action also does not involve special consideration of environmental justice related issues as required by Executive Order 12898 (59 FR 7629, February 16, 1994). This administrative action does not impose an information collection burden under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*). EPA's compliance with these Statutes and Executive Orders for the underlying rules are discussed in previous actions taken on the State's rules.

B. Submission to Congress and the Comptroller General

The Congressional Review Act (CRA) (5 U.S.C. 801 *et seq.*), as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. Section 808 allows the issuing agency to make a rule effective sooner than otherwise provided by the CRA if the agency makes a good cause finding that notice and public procedure is impracticable, unnecessary or contrary to the public interest. Today's administrative action simply codifies provisions which are already in effect as a matter of law in Federal and approved state programs. 5 U.S.C. 808(2). These announced actions were effective when EPA approved them through previous rulemaking actions. EPA will submit a report containing this action and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of this action in the **Federal Register**. This update to Georgia's SIP Compilation is not a ''major rule'' as defined by 5 U.S.C. 804(2).

C. Petitions for Judicial Review

EPA has also determined that the provisions of section 307(b)(1) of the Clean Air Act pertaining to petitions for judicial review are not applicable to this action. This action is simply an announcement of prior rulemakings that have previously undergone notice and comment rulemaking. Prior EPA rulemaking actions for each individual component of the Georgia SIP compilation previously afforded interested parties the opportunity to file a petition for judicial review in the United States Court of Appeals for the appropriate circuit within 60 days of such rulemaking action.

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Carbon monoxide, Incorporation by reference, Intergovernmental relations, Lead, Nitrogen dioxide, Ozone, Particulate matter, Reporting and recordkeeping requirements, Sulfur oxides, Volatile organic compounds.

Dated: January 6, 2006.

A. Stanley Meiburg,

Acting Regional Administrator, Region 4.

■ 40 CFR part 52 is amended as follows:

PART 52—[AMENDED]

■ 1. The authority for citation for part 52 continues to read as follows:

Authority: 42 U.S.C. 7401 *et seq.*

Subpart L—Georgia

■ 2. Section 52.570 is amended by revising paragraph (b) and (c) to read as follows:

52.570 Identification of plan.

* * * * *

(b) Incorporation by reference.

(1) Material listed in paragraph (c) of this section with an EPA approval date prior to July 1, 2005, and paragraph (d) with an EPA approval date prior to April 10, 2003, was approved for incorporation by reference by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Material is incorporated as it exists on the date of the approval, and notice of any change in the material will be published in the **Federal Register**. Entries in paragraph (c) of this section with EPA approval dates after July 1, 2005, and paragraph (d) with an EPA approval date after April 10, 2003, will be incorporated by reference in the next update to the SIP compilation.

(2) EPA Region 4 certifies that the rules/regulations provided by EPA in the SIP compilation at the addresses in paragraph (b)(3) are an exact duplicate of the officially promulgated State rules/regulations which have been approved as part of the state implementation plan as of July 1, 2005.

(3) Copies of the materials incorporated by reference may be inspected at the Region 4 EPA Office at 61 Forsyth Street, SW., Atlanta, GA 30303; the EPA, Air and Radiation Docket and Information Center, Air Docket, 1301 Constitution Avenue NW.,

Room B102, Washington, DC 20460; or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: *http://www.archives.gov/federal_ register/code_of_ federal_regulations/ibr_locations.html*

(c) EPA approved regulations.

EPA APPROVED GEORGIA REGULATIONS

State citation	Title/subject	State effective date	EPA approval date	Explanation
391–3–1–.01	Definitions	12/03/02	7/09/03 68 FR 40786	
391–3–1–.02	Provisions.			
391–3–1–.02(1)	General Requirements	03/20/79	09/18/79 44 FR 54047	
391–3–1.02(2)	Emission Standards	06/23/96	06/27/96 61 FR 33372	
391–3–1–.02(2)(a)	General Provisions	01/09/91	01/26/93 58 FR 6093	
391–3–1–.02(2)(b)	Visible Emissions	01/17/79	09/18/79 44 FR 54047	
391–3–1–.02(2)(c)	Incinerators	06/15/98	12/02/99 64 FR 67491	
391–3–1–.02(2)(d)	Fuel-burning Equipment	01/17/79	09/18/79 44 FR 54047	
391–3–1–.02(2)(e)	Particulate Emission from Manufacturing Processes.	01/17/79	09/18/79 44 FR 54047	
391–3–1–.02(2)(f)	Normal Superphosphate Manufacturing Facilities.	01/17/79	09/18/79 44 FR 54047	
391–3–1–.02(2)(g)	Sulfur Dioxide	07/17/02	07/09/03 68 FR 40789	
391–3–1–.02(2)(h)	Portland Cement Plants	01/17/79	09/18/79 44 FR 54047	
391–3–1–.02(2)(i)	Nitric Acid Plants	01/17/79	09/18/79 44 FR 54047	
391–3–1–.02(2)(j)	Sulfuric Acid Plants	01/17/79	09/18/79 44 FR 54047	
391–3–1–.02(2)(k)	Particulate Emission from Asphaltic Concrete Hot Mix Plants.	01/17/79	09/18/79 44 FR 54047	
391–3–1–.02(2)(l)	Conical Burners	01/17/79	09/18/79 44 FR 54047	
391–3–1–.02(2)(m)	repealed	06/30/75	10/03/75 40 FR 45818	
391–3–1–.02(2)(n)	Fugitive Dust	01/17/79	09/18/79 44 FR 54047	
391–3–1–.02(2)(o)	Cupola Furnaces for Metallurgical Melting	01/27/72	05/31/72 37 FR 10842	
391–3–1–.02(2)(p)	Particulate Emissions from Kaolin and Fuller's Earth Processes.	12/16/75	08/20/76 41 FR 35184	
391–3–1–.02(2)(q)	Particulate Emissions from Cotton Gins	01/27/72	05/31/72 37 FR 10842	
391–3–1–.02(2)(r)	Particulate Emissions from Granular and Mixed Fertilizer Manufacturing Units.	01/27/72	05/31/72 37 FR 10842	
391–3–1–.02(2)(t)	VOC Emissions from Automobile and Light Duty Truck Manufacturing.	12/20/94	02/02/96 61 FR 3817	
391–3–1–.02(2)(u)	VOC Emissions from Can Coating	01/09/91	10/13/92 57 FR 46780	
391–3–1–.02(2)(v)	VOC Emissions from Coil Coating	01/09/91	10/13/92 57 FR 46780	
391–3–1–.02(2)(w)	VOC Emissions from Paper Coating	01/09/91	10/13/92 57 FR 46780	
391–3–1–.02(2)(x)	VOC Emissions from Fabric and Vinyl Coating.	01/09/91	10/13/92 57 FR 46780	
391–3–1–.02(2)(y)	VOC Emissions from Metal Furniture Coating.	01/09/91	10/13/92 57 FR 46780	
391–3–1–.02(2)(z)	VOC Emissions from Large Appliance Surface Coating.	01/09/91	10/13/92 57 FR 46780	
391–3–1–.02(2)(aa)	VOC Emissions from Wire Coating	01/09/91	10/13/92 57 FR 46780	
391–3–1–.02(2)(bb)	Petroleum Liquid Storage	01/09/91	10/13/92 57 FR 46780	
391–3–1–.02(2)(cc)	Bulk Gasoline Terminals	01/09/91	10/13/92 57 FR 46780	
391–3–1–.02(2)(dd)	Cutback Asphalt	01/17/79	09/18/79 44 FR 54047	
391–3–1–.02(2)(ee)	Petroleum Refinery	01/09/91	10/13/92 57 FR 46780	

EPA APPROVED GEORGIA REGULATIONS—Continued

State citation	Title/subject	State effective date	EPA approval date	Explanation
391–3–1–.02(2)(ff)	Solvent Metal Cleaning	05/29/96	04/26/99 64 FR 20186	
391–3–1–.02(2)(gg)	Kraft Pulp Mills	06/03/88	09/30/88 53 FR 38290	
391–3–1–.02(2)(hh)	Petroleum Refinery Equipment Leaks	06/24/94	02/02/96 61 FR 3817	
391–3–1–.02(2)(ii)	VOC Emissions from Surface Coating of Miscellaneous Metal Parts and Products.	10/7/99	7/10/01 66 FR 35906	
391–3–1–.02(2)(jj)	VOC Emissions from Surface Coating of Flat Wood Paneling.	04/03/91	10/13/92 57 FR 46780	
391–3–1–.02(2)(kk)	VOC Emissions from Synthesized Pharmaceutical Manufacturing.	12/18/80	11/24/81 46 FR 57486	
391–3–1–.02(2)(ll)	VOC Emissions from the Manufacture of Pneumatic Rubber Tires.	12/18/80	11/24/81 46 FR 57486	
391–3–1–.02(2)(mm)	VOC Emissions from Graphic Arts Systems.	04/03/91	10/13/92 57 FR 46780	
391–3–1–.02(2)(nn)	VOC Emissions from External Floating Roof Tanks.	12/18/80	11/24/81 46 FR 57486	
391–3–1–.02(2)(oo)	Fiberglass Insulation Manufacturing Plants.	12/18/80	11/24/81 46 FR 57486	
391–3–1–.02(2)(pp)	Bulk Gasoline Plants	04/03/91	10/13/92 57 FR 46780	
391–3–1–.02(2)(qq)	VOC Emissions from Large Petroleum Dry Cleaners.	04/03/91	10/13/92 57 FR 46780	
391–3–1–.02(2)(rr)	Gasoline Dispensing Facility—Stage I	12/26/01	7/11/02 67 FR 45909	
391–3–1–.02(2)(ss)	Gasoline Transport Vehicles and Vapor Collection Systems.	12/26/01	7/11/02 67 FR 45909	
391–3–1–.02(2)(tt)	VOC Emissions from Major Sources	2/16/00	7/10/01 66 FR 35906	
391–3–1–.02(2)(uu)	Visibility Protection	10/31/85	01/28/86 51 FR 3466	
391–3–1–.02(2)(vv)	Volatile Organic Liquid Handling and Storage.	2/16/00	7/10/01 66 FR 35906	
391–3–1–.02(2)(ww)	Perchloroethylene Dry Cleaners	11/15/94	06/27/96 61 FR 33372	Repealed.
391–3–1–.02(2)(yy)	Emissions of Nitrogen Oxides from Major Sources.	7/08/04	5/09/05 70 FR 24310	
391–3–1–.02(2)(zz)	Gasoline Dispensing Facilities—Stage II	12/26/01	7/11/02 67 FR 45909	
391–3–1–.02(2)(aaa)	Consumer and Commercial Products	10/27/93	04/26/99 64 FR 20186	
391–3–1–.02(2)(bbb)	Gasoline Marketing	6/24/03	6/17/04 69 FR 33864	
391–3–1–.02(2)(ccc)	VOC Emissions from Bulk Mixing Tanks	2/16/00	7/10/01 66 FR 35906	
391–3–1–.02(2)(ddd)	VOC Emissions from Offset Lithography	2/16/00	7/10/01 66 FR 35906	
391–3–1–.02(2)(eee)	VOC Emissions from Expanded Polystyrene Products Manufacturing.	2/16/00	7/10/01 66 FR 35906	
391–3–1–.02(2)(fff)	Particulate Matter Emissions from Yarn Spinning Operations.	06/15/98	12/02/99 64 FR 67491	
391–3–1–.02(2)(hhh)	Wood Furniture Finishing and Cleaning Operations.	2/16/00	7/10/01 66 FR 35906	
391–3–1–.02(2)(jjj)	NO_X Emissions from Electric Utility Steam Generating Units.	7/17/02	07/09/03 68 FR 40789	
391–3–1–.02(2)(kkk)	VOC Emissions from Aerospace Manufacturing and Rework Facilities.	2/16/00	7/10/01 66 FR 35906	
391–3–1–.02(2)(lll)	NO_X Emissions from Fuel-burning Equipment.	2/16/00	7/10/01 66 FR 35906	
391–3–1–.02(2)(mmm)	NO_X Emissions from Stationary Gas Turbines and Stationary Engines used to Generate Electricity.	2/16/00	7/10/01 66 FR 35906	
391–3–1–.02(2)(nnn)	NO_X Emissions from Large Stationary Gas Turbines.	2/16/00	7/10/01 66 FR 35906	
391–3–1–.02(2)(ooo)	Heavy-Duty Diesel Engine Requirements	12/28/01	7/11/02 67 FR 45909	
391–3–1–.02(2)(3)	Sampling	06/15/98	12/02/99 64 FR 67491	

EPA APPROVED GEORGIA REGULATIONS—Continued

State citation	Title/subject	State effective date	EPA approval date	Explanation
391–3–1–.02(2)(4)	Ambient Air Standards	01/09/91	12/14/92 57 FR 58989	
391–3–1–.02(2)(5)	Open Burning	8/16/00	7/10/01 66 FR 35906	
391–3–1–.02(2)(6)	Source Monitoring	12/28/00	7/11/02 67 FR 45909	
391–3–1–.02(2)(7)	Prevention of Significant Deterioration of Air Quality (PSD).	06/15/98	12/02/99 64 FR 67491	
391–3–.02(2)(11)	Compliance Assurance Monitoring	06/15/98	12/02/99 64 FR 67491	
391–3–1–.03	Permits	7/8/04	5/09/05 70 FR 24310	Paragraph (9) Permit Fees; Paragraph (10) Title V Operating Permits are not federally approved.
391–3–1–.04	Air Pollution Episodes	11/20/75	08/20/76 41 FR 35184	
391–3–1–.05	Regulatory Exceptions	11/22/92	02/02/96 61 FR 3819	
391–3–1–.07	Inspections and Investigations	11/20/75	08/20/76 41 FR 35184	
391–3–1–.08	Confidentiality of information	11/20/75	08/20/76 41 FR 35184	
391–3–1–.09	Enforcement	11/22/92	02/02/96 61 FR 3819	
391–3–1–.10	Continuance of Prior Rules	11/22/92	02/02/96 61 FR 3819	
391–3–20	Enhanced Inspection and Maintenance	12/25/03	4/12/05 70 FR 18991	
391–3–22	Clean Fueled Fleets	06/15/98	12/02/99 64 FR 67491	

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[FR Doc. 06–1789 Filed 2–27–06; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA–R05–OAR–2005–0563, FRL–8037–4]

Approval and Promulgation of Implementation Plans; Wisconsin; Wisconsin Construction Permit Permanency SIP Revision

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final Rule.

SUMMARY: EPA is taking final action to approve revisions to the Wisconsin State Implementation Plan (SIP) submitted by the State of Wisconsin on December 8, 2005. Wisconsin had submitted for approval into its SIP a statutory revision designed to ensure the permanency of construction permit conditions. EPA proposed approval of this revision on January 12, 2006 (71 FR 1994). EPA is approving this revision because it is consistent with Federal regulations governing State permit programs. This revision also addresses one of the deficiencies identified in EPA's Notice of Deficiency (NOD), published in the **Federal Register** on March 4, 2004. (69 FR 10167.)

DATES: Effective Date: This rule will become effective on March 30, 2006.

ADDRESSES: EPA has established a docket for this action under Docket ID No. EPA–R05–OAR–2005–0563. All documents in the docket are listed on the *http://www.regulations.gov* Web site. Although listed in the index, some information is not publicly available, i.e., Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically through *http://www.regulations.gov* or in hard copy at the Environmental Protection Agency, Region 5, Air and Radiation Division, 77 West Jackson Boulevard, Chicago, Illinois 60604. This facility is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding Federal holidays. We recommend that you telephone Susan Siepkowski, Environmental Engineer, at (312) 353–2654 before visiting the Region 5 office.

FOR FURTHER INFORMATION CONTACT: Susan Siepkowski, Environmental Engineer, Air Permit Section, Air Programs Branch (AR–18J), U.S. Environmental Protection Agency, Region 5, 77 West Jackson Boulevard, Chicago, Illinois 60604, (312) 353–2654, *siepkowski.susan@epa.gov.*

SUPPLEMENTARY INFORMATION: Throughout this document, whenever ''we,'' ''us,'' or ''our'' is used, we mean EPA. This **SUPPLEMENTARY INFORMATION** section is arranged as follows:

I. Background Information for Today's Action
II. What Comments Did We Receive?
III. What Action is EPA Taking Today?
IV. Statutory and Executive Order Reviews

I. Background Information for Today's Action

On March 4, 2004, EPA published a NOD for the Clean Air Act (Act) title V operating permit program in Wisconsin. (69 FR 10167). The NOD was based upon EPA's findings that the State's title V program did not comply with the requirements of the Act or with the implementing regulations at 40 CFR part 70 in several areas. One of the deficiencies identified in the NOD was related to the expiration of Wisconsin's construction permits.

40 CFR 70.1 requires that each title V source has a permit that assures compliance with all applicable requirements, including any term or condition of any preconstruction permit issued pursuant to programs approved

or promulgated under title I, including parts C or D of the Act. Title I of the Act authorizes permitting authorities to establish in permits source specific terms and conditions necessary for sources to comply with the requirements of the Prevention of Significant Deterioration (PSD) and New Source Review (NSR) programs. These permits must remain in effect because they are the legal mechanism through which underlying NSR or PSD requirements become applicable, and remain applicable, to individual sources. (May 20, 1999, EPA Memorandum from John Seitz). If the underlying construction permit expires, then the construction permit terms would no longer be applicable requirements, and the permitting authority would not have the authority to incorporate them into title V permits.

Wisconsin statutes, Wis. Stat. 285.66(1), had provided that construction permits, including NSR and PSD permits, expired after 18 months. Because Wisconsin's construction permits expired, resulting in terms in its title V permits that did not have underlying applicable requirements, EPA identified this as an issue in the NOD.

On December 8, 2005, Wisconsin submitted to EPA for approval, the SIP revision ''Request to the EPA to Revise Wisconsin's SIP Pertaining to the Permanency of Construction Permit Conditions.'' Wisconsin has revised its statutes to make clear that all conditions in construction permits are permanent and remain effective unless changed using title I procedures or a new construction permit is issued. Wisconsin has revised Statute 285.66(1) to provide that, ''[n]otwithstanding the fact that authorization to construct, reconstruct, replace, or modify a source expires under this subsection, all conditions in a construction permit are permanent unless the conditions are revised through a revision of the construction permit or through the issuance of a new construction permit.'' This revision was adopted as part of the Wisconsin 2005–07 biennial budget bill enacted into law as 2005 Wisconsin Act 25. (Published July 26, 2005.)

EPA reviewed Wisconsin's December 8, 2005, SIP revision submittal and determined it was approvable because it ensures that Wisconsin's construction permit program is consistent with Federal program requirements for state permit programs. EPA published its proposed approval of Wisconsin's revision on January 12, 2006 (71 FR 1994). In this action, EPA also solicited public comments for 30 days.

II. What Comments Did We Receive?

The public comment period on the proposed approval of Wisconsin's SIP revision ended on February 13, 2006. EPA did not receive any comments on this proposed revision.

III. What Action Is EPA Taking Today?

EPA is approving revisions to the Wisconsin SIP which will make permanent all terms of Wisconsin's permits to construct, reconstruct, replace or modify sources unless the terms are revised through a revision of the construction permit or issuance of a new construction permit.

IV. Statutory and Executive Order Reviews Executive Order 12866: Regulatory Planning and Review

Under Executive Order 12866 (58 FR 51735, September 30, 1993), this action is not a ''significant regulatory action'' and therefore is not subject to review by the Office of Management and Budget.

Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

Because it is not a ''significant regulatory action'' under Executive Order 12866 or a ''significant energy action,'' this action is also not subject to Executive Order 13211, ''Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use'' (66 FR 28355, May 22, 2001).

Regulatory Flexibility Act

This action merely approves state law as meeting federal requirements and imposes no additional requirements beyond those imposed by state law. Accordingly, the Administrator certifies that this rule will not have a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*).

Unfunded Mandates Reform Act

Because this rule approves pre-existing requirements under state law and does not impose any additional enforceable duty beyond that required by state law, it does not contain any unfunded mandate or significantly or uniquely affect small governments, as described in the Unfunded Mandates Reform Act of 1995 (Pub. L. 104–4).

Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

This rule also does not have tribal implications because it will not have a substantial direct effect on one or more Indian tribes, on the relationship between the Federal Government and Indian tribes, or on the distribution of power and responsibilities between the Federal Government and Indian tribes, as specified by Executive Order 13175 (65 FR 67249, November 9, 2000).

Executive Order 13132: Federalism

This action also does not have Federalism implications because it does not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132 (64 FR 43255, August 10, 1999). This action merely approves a state rule implementing a federal standard, and does not alter the relationship or the distribution of power and responsibilities established in the Clean Air Act.

Executive Order 13045: Protection of Children From Environmental Health and Safety Risks

This rule also is not subject to Executive Order 13045 ''Protection of Children from Environmental Health Risks and Safety Risks'' (62 FR 19885, April 23, 1997), because it is not economically significant.

National Technology Transfer Advancement Act

In reviewing SIP submissions, EPA's role is to approve state choices, provided that they meet the criteria of the Clean Air Act. In this context, in the absence of a prior existing requirement for the state to use voluntary consensus standards (VCS), EPA has no authority to disapprove a SIP submission for failure to use VCS. It would thus be inconsistent with applicable law for EPA, when it reviews a SIP submission, to use VCS in place of a SIP submission that otherwise satisfies the provisions of the Clean Air Act. Thus, the requirements of section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note) do not apply.

Paperwork Reduction Act

This rule does not impose an information collection burden under the provisions of the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*).

Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must

submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. A major rule cannot take effect until 60 days after it is published in the **Federal Register**. This action is not a ''major rule'' as defined by 5 U.S.C. 804(2).

Under Section 307(b)(1) of the Clean Air Act, petitions for judicial review of this action must be filed in the United States Court of Appeals for the appropriate circuit by May 1, 2006. Filing a petition for reconsideration by the Administrator of this final rule does not affect the finality of this rule for the purposes of judicial review nor does it extend the time within which a petition for judicial review may be filed, and shall not postpone the effectiveness of such rule or action. This action may not be challenged later in proceedings to enforce its requirements. (*See* Section 307(b)(2).)

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Carbon monoxide, Intergovernmental relations, Lead, Nitrogen dioxide, Ozone, Particulate matter, Reporting and recordkeeping requirements, Sulfur oxides, Volatile organic compounds.

Dated: February 16, 2006.

Bharat Mathur,

Acting Regional Administrator, Region 5.

■ For the reasons stated in the preamble, part 52, chapter I, of title 40 of the Code of Federal Regulations is amended as follows:

PART 52—[AMENDED]

■ 1. The authority citation for part 52 continues to read as follows:

Authority: 42 U.S.C. 7401 *et seq.*

Subpart YY—Wisconsin

■ 2. Section 52.2587 is added to read as follows:

§ 52.2587 Wisconsin construction permit permanency revision.

This plan was originally submitted as Wis. Stat. 144.396 by Wisconsin on July 12, 1979 and approved into Wisconsin's SIP on June 25, 1986 (51 FR 23056). Wis. Stat. 144.396 was renumbered Wis. Stat. 285.66 in 1995 Wisconsin Act 227, effective January 1, 1997. On December 8, 2005, Wisconsin submitted for EPA approval into the Wisconsin SIP a revision to Wis. Stats. 285.66(l), as amended in 2005 Wisconsin Act 25, effective July 26, 2005. This revision makes all conditions in Wisconsin's construction permits permanent. EPA has determined that this statutory revision is approvable under the Act.

[FR Doc. 06–1785 Filed 2–27–06; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA–R05–OAR–2005–IN–0007; FRL–8036–3]

Approval and Promulgation of Air Quality Implementation Plans; Indiana; Dearborn County Sulfur Dioxide Emission Limits

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: On November 25, 2005 (70 FR 70999), EPA published a direct final rule approving revisions to Indiana's sulfur dioxide (SO_2) state implementation plan (SIP) for sources located in Dearborn County. These revisions to the SIP include: revising SO_2 emission limits for existing sources; making minor corrections by removing obsolete rule language; and updating information for sources listed in the rule. On November 25, 2005 (70 FR 71071), EPA also published a proposed rule on this revision. The direct final rule stated that if EPA received an adverse comment, EPA would withdraw the direct final rule and address all public comments received in a subsequent final rule based on the proposed rule. EPA received an adverse comment and removed the direct final rule on January 27, 2006 (71 FR 4490). This rule responds to the comments received and announces EPA's final action.

DATES: This final rule is effective on March 30, 2006.

ADDRESSES: EPA has established a docket for this action under Docket ID No. EPA–R05–OAR–2005–IN–0007. All documents in the docket are listed on the *http://www.regulations.gov* Web site. Although listed in the index, some information is not publicly available, i.e., Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically through *http://www.regulations.gov* or in hard copy at the Environmental Protection Agency, Region 5, Air and Radiation Division, 77 West Jackson Boulevard, Chicago, Illinois 60604. This facility is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding Federal holidays. We recommend that you telephone Charles Hatten, Environmental Engineer, at (312) 886–6031 before visiting the Region 5 office.

FOR FURTHER INFORMATION CONTACT: Charles Hatten, Environmental Engineer, Criteria Pollutant Section, Air Programs Branch (AR–18J), EPA Region 5, 77 West Jackson Boulevard, Chicago, Illinois 60604, (312) 886–6031, *hatten.charles@epa.gov.*

SUPPLEMENTARY INFORMATION: Throughout this document whenever we, us, or your is used, we mean EPA. This supplementary information section is arranged as follows:

I. General Information
II. Public Comments Received and EPA Response
III. What Are the Changes From the Current Rule?
IV. What Action Is EPA Taking Today?
V. Statutory and Executive Order Review

I. General Information

This action applies to specific SO_2 sources located in Dearborn County, Indiana. The SIP revision amends Title 326 of the Indiana Administrative Code (IAC), section 7–4–13, by revising the SO_2 emission limits for the Indiana Michigan Power Tanners Creek Station. The SIP revision also makes minor corrections and removes obsolete rule language, and updates information for other companies listed in 326 IAC 7–4–13. Indiana held public hearings on these revisions on May 5, 2004 and October 6, 2004.

II. Public Comments Received and EPA Response

Three comments on the rulemaking were submitted to EPA, through the electronic public docket and comment system. One commenter expressed support for the rule. A second commenter stated that he didn't ''understand what the rule was about,'' while a third commenter stated that he ''disagreed.'' Because the latter two commenters failed to provide any further information or explain the bases for their comments, EPA is unable to respond beyond directing them to the rationale for approval discussed below.

III. What Are the Changes From the Current Rule?

Indiana's SO_2 emission limits for Dearborn County are contained in 326 IAC 7–4–13. The current SO_2 emission limitations in 326 IAC 7–4–13 are based on air quality modeling used by the State when EPA approved the SIP in 1987. The SIP revision amends 326 IAC 7–4–13, as described below.

A. Indiana Michigan Power Tanners Creek Station

The SIP revision removes obsolete rule language that included interim requirements restricting the SO_2 emission limits for the Indiana Michigan Power Tanners Creek Station, Unit 4. These interim requirements are no longer necessary, and have been deleted; the rule limits Unit 4 to an SO_2 emission limit of five and twenty-four hundredths (5.24) pounds per MMBTU since August 1, 1991. This revision reflects these changes. This SIP revision also adds source identification number, No. 00002, to the Indiana Michigan Power Tanners Creek Station.

B. Schenley Distillers, Inc.

Schenley Distillers, Inc. closed in 1998 and has been removed from the rule.

C. Joseph E. Seagram and Sons, Inc.

The revision changes the name from Joseph E. Seagram and Sons, Inc. to Pernod Ricard USA, Seagram Lawrenceburg Distillery. The company has removed one boiler listed in the current rule, and renamed the remaining boiler. This revision reflects this change. The revision also adds source identification number, No. 00005, to the Pernod Ricard USA, Seagram Lawrenceburg Distillery.

D. Diamond Thatcher Glass

The furnaces formerly owned by Diamond Thatcher Glass are owned by Anchor Glass Container Corporation, and have been renamed as such. This revision reflects this change. The revision also adds source identification number, No. 00007, to the Anchor Glass Container Corporation.

IV. What Action Is EPA Taking Today?

EPA is approving revisions to 326 IAC 7–4–13, which contains the SO_2 emission limitations for existing stationary sources located in Dearborn County, Indiana. The SIP revision amends 326 IAC 7–4–13, by removing obsolete rule language for the Indiana Michigan Power Tanners Creek Station, and by making minor revisions for other companies listed in 326 IAC 7–4–13, including adding source identification numbers.

V. Statutory and Executive Order Review

Executive Order 12866: Regulatory Planning and Review

Under Executive Order 12866 (*58 FR 51735*, October 4, 1993), this action is not a ''significant regulatory action'' and therefore is not subject to review by the Office of Management and Budget.

Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

Because it is not a ''significant regulatory action'' under Executive Order 12866 or a ''significant energy action,'' this action is also not subject to Executive Order 13211, ''Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use'' (*66 FR 28355*, May 22, 2001).

Regulatory Flexibility Act

This action merely approves state law as meeting federal requirements and imposes no additional requirements beyond those imposed by state law. Accordingly, the Administrator certifies that this rule will not have a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*).

Unfunded Mandates Reform Act

Because this rule approves pre-existing requirements under state law and does not impose any additional enforceable duty beyond that required by state law, it does not contain any unfunded mandate or significantly or uniquely affect small governments, as described in the Unfunded Mandates Reform Act of 1995 (Pub. L. 104–4).

Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

This rule also does not have tribal implications because it will not have a substantial direct effect on one or more Indian tribes, on the relationship between the Federal Government and Indian tribes, or on the distribution of power and responsibilities between the Federal Government and Indian tribes, as specified by Executive Order 13175 (*65 FR 67249*, November 9, 2000).

Executive Order 13132: Federalism

This action also does not have Federalism implications because it does not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132 (*64 FR 43255*, August 10, 1999). This action merely approves a state rule implementing a Federal standard, and does not alter the relationship or the distribution of power and responsibilities established in the Clean Air Act.

Executive Order 13045: Protection of Children From Environmental Health and Safety Risks

This rule also is not subject to Executive Order 13045 ''Protection of Children from Environmental Health Risks and Safety Risks'' (*62 FR 19885*, April 23, 1997), because it is not economically significant.

National Technology Transfer Advancement Act

In reviewing SIP submissions, EPA's role is to approve state choices, provided that they meet the criteria of the Clean Air Act. In this context, in the absence of a prior existing requirement for the state to use voluntary consensus standards (VCS), EPA has no authority to disapprove a SIP submission for failure to use VCS. It would thus be inconsistent with applicable law for EPA, when it reviews a SIP submission, to use VCS in place of a SIP submission that otherwise satisfies the provisions of the Clean Air Act. Thus, the requirements of section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note) do not apply.

Paperwork Reduction Act

This rule does not impose an information collection burden under the provisions of the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*).

Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. A major rule cannot take effect until 60 days after it is published in the **Federal Register**.

This action is not a ''major rule'' as defined by 5 U.S.C. 804(2).

Under section 307(b)(1) of the Clean Air Act, petitions for judicial review of this action must be filed in the United States Court of Appeals for the appropriate circuit by May 1, 2006. Filing a petition for reconsideration by the Administrator of this final rule does not affect the finality of this rule for the purposes of judicial review nor does it extend the time within which a petition for judicial review may be filed, and shall not postpone the effectiveness of such rule or action. This action may not be challenged later in proceedings to enforce its requirements. (*See* section 307(b)(2).)

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Incorporation by reference, Intergovernmental relations, Reporting and recordkeeping requirements, Sulfur oxides.

Dated: February 10, 2006.

Norman Niedergang,

Acting Regional Administrator, Region 5.

■ For the reasons stated in the preamble, part 52, chapter I, of title 40 of the Code of Federal Regulations is amended as follows:

PART 52—[AMENDED]

■ 1. The authority citation for part 52 continues to read as follows:

Authority: 42 U.S.C. 7401 *et seq.*

Subpart P—Indiana

■ 2. Section 52.770 is amended by adding paragraph (c)(171) to read as follows:

§ 52.770 Identification of plan.

* * * * *

(c) * * *

(171) On April 8, 2005, Indiana submitted final adopted revisions for the Dearborn County sulfur dioxide emission limitations in 326 IAC 7–4–13 as a requested revision to the Indiana state implementation plan. EPA is approving these revisions, which remove obsolete rule language for Indiana Michigan Tanners Creek Station and update information for other companies listed in the rule.

(i) Incorporation by reference. (A) Indiana Administrative Code Title 326: Air Pollution Control Board, Article 7: Sulfur Dioxide Rules, Rule 4: Emission Limitations and Requirements by County, Section 13: Dearborn County Sulfur Dioxide Emission Limitations. Filed with the Secretary of State on February 14, 2005, and effective March 16, 2005. Published in the Indiana Register on April 1, 2005 (28 IR 2021).

* * * * *

[FR Doc. 06–1786 Filed 2–27–06; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA–R07–OAR–2006–0086; FRL–8037–9]

Approval and Promulgation of Implementation Plans; State of Iowa

AGENCY: Environmental Protection Agency (EPA).

ACTION: Direct final rule.

SUMMARY: EPA is approving a State Implementation Plan (SIP) revision submitted by the state of Iowa for the purpose of establishing exemptions for indoor sources of air pollution that are not directly vented to the outside but have emissions that leave the building through doors, vents or other means. This revision also clarifies that the permitting exemptions do not relieve the owner or operator of any source from any obligation to comply with any other applicable requirements. The state has determined that air pollution emissions from this equipment are negligible and these exemptions are likely to result in no significant impact on human health or the environment.

DATES: This direct final rule will be effective May 1, 2006, without further notice, unless EPA receives adverse comment by March 30, 2006. If adverse comment is received, EPA will publish a timely withdrawal of the direct final rule in the **Federal Register** informing the public that the rule will not take effect.

ADDRESSES: Submit your comments, identified by Docket ID No. EPA-R07–OAR–2006–0086, by one of the following methods:

1. *http://www.regulations.gov.* Follow the on-line instructions for submitting comments.

2. E-mail: *Hamilton.heather@epa.gov.*

3. Mail: Heather Hamilton, Environmental Protection Agency, Air Planning and Development Branch, 901 North 5th Street, Kansas City, Kansas 66101.

4. Hand Delivery or Courier. Deliver your comments to Heather Hamilton, Environmental Protection Agency, Air Planning and Development Branch, 901 North 5th Street, Kansas City, Kansas 66101.

Instructions: Direct your comments to Docket ID No. EPA–R07–OAR–2006–0086. EPA's policy is that all comments received will be included in the public docket without change and may be made available online at *http://www.regulations.gov*, including any personal information provided, unless the comment includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Do not submit through *http://www.regulations.gov* or e-mail information that you consider to be CBI or otherwise protected. The *http://www.regulations.gov* Web site is an ''anonymous access'' system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an e-mail comment directly to EPA without going through *http://www.regulations.gov*, your e-mail address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD–ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses.

Docket: All documents in the electronic docket are listed in the *http://www.regulations.gov* index. Although listed in the index, some information is not publicly available, *i.e.*, CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically in *http://www.regulations.gov* or in hard copy at the Environmental Protection Agency, Air Planning and Development Branch, 901 North 5th Street, Kansas City, Kansas 66101. The Regional Office's official hours of business are Monday through Friday, 8 to 4:30 excluding Federal holidays. The interested persons wanting to examine these documents should make an appointment with the office at least 24 hours in advance.

FOR FURTHER INFORMATION CONTACT: Heather Hamilton at (913) 551–7039, or by e-mail at *Hamilton.heather@epa.gov*.

SUPPLEMENTARY INFORMATION: Throughout this document whenever

''we,'' ''us,'' or ''our'' is used, we mean EPA. This section provides additional information by addressing the following questions:

What Is a SIP?
What Is the Federal Approval Process for a SIP?
What Does Federal Approval of a State Regulation Mean to Me?
What Is Being Addressed in This Document?
Have the Requirements for Approval of a SIP Revision Been Met?
What Action Is EPA Taking?

What is a SIP?

Section 110 of the Clean Air Act (CAA) requires states to develop air pollution regulations and control strategies to ensure that state air quality meets the national ambient air quality standards established by EPA. These ambient standards are established under section 109 of the CAA, and they currently address six criteria pollutants. These pollutants are: Carbon monoxide, nitrogen dioxide, ozone, lead, particulate matter, and sulfur dioxide.

Each state must submit these regulations and control strategies to us for approval and incorporation into the Federally-enforceable SIP.

Each Federally-approved SIP protects air quality primarily by addressing air pollution at its point of origin. These SIPs can be extensive, containing state regulations or other enforceable documents and supporting information such as emission inventories, monitoring networks, and modeling demonstrations.

What Is the Federal Approval Process for a SIP?

In order for state regulations to be incorporated into the Federally-enforceable SIP, states must formally adopt the regulations and control strategies consistent with state and Federal requirements. This process generally includes a public notice, public hearing, public comment period, and a formal adoption by a state-authorized rulemaking body.

Once a state rule, regulation, or control strategy is adopted, the state submits it to us for inclusion into the SIP. We must provide public notice and seek additional public comment regarding the proposed Federal action on the state submission. If adverse comments are received, they must be addressed prior to any final Federal action by us.

All state regulations and supporting information approved by EPA under section 110 of the CAA are incorporated into the Federally-approved SIP. Records of such SIP actions are maintained in the Code of Federal Regulations (CFR) at title 40, part 52, entitled ''Approval and Promulgation of Implementation Plans.'' The actual state regulations which are approved are not reproduced in their entirety in the CFR outright but are ''incorporated by reference,'' which means that we have approved a given state regulation with a specific effective date.

What Does Federal Approval of a State Regulation Mean to Me?

Enforcement of the state regulation before and after it is incorporated into the Federally-approved SIP is primarily a state responsibility. However, after the regulation is Federally approved, we are authorized to take enforcement action against violators. Citizens are also offered legal recourse to address violations as described in section 304 of the CAA.

What Is Being Addressed in This Document?

EPA is approving a revision to the SIP for the State of Iowa to establish exemptions for indoor sources of air pollution that are not directly vented to the outside but have emissions that leave the building through doors, vents or other means. The introductory paragraph to the Iowa Administrative Code 567–22.1(2) ''Exemptions'' is being changed to state that these additional permitting exemptions do not relieve the owner or operator of any source from any obligation to comply with any other applicable requirements. The change further states that the exemptions from construction permitting listed in the subrule with this rulemaking may be used provided that a permit is not needed to create federally enforceable limits that restrict potential to emit.

The exemptions include equipment, processes and activities identified in the rule and summarized below. The reader should refer to the Iowa Administrative Code, Chapter 22.1(2)x. through ii. which is part of the docket for this rulemaking for more detail concerning the exemptions.

1. The following equipment, processes, and activities: (1) Facilities used for preparing food or beverages primarily for consumption at the source; (2) Consumer use of certain office equipment and products; (3) Janitorial services and consumer use of janitorial products; (4) Internal combustion engines used for lawn care, landscaping, and groundskeeping purposes; (5) Laundry activities, not including dry cleaning and steam boilers; (6) Bathroom vent emissions; (7) Blacksmith forges; (8) Plant maintenance and upkeep activities and repair or maintenance shop activities, provided that these activities are not conducted as part of a manufacturing process; (9) Air compressors and vacuum pumps, including hand tools; (10) Batteries and battery charging stations, except at battery manufacturing plants; (11) Certain equipment used to store, mix, pump, handle or package soaps, detergents, and other materials listed in the rule; (12) Equipment used exclusively to slaughter animals; (13) Vents from continuous emissions monitors and other analyzers; (14) Natural gas pressure regulator vents, excluding venting at oil and gas production facilities; (15) Certain equipment used by surface coating operations that apply the coating by brush, roller, or dipping; (16) Hydraulic and hydrostatic testing equipment; (17) Environmental chambers not using gases which are hazardous air pollutants; (18) Shock chambers, humidity chambers, and solar simulators; (19) Fugitive dust emissions related to movement of passenger vehicles on unpaved road surfaces, provided that the emissions are not counted for applicability purposes and that any fugitive dust control plan or its equivalent is submitted as required by the department; (20) Process water filtration systems and demineralizers; (21) Boiler water treatment operations, not including cooling towers or lime silos; (22) Oxygen scavenging (deaeration) of water; (23) Fire suppression systems; (24) Emergency road flares; (25) Steam vents, safety relief valves, and steam leaks; and, (26) Steam sterilizers.

2. Certain direct–fired equipment based on specified fuel types and maximum heat input.

3. Closed refrigeration systems, including storage tanks used in refrigeration systems, excluding combustion equipment associated with such systems.

4. Pretreatment application processes that use aqueous–based chemistries designed to prepare a substrate for an organic coating, provided that the chemical concentrate contains no more than 5 percent organic solvents by weight.

5. Indoor–vented powder coating operations with filters or powder recovery systems.

6. Certain electric curing ovens or curing ovens used for powder coating operations, and meeting fuel, heat input, and powder usage restrictions.

7. Small production painting, adhesive or coating units unless a particular unit is subject to requirements of other rules specified in the exemption.

8. Production surface coating activities that use only nonrefillable hand-held aerosol cans, where the total volatile organic compound emissions from all these activities at a stationary source do not exceed 5.0 tons per year.

9. Production welding meeting specified design and usage restrictions.

10. Electric hand soldering, wave soldering, and electric solder paste reflow ovens.

11. Pressurized piping and storage systems for natural gas, propane, liquefied petroleum gas (LPG), and refrigerants, where emissions could only result from an upset condition.

12. Emissions from the storage and mixing of paints and solvents associated with the painting operations, provided that the emissions from the storage and mixing are accounted for in an enforceable permit condition or are otherwise exempt.

Based on review of IDNR's technical evaluation documented in the exemption justification document submitted with the rule and included in the docket, these activities generate emissions that have little or no environmental or human health consequences and can be exempted from the requirement to obtain a construction permit.

Have the Requirements for Approval of a SIP Revision Been Met?

The state submittal has met the public notice requirements for SIP submissions in accordance with 40 CFR 51.102. The submittal also satisfied the completeness criteria of 40 CFR part 51, appendix V. In addition, as explained above and in more detail in the technical support document that is part of this document, the revision meets the substantive SIP requirements of the CAA, including section 110 and implementing regulations.

What Action Is EPA Taking?

EPA is approving a revision which adds permitting exemptions to the Iowa Administrative Code. This revision also clarifies that the permitting exemptions do not relieve the owner or operator of any source from any obligation to comply with any other applicable requirements.

We are processing this action as a direct final action because the revisions make minor changes to the existing rules that are noncontroversial. Therefore, we do not anticipate any adverse comments. Please note that if EPA receives adverse comment on part of this rule and if that part can be severed from the remainder of the rule, EPA may adopt as final those parts of the rule that are not the subject of an adverse comment.

Statutory and Executive Order Reviews

Under Executive Order 12866 (58 FR 51735, October 4, 1993), this action is not a ''significant regulatory action'' and therefore is not subject to review by the Office of Management and Budget. For this reason, this action is also not subject to Executive Order 13211, ''Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use'' (66 FR 28355, May 22, 2001). This action merely approves state law as meeting Federal requirements and imposes no additional requirements beyond those imposed by state law. Accordingly, the Administrator certifies that this rule will not have a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*). Because this rule approves pre-existing requirements under state law and does not impose any additional enforceable duty beyond that required by state law, it does not contain any unfunded mandate or significantly or uniquely affect small governments, as described in the Unfunded Mandates Reform Act of 1995 (Pub. L. 104–4).

This rule also does not have tribal implications because it will not have a substantial direct effect on one or more Indian tribes, on the relationship between the Federal Government and Indian tribes, or on the distribution of power and responsibilities between the Federal Government and Indian tribes, as specified by Executive Order 13175 (65 FR 67249, November 9, 2000). This action also does not have Federalism implications because it does not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132 (64 FR 43255, August 10, 1999). This action merely approves a state rule implementing a Federal standard, and does not alter the relationship or the distribution of power and responsibilities established in the CAA. This rule also is not subject to Executive Order 13045, ''Protection of Children from Environmental Health Risks and Safety Risks'' (62 FR 19885, April 23, 1997), because it is not economically significant.

In reviewing SIP submissions, EPA's role is to approve state choices, provided that they meet the criteria of the CAA. In this context, in the absence of a prior existing requirement for the State to use voluntary consensus standards (VCS), EPA has no authority to disapprove a SIP submission for failure to use VCS. It would thus be inconsistent with applicable law for EPA, when it reviews a SIP submission, to use VCS in place of a SIP submission that otherwise satisfies the provisions of the CAA. Thus, the requirements of section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note) do not apply. This rule does not impose an information collection burden under the provisions of the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*).

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. A major rule cannot take effect until 60 days after it is published in the **Federal Register**. This action is not a ''major rule'' as defined by 5 U.S.C. 804(2).

Under section 307(b)(1) of the Clean Air Act, petitions for judicial review of this action must be filed in the United States Court of Appeals for the appropriate circuit by May 1, 2006. Filing a petition for reconsideration by the Administrator of this final rule does not affect the finality of this rule for the purposes of judicial review nor does it extend the time within which a petition for judicial review may be filed, and shall not postpone the effectiveness of such rule or action. This action may not be challenged later in proceedings to enforce its requirements. (See section 307(b)(2).)

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Carbon monoxide, Incorporation by reference, Intergovernmental relations, Lead, Nitrogen dioxide, Ozone, Particulate matter, Reporting and recordkeeping requirements, Sulfur oxides, Volatile organic compounds.

Dated: February 17, 2006.

James B. Gulliford,

Regional Administrator, Region 7.

■ Chapter I, title 40 of the Code of Federal Regulations is amended as follows:

PART 52—[AMENDED]

■ 1. The authority citation for part 52 continues to read as follows:

Authority: 42 U.S.C. 7401 *et seq.*

Subpart Q—Iowa

■ 2. In § 52.820 the table in paragraph (c) is amended by revising the entry for 567–22.1 to read as follows:

§ 52.820 Identification of plan.

* * * * *

(c) * * *

EPA-APPROVED IOWA REGULATIONS

Iowa Citation	Title	State effective date	EPA approval date	Explanation
IOWA DEPARTMENT OF NATURAL RESOURCES ENVIRONMENTAL PROTECTION COMMISSION [567]				
*	*	*	*	*
Chapter 22—Controlling Pollution				
567–22.1	Permits Required for New or Existing Stationary Sources	10/19/05	02/28/06 [*insert FR page number where the document begins*]	
*	*	*	*	*

* * * * *

[FR Doc. 06–1788 Filed 2–27–06; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 52 and 81

[EPA–R09–OAR–2005–AZ–0008; FRL–8022–5]

Approval and Promulgation of Implementation Plans and Designation of Areas for Air Quality Planning Purposes; Arizona

AGENCY: Environmental Protection Agency (EPA).

ACTION: Direct final rule.

SUMMARY: EPA is approving the maintenance plan for the Douglas area in Cochise County, Arizona and granting the request submitted by the State to redesignate this area from nonattainment to attainment for the National Ambient Air Quality Standards (NAAQS) for sulfur dioxide (SO_2). Elsewhere in this **Federal Register**, we are proposing approval and soliciting written comment on this action; if adverse written comments are received, we will withdraw the direct final rule and address the comments received in a new final rule; otherwise no further rulemaking will occur on this approval action.

DATES: This action will be effective on May 1, 2006, without further notice, unless EPA receives adverse comments by March 30, 2006.

If we receive such comments, we will publish a timely withdrawal in the **Federal Register** to notify the public that this rule will not take effect and that we will respond to submitted comments and take subsequent final action.

ADDRESSES: Submit comments, identified by docket number EPA–R09–OAR–2005–AZ–0008, by one of the following methods:

1. Agency web site: *http://www.regulations.gov*. EPA prefers receiving comments through this electronic public docket and comment system. Follow the on-line instructions to submit comments.
2. Federal eRulemaking Portal: *http://www.regulations.gov*. Follow the on-line instructions.
3. E-mail: *tax.wienke@epa.gov.*
4. Mail or deliver: Wienke Tax, Office of Air Planning (AIR–2), U.S. Environmental Protection Agency, Region 9, 75 Hawthorne Street, San Francisco, CA 94105–3901.

Instructions: All comments will be included in the public docket without change and may be made available online at *http://www.regulations.gov*, including any personal information provided, unless the comment includes Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Information that you consider CBI or otherwise protected should be clearly identified as such and should not be submitted through the agency Web site, eRulemaking portal, or e-mail. The agency Web site and eRulemaking portal are ''anonymous access'' systems, and EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send e-mail directly to EPA, your e-mail address will be automatically captured and included as part of the public comment. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment.

Docket: The index to the docket for this action is available electronically at *http://www.regulations.gov* and in hard copy at EPA Region 9, 75 Hawthorne Street, San Francisco, California. While all documents in the docket are listed in the index, some information may be publicly available only at the hard copy location (*e.g.*, copyrighted material), and some may not be publicly available in either location (*e.g.*, CBI). To inspect the hard copy materials, please schedule an appointment during normal business hours with the contact listed in the **FOR FURTHER INFORMATION CONTACT** section.

FOR FURTHER INFORMATION CONTACT: Wienke Tax, U.S. EPA Region 9, (520) 622–1622, *tax.wienke@epa.gov*, or *www.epa.gov/region09/air/actions.*

SUPPLEMENTARY INFORMATION: Throughout this document, the terms ''we,'' ''us,'' and ''our'' mean U.S. EPA.

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I. Summary of Action

We are approving the maintenance plan for the Douglas SO_2 nonattainment area.[1] We are also approving the State of Arizona's request to redesignate the Douglas area from nonattainment to attainment for the primary SO_2 NAAQS.

II. Introduction

A. What National Ambient Air Quality Standards Are Considered in Today's Rulemaking?

The subject of this action is SO_2. The NAAQS are safety thresholds for certain ambient air pollutants set to protect public health and welfare. SO_2 is among the ambient air pollutants for which we have established health-based standards.

SO_2 causes adverse health effects: Reducing lung function, increasing respiratory illness, altering the lung's defenses, and aggravating existing cardiovascular disease. Children, the elderly, and people with asthma are the most vulnerable. SO_2 has a variety of additional impacts, including acidic deposition, damage to crops and vegetation, and corrosion of natural and man-made materials.

There are both short- and long-term primary NAAQS for SO_2. The short-term (24-hour) standard of 0.14 parts per million (ppm) is not to be exceeded more than once per year. The long-term standard specifies an annual arithmetic mean not to exceed 0.030 ppm.[2] The primary standards were established in 1972. (See 40 CFR 50.4).

B. What Is a State Implementation Plan (SIP)?

The Clean Air Act (CAA) requires states to attain and maintain ambient air quality equal to or better than the NAAQS. The state's commitments for attaining and maintaining the NAAQS are outlined in the approved SIP for that state. The SIP is a planning document that, when implemented, is designed to ensure the achievement of the NAAQS. Each state currently has a SIP in place, and the Act requires that SIP revisions be made periodically as necessary to provide continued compliance with the standards.

SIPs include, among other things, the following: (1) An inventory of emission sources; (2) statutes and regulations adopted by the state legislature and executive agencies; (3) air quality analyses that include demonstrations that adequate controls are in place to meet the NAAQS; and (4) contingency measures to be undertaken if an area fails to attain the standard or make reasonable progress toward attainment by the required date.

The state must make a SIP submittal such as the one we are addressing available for public review and comment through a public hearing, it must be adopted by the state, and submitted to us by the Governor or her/his designee. We take federal action on the SIP submittal, rendering the rules and regulations federally enforceable if and when we approve them. The approved SIP serves as the state's commitment to take actions that will reduce or eliminate air quality problems. Any subsequent proposals to revise the SIP must go through the formal EPA SIP revision process specified in the Act.

C. What Is the Background for This Action?

1. When Was the Nonattainment Area Established?

The Phelps Dodge Douglas Reduction Works Smelter (PDDRWS) operation was the largest SO_2 point source in the Douglas nonattainment area during its operation. PDDRWS was located 1.5 miles west of Douglas.

The details of the initial designation of the Douglas SO_2 nonattainment area are provided in footnote 1 in this **Federal Register** action. On the date of enactment of the 1990 CAA Amendments, SO_2 areas meeting the conditions of section 107(d) of the Act, including the pre-existing SO_2 nonattainment areas, were designated nonattainment for the SO_2 NAAQS by operation of law. Thus, the Douglas area remained nonattainment for the primary SO_2 NAAQS following enactment of the 1990 CAA Amendments on November 15, 1990.

2. How Has the SIP Addressed CAA Provisions?

Arizona submitted a SIP for all major sources in the State in January 1972. EPA disapproved the portion of the 1972 Arizona SIP related to smelters (37 FR 10849 and 37 FR 15081) on May 31 and July 27, 1972. On November 30, 1981, EPA proposed conditional approval of Arizona's Multipoint Rollback (MPR) SIP revision (46 FR 58098). On June 3, 1982, Arizona submitted SIP revisions to correct the conditional approval. EPA formally approved Arizona's revised MPR rule as a final rulemaking on January 14, 1983 (48 FR 1717). To complete the Arizona SO_2 SIPs, EPA required that Arizona submit the necessary fugitive emissions control strategies and regulations for existing smelters by August 1, 1984. The PDDRWS smelter closed in 1987 and was dismantled in 1991. In December of 2001, ADEQ submitted a redesignation request and maintenance plan to us.

3. What Is the Current Status of the Area?

Currently, there are no operating ambient SO_2 monitors in the Douglas area. Since the smelter was by far the largest source of SO_2 in the area, it was not necessary to continue monitoring for this pollutant once the source was permanently shut down. We do not expect the cumulative impact of the minor sources of SO_2 in and around Douglas to cause a violation of the NAAQS. A few new minor sources have located in the area but the smelter was the obvious cause of past violations.

D. What Are the Applicable CAA Provisions for SO_2 Nonattainment Area Plans?

The air quality planning requirements for SO_2 nonattainment areas are set out in subparts 1 and 5 of Part D of title I of the Act. We have issued guidance in a General Preamble describing how we will review SIPs and SIP revisions submitted under title I of the Act, including those containing SO_2 nonattainment area and maintenance area SIP provisions. 57 FR 13498 (April 16, 1992); 57 FR 18070 (April 28, 1992). The General Preamble discusses our interpretation of the title I requirements, and lists SO_2 policy and guidance documents.

1. What Statutory Provisions Apply?

Douglas is subject to the requirements of subpart 1 of Part D of title I of the CAA (Sections 171–179B). Section 172

[1] For the definition of the Douglas nonattainment area, see 40 CFR 81.303. On March 3, 1978, EPA designated the entire area of Cochise County as nonattainment for SO_2 for lack of a State recommendation. On April 10, 1979, EPA approved Arizona's request that the SO_2-affected portion of Cochise County be limited to three townships surrounding Douglas (44 FR 21261). Townships T23S, R27E; T24S, R27E; and T24S, R28E comprise the nonattainment area. Townships T23S, R26E; T23S, R28E; and T24S, R26E are designated as ''cannot be classified''. Douglas is a town in southern Cochise County near the Mexican border.

[2] The secondary SO_2 NAAQS (3-hour) of 0.50 ppm is not to be exceeded more than once per year. Secondary NAAQS are promulgated to protect welfare. The Douglas area is not classified as nonattainment for the secondary SO_2 standard, and this action relates only to the primary NAAQS.

of this subpart contains provisions for nonattainment plans in general; these provisions were not significantly changed by the 1990 CAA Amendments. Among other requirements, CAA Section 172 provides that SIPs must assure that reasonably available control measures (RACM) (including such reductions in emissions from existing sources in the area as may be obtained through the adoption, at a minimum, of reasonably available control technology (RACT)) shall be implemented as expeditiously as practicable and shall provide for attainment.

E. What Are the Applicable Provisions for SO_2 Maintenance Plans and Redesignation Requests?

1. What Are the Statutory Provisions?

a. CAA Section 107(d)(3)(E)

The 1990 CAA Amendments revised section 107(d)(3)(E) to provide five specific requirements that an area must meet in order to be redesignated from nonattainment to attainment:

(1) The area must have attained the applicable NAAQS;

(2) The area has met all relevant requirements under section 110 and Part D of the Act;

(3) The area has a fully approved SIP under section 110(k) of the Act;

(4) The air quality improvement must be permanent and enforceable; and,

(5) The area must have a fully approved maintenance plan pursuant to section 175A of the Act.

b. CAA Section 175A

CAA section 175A provides the general framework for maintenance plans. The maintenance plan must provide for maintenance of the NAAQS for at least 10 years after redesignation, including any additional control measures as may be necessary to ensure such maintenance. In addition, maintenance plans are to contain contingency provisions that are necessary to assure the prompt correction of a violation of the NAAQS that occurs after redesignation. The contingency measures must include, at a minimum, a requirement that the state will implement all control measures contained in the nonattainment SIP prior to redesignation. Beyond these provisions, however, CAA section 175A does not define the content of a maintenance plan.

2. What General EPA Guidance Applies to Maintenance Plans?

General guidance on maintenance plans and redesignation requests is provided in a September 4, 1992 memo from John Calcagni, entitled ''Procedures for Processing Requests to Redesignate Areas to Attainment'' (''Calcagni Memo''). Specific guidance on SO_2 redesignations also appears in a January 26, 1995 memo from Sally L. Shaver, entitled ''Attainment Determination Policy for Sulfur Dioxide Nonattainment Areas'' (''Shaver Memo'').

Guidance on SO_2 maintenance plan requirements for an area lacking ambient monitoring data, if the area's historic violations were caused by a major point source that is no longer in operation, is found in an October 18, 2000 memo from John S. Seitz entitled ''Redesignation of Sulfur Dioxide Nonattainment Areas in the Absence of Monitored Data'' (''Seitz Memo''). The Seitz memo exempts eligible areas from the maintenance plan requirements of continued monitoring.

3. What Are the Requirements for Redesignation of Single-Source SO_2 Nonattainment Areas in the Absence of Monitored Data?

Our historic redesignation policy for SO_2 has called for eight quarters of clean ambient air quality data as a necessary prerequisite to redesignation of any area to attainment. The Seitz memo provides guidance on SO_2 maintenance plan requirements for an area lacking monitored ambient data, if the area's historic violations were caused by a major point source that is no longer in operation. In order to allow for these areas to qualify for redesignation to attainment, this policy requires that the maintenance plan address otherwise applicable provisions, and include:

(1) Emissions inventories representing actual emissions when violations occurred; current emissions; and emissions projected to the 10th year after redesignation;

(2) Dispersion modeling showing that no NAAQS violations will occur over the next 10 years and that the shut down source was the dominant cause of the high concentrations in the past;

(3) Evidence that if the shut down source resumes operation, it would be considered a new source and be required to obtain a permit under the Prevention of Significant Deterioration provisions of the CAA; and

(4) A commitment to resume monitoring before any major SO_2 source commences operation.

III. Review of the Arizona State Submittals Addressing These Provisions

A. Is the Maintenance Plan Approvable?

1. Did the State Meet the CAA Procedural Provisions?

On December 14, 2001, ADEQ submitted to EPA the ''Douglas Sulfur Dioxide State Implementation and Maintenance Plan'' and request to redesignate the area to attainment. The State verified that it had adhered to its SIP adoption procedures. In electronic mail correspondences dated March 8, 2002, and August 21, 2002, we asked the state for additional information on emissions inventories and modeling. On May 12, 2003 and April 2, 2004 Arizona submitted additional and revised technical information to EPA to support its redesignation request. A further revision was submitted on September 16, 2005. The 2003 submittal was withdrawn on November 21, 2005, as it was wholly replaced by the 2004 and 2005 submittals.[3] We will refer to the original submittal as the ''Douglas maintenance plan'' and the additional submittals as the A2004 Supplement'' and the A2005 Supplement''.

2. Does the Area Qualify for Review Under the Seitz Memo?

a. Were the Area's Violations Caused by a Major Point Source of SO_2 Emissions That Is No Longer in Operation?

As discussed above, the only major source of SO_2 emissions within the Douglas nonattainment area was the Phelps Dodge Douglas Incorporated (PDDRWS) copper smelter, which ceased operation in 1987. The last recorded 24-hour or annual average exceedances of the primary NAAQS at PDDRWS occurred in 1986, the last year of extensive monitoring. All but one monitor was removed before 1987 and all the remaining monitors owned and operated by Phelps Dodge and by ADEQ in the vicinity of the PDDRWS smelter were removed by 1988. The smelter operating permits expired, the smelting equipment was removed over a period of years, and the smelter was completely dismantled by 1991. No new sources of SO_2 of the magnitude of PDDRWS have located in the area. Thus, Douglas meets this criterion for review under the Seitz Memo.

[3] See letter from Stephen A. Owens, Director, Arizona Department of Environmental Quality, to Wayne Nastri, Regional Administrator, EPA Region 9, dated November 21, 2005.

b. Has the State Met the Requirements of the Seitz Memo?

As discussed below, the State has addressed the requirements in the Seitz Memo for emissions inventories, modeling, permitting of major new sources, and agreement to commence monitoring if a new major source locates in the area. Therefore, the State has met the special criteria in the Seitz Memo for approval of maintenance plans and redesignation requests.

(1) Emissions Inventory. The State provided the three emissions inventories specified in the Seitz Memo for the sources in, and within 50 kilometers of, the Douglas nonattainment area. These were updated in the ''2005 Supplement'', based on new emissions and location information for two plants in neighboring Mexico. Projected emissions for 2015 were also corrected in the ''2005 Supplement'' for area, mobile, and the four existing point sources located within the nonattainment area. For a representative year when the copper smelter was in operation (1985), direct SO_2 emissions from smelting operations were over 330,000 tons per year (tpy). ADEQ identified 826.88 tpy of SO_2 emissions in, or within 50 kilometers (km) of, the nonattainment area in 1999 based on actual emissions, and ADEQ projected 842.97 tpy SO_2 emissions based on actual emissions in, or within 50 kilometers of, Douglas in the 10th year after redesignation (2015). Table 1 presents a summary of actual SO_2 emissions for 1985, 1999, and projected actual emissions for 2015. We conclude that the inventories are complete, accurate, and consistent with applicable CAA provisions and the Seitz Memo.

TABLE 1.—ACTUAL SO_2 EMISSIONS INVENTORIES FOR 1985, 1999, AND 2015 FOR THE DOUGLAS NONATTAINMENT, UNCLASSIFIED, AND 50 KM BOUNDARY AREAS (IN TPY) [a]

Source category	1985	1999	2015
Point Sources	330,021.16	746.62	747.03
Area and Mobile Sources	93.02	80.26	95.94
Totals	330,114.18	826.88	842.97

[a] Source: ADEQ ''2005 Supplement'', Attachment 6.

(2) Modeling. The basic modeling requirements for redesignation of SO_2 nonattainment areas lacking current monitoring data are (1) modeling of sources in the nonattainment area and a 50 km buffer zone, showing that concentrations meet the NAAQS for (a) a current year and (b) for 10 years into the future, and (2) a showing that past monitored violations were due to sources that have since shut down.

ADEQ used the EPA-recommended SCREEN3 dispersion model to estimate SO_2 impacts due to sources in and within 50 km of the nonattainment area. SCREEN3 gives a conservatively high estimate by computing concentrations over a range of wind speed, atmospheric stability, and distance, and then choosing the maximum. For sources outside the nonattainment area, ADEQ used the modeled impact at the nonattainment area boundary, which is conservative since impacts decrease with distance past the first kilometer. Since SCREEN3 is a single-source model, results from multiple runs must be combined to get the total impact for comparison to the NAAQS. The most conservative way to do this is the approach ADEQ used, adding up the maxima from the individual source modeling. (The Agua Prieta power plant in Mexico was modeled separately for an Environmental Assessment Report, included in the SIP submittal. Its impacts were scaled up to reflect expected operations through 2015, and added to the total impacts.) Thus the ADEQ estimates are conservative in multiple ways: They assume that emissions occur all the time, that worst-case meteorology occurs all the time, and that the individual source maxima all coincide in space.

One way in which the ADEQ modeling was potentially not conservative was in its assumption of simple terrain. Terrain with elevations above stack height, *i.e.*, ''complex terrain'', can sometimes experience higher impacts than simple terrain. The Perilla Mountains appear to abut the east edge of the nonattainment area. EPA assessed their effect by rerunning SCREEN3 using its complex terrain option (including the Agua Prieta power plant). Terrain height was assumed to be the same as the plume height, to maximize modeled potential impacts. In this case, the complex terrain impacts were lower than the simple terrain algorithm, so the ADEQ results continue to represent a conservative estimate.

ADEQ's SCREEN3 analysis was carried out for both current 1999 emissions, and for emissions projected to 2015 (the latter was based on historic trends for some sources, and on ''Potential to Emit'' for others). For both current and future years, the sum of all source impacts and monitored background levels is well below the SO_2 NAAQS. For 3-hour, 24-hour, and annual standards, the conservatively high modeled impacts are 39%, 63%, and 59% of the NAAQS, respectively. This demonstrates attainment of the NAAQS both currently and for the future.

There have been no monitored or modeled SO_2 NAAQS violations since the end of operations at the PDDRW smelter. The smelter's potential emissions of over 400,000 tons per year were over 100 times the total of the current sources combined. The smelter caused NAAQS exceedances when modeled with SCREEN3. Since monitored and modeled NAAQS exceedances occur only with smelter operation, it is reasonable to conclude that the historical NAAQS violations were caused by the smelter, and not by existing sources. This shows that, even without current monitoring data, with the dismantling of the smelter, the sole cause of NAAQS exceedances no longer exists, and the NAAQS is protected.

(3) Permitting of New Sources. For the Douglas SO_2 nonattainment area, the nonattainment area new source review (NSR) permit program responsibilities are held by ADEQ. ADEQ administers the preconstruction review and permitting provisions of Arizona Administrative Code (AAC), Title 18, Chapter 2, Articles 3 and 4. All new major sources and modifications to existing major sources are subject to the NSR requirements of these rules. We have not yet fully approved the ADEQ NSR rules. ADEQ's SIP-approved NSR rules are at A.A.C. R9–3–302.

Section 172(c)(5) requires NSR permits for the construction and operation of new and modified major stationary sources anywhere in nonattainment areas. We have determined that areas being redesignated from nonattainment to attainment do not need to comply with the requirement that an NSR program be approved prior to redesignation provided that the area demonstrates

maintenance of the standard without part D nonattainment NSR in effect. The rationale for this decision is described in a memorandum from Mary Nichols dated October 14, 1994 (''Part D New Source Review (part D NSR) Requirements for Areas Requesting Redesignation to Attainment''). We have determined that the maintenance demonstration for Douglas does not rely on nonattainment NSR. Prevention of Significant Deterioration (PSD) is the replacement for NSR, and part of the obligation under PSD is for a new source to review increment consumption and maintenance of the air quality standards. PSD also requires preconstruction monitoring. Therefore, the State need not have a fully approved nonattainment NSR program prior to approval of the redesignation request.

ADEQ has a PSD permitting program (A.A.C. R9–3–304 is the SIP-approved rule) that was established to preserve the air quality in areas where ambient standards have been met. The State's PSD program for all criteria pollutants except PM–10 was approved into the SIP effective May 3, 1983 (48 FR 19878). The federal PSD program for PM–10 was delegated to the State on March 12, 1999. The PSD program requires stationary sources to undergo preconstruction review before facilities are constructed, modified, or reconstructed and to apply Best Available Control Technology (BACT). These programs will apply to any major source wishing to locate in the Douglas area once the area is redesignated to attainment. The ADEQ commitment to treat any major source in or near Douglas as ''new'' under the PSD program satisfies the preconstruction permit provision of the Seitz memo as one of the prerequisites to redesignation.

(4) Monitoring. ADEQ has confirmed on page 7.2 of the December 2001 maintenance plan that the State commits to resume monitoring before any major source of SO_2 commences to operate. Moreover, the PSD permit program requires that permit applicants conduct preconstruction monitoring to identify baseline concentrations. Together, these commitments address the monitoring provision of the Seitz Memo.

c. Has the State Met the Remaining Maintenance Plan Provisions?

As discussed above, CAA Section 175A sets forth the statutory requirements for maintenance plans, and the Calcagni and Shaver memos cited above contain specific EPA guidance. The only maintenance plan element not covered by the Seitz Memo is the contingency provision. CAA Section 175A provides that maintenance plans ''contain such contingency provisions as the Administrator deems necessary to assure that the State will promptly correct any violation of the standard which occurs after the redesignation of the area as an attainment area''.

The Douglas Maintenance Plan includes the State's commitment to continue to implement and enforce measures necessary to maintain the SO_2 NAAQS. ADEQ's current operating permit program places limits on SO_2 emissions from most existing sources. Should an existing facility want to upgrade or increase SO_2 emissions, the facility would be subject to the PSD program, and required to undergo preconstruction review and to apply BACT. Should a new facility be constructed in the Douglas area, the facility would be subject to PSD as required in the Calcagni memo, as well as to A.A.C. R18–2–406, Permit Requirements for Sources Located in Attainment and Unclassifiable Areas, after redesignation.

The Calcagni Memo emphasizes the importance of specific contingency measures, schedules for adoption, and action levels to trigger implementation of the contingency plan. Since there are no remaining sources of SO_2 emissions of the magnitude of the Phelps Dodge smelter and there is no SO_2 monitoring in the Douglas area, we agree with the State that this level of specificity is not appropriate, and we conclude that the State's commitment satisfactorily addresses the CAA provisions. If the State identifies the potential for a NAAQS violation through the permitting process, the State would ascertain what measures would be needed to avoid a violation.

B. Has the State Met the Redesignation Provisions of CAA Section 107(d)(3)(E)?

1. Has the Area Attained the 24-hour and Annual SO_2 NAAQS?

As discussed above, the normal prerequisite for redesignation is submittal of quality-assured ambient data with no violations of the SO_2 NAAQS for the last eight consecutive quarters. However, the Seitz Memo recognizes that states should be provided an opportunity to request redesignation where there is no longer monitoring but where there is no reasonable basis for assuming that SO_2 violations persist after closure of the sources that were the primary or sole cause of these violations. Douglas is such an area, and the State has submitted convincing evidence that no major stationary sources of SO_2 emissions remain in operation in or within 50 kilometers of the area that might cause a violation of the SO_2 NAAQS in this area.

2. Has the Area Met All Relevant Requirements Under Section 110 and Part D of the Act?

CAA Section 110(a)(2) contains the general requirements for SIPs (enforceable emission limits, ambient monitoring, permitting of new sources, adequate funding, etc.) and Part D contains the general provisions applicable to SIPs for nonattainment areas (emissions inventories, reasonably available control measures, demonstrations of attainment, etc.). Over the years, we have approved Arizona's SIP as meeting the basic requirements of CAA Section 110(a)(2), and the CAA Part D requirements for Douglas were addressed primarily by the regulations applicable to the Phelps Dodge facility during the period of its operation. The State has thus met the basic SIP requirements of the CAA.

3. Does the Area Have a Fully Approved SIP Under Section 110(k) of the Act?

We examined the applicable SIP, and also looked at the disapprovals listed in 40 CFR 52.125 and no disapprovals remain relevant to the applicable SIP. Arizona has a fully-approved SIP with respect to the Douglas area.

4. Has the State Shown That the Air Quality Improvement in the Area Is Permanent and Enforceable?

Yes. The Maintenance Plan shows that the primary cause of past SO_2 NAAQS violations (the Phelps Dodge copper smelter in Douglas) no longer exists. As a result, there is no reason to expect that SO_2 ambient concentrations will exceed background levels.

5. Does the Area Have a Fully Approved Maintenance Plan Pursuant to Section 175a of the Act?

Yes. As discussed above, we are approving the Douglas Maintenance Plan in this action.

IV. Final Action

We are approving the maintenance plan for the Douglas area under CAA Sections 110 and 175A. We are also approving the State's request to redesignate the Douglas area to attainment of the primary SO_2 NAAQS.

We are publishing this action without prior proposal because we do not view this as a controversial amendment and do not anticipate adverse comments. However, in the proposed rules section of this **Federal Register** publication, we

are publishing a separate document that will serve as the proposal to approve the State plan and redesignate the area if relevant adverse comments are filed. This rule will be effective May 1, 2006 without further notice unless relevant adverse comments are received by March 30, 2006. If we receive such comments, this action will be withdrawn before the effective date. All public comments received will then be addressed in a subsequent final rule based on the proposed action. We will not institute a second comment period. Any parties interested in commenting on this action should do so at this time. If no such comments are received, the public is advised that this action will be effective May 1, 2006.

V. Statutory and Executive Order Reviews

Under Executive Order 12866 (58 FR 51735, October 4, 1993), this action is not a ''significant regulatory action'' and therefore is not subject to review by the Office of Management and Budget. For this reason, this action is also not subject to Executive Order 13211, ''Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use'' (66 FR 28355, May 22, 2001). This action merely approves state law as meeting Federal requirements and imposes no additional requirements beyond those imposed by state law. Accordingly, the Administrator certifies that this rule will not have a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*). Because this rule approves pre-existing requirements under state law and does not impose any additional enforceable duty beyond that required by state law, it does not contain any unfunded mandate or significantly or uniquely affect small governments, as described in the Unfunded Mandates Reform Act of 1995 (Pub. L. 104–4).

This rule also does not have tribal implications because it will not have a substantial direct effect on one or more Indian tribes, on the relationship between the Federal Government and Indian tribes, or on the distribution of power and responsibilities between the Federal Government and Indian tribes, as specified by Executive Order 13175 (65 FR 67249, November 9, 2000). This action also does not have Federalism implications because it does not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132 (64 FR 43255, August 10, 1999). This action merely approves a state rule implementing a Federal standard, and does not alter the relationship or the distribution of power and responsibilities established in the Clean Air Act. This rule also is not subject to Executive Order 13045 ''Protection of Children from Environmental Health Risks and Safety Risks'' (62 FR 19885, April 23, 1997), because it is not economically significant.

In reviewing SIP submissions, EPA's role is to approve state choices, provided that they meet the criteria of the Clean Air Act. In this context, in the absence of a prior existing requirement for the State to use voluntary consensus standards (VCS), EPA has no authority to disapprove a SIP submission for failure to use VCS. It would thus be inconsistent with applicable law for EPA, when it reviews a SIP submission, to use VCS in place of a SIP submission that otherwise satisfies the provisions of the Clean Air Act. Thus, the requirements of section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note) do not apply. This rule does not impose an information collection burden under the provisions of the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*).

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. A major rule cannot take effect until 60 days after it is published in the **Federal Register**. This action is not a ''major rule'' as defined by 5 U.S.C. 804(2).

Under section 307(b)(1) of the Clean Air Act, petitions for judicial review of this action must be filed in the United States Court of Appeals for the appropriate circuit by May 1, 2006. Filing a petition for reconsideration by the Administrator of this final rule does not affect the finality of this rule for the purposes of judicial review nor does it extend the time within which a petition for judicial review may be filed, and shall not postpone the effectiveness of such rule or action. This action may not be challenged later in proceedings to enforce its requirements. (See section 307(b)(2).)

List of Subjects

40 CFR Part 52

Environmental protection, Air pollution control, Incorporation by reference, Intergovernmental relations, Reporting and recordkeeping requirements, Sulfur dioxide.

40 CFR Part 81

Environmental protection, Air pollution control, National parks, Wilderness areas.

Dated: December 27, 2005.

Jane Diamond,

Acting Regional Administrator, Region IX.

■ Parts 52 and 81, chapter I, title 40 of the Code of Federal Regulations are amended as follows:

PART 52—[AMENDED]

■ 1. The authority citation for part 52 continues to read as follows:

Authority: 42 U.S.C. 7401 *et seq.*

Subpart D—Arizona

■ 2. Section 52.120 is amended by adding paragraphs (c)(126), (c)(127) and (c)(128) to read as follows:

§ 52.120 Identification of plan.

* * * * *

(c) * * *

(126) The following plan was submitted on December 14, 2001, by the Governor's designee.

(i) Incorporation by reference.

(A) Arizona Department of Environmental Quality.

(*1*) Douglas Sulfur Dioxide Nonattainment Area State Implementation and Maintenance Plan, dated November 29, 2001, adopted by the Arizona Department of Environmental Quality on December 14, 2001.

(127) The following plan was submitted on April 2, 2004, by the Governor's designee.

(i) Incorporation by reference.

(A) Arizona Department of Environmental Quality.

(*1*) Modeling Supplement—Douglas Sulfur Dioxide (SO_2) State Implementation and Maintenance Plan, adopted by the Arizona Department of Environmental Quality on April 2, 2004.

(128) The following plan was submitted on September 16, 2005, by the Governor's designee.

(i) Incorporation by reference.

(A) Arizona Department of Environmental Quality.

(*1*) Modeling and Emissions Inventory Supplement for the Douglas Sulfur

Dioxide Nonattainment Area State Implementation and Maintenance Plan and Redesignation Request, dated September 2005, adopted by the Arizona Department of Environmental Quality on September 16, 2005.

PART 81—[AMENDED]

■ 1. The authority citation for part 81 continues to read as follows:

Authority: 42 U.S.C. 7401 *et seq.*

■ 2. In § 81.303 the table entitled ''Arizona—SO_2'' is amended by revising the entry for the Douglas area to read as follows:

§ 81.303 Arizona.

* * * * *

ARIZONA.—SO_2

Designated area	Does not meet primary standards	Does not meet secondary standards	Cannot be classified	Better than national standards
* * * * * * *				
Douglas:				
T23S, R27E				x
T24S, R27E				x
T24S, R28E				x
T23S, R26E			x	
T23S, R28E			x	
T24S, R26E			x	
* * * * * * *				

[FR Doc. 06–1850 Filed 2–27–06; 8:45 am]

BILLING CODE 6560–50–P

DEPARTMENT OF HOMELAND SECURITY

Federal Emergency Management Agency

44 CFR Part 65

Changes in Flood Elevation Determinations

AGENCY: Federal Emergency Management Agency (FEMA), Department of Homeland Security.

ACTION: Final rule.

SUMMARY: Modified Base (1% annual-chance) Flood Elevations (BFEs) are finalized for the communities listed below. These modified elevations will be used to calculate flood insurance premium rates for new buildings and their contents.

DATES: *Effective Dates:* The effective dates for these modified BFEs are indicated on the table below and revise the Flood Insurance Rate Maps (FIRMs) in effect for the listed communities prior to this date.

ADDRESSES: The modified BFEs for each community are available for inspection at the office of the Chief Executive Officer of each community. The respective addresses are listed in the table below.

FOR FURTHER INFORMATION CONTACT: Doug Bellomo, P.E., Hazard Identification Section, Federal Emergency Management Agency, 500 C Street, SW., Washington, DC 20472, (202) 646–2903.

SUPPLEMENTARY INFORMATION: The Federal Emergency Management Agency makes the final determinations listed below for the modified BFEs for each community listed. These modified elevations have been published in newspapers of local circulation and ninety (90) days have elapsed since that publication. The Mitigation Division Director has resolved any appeals resulting from this notification.

The modified BFEs are not listed for each community in this notice. However, this rule includes the address of the Chief Executive Officer of the community where the modified BFE determinations are available for inspection.

The modifications are made pursuant to section 206 of the Flood Disaster Protection Act of 1973, 42 U.S.C. 4105, and are in accordance with the National Flood Insurance Act of 1968, 42 U.S.C. 4001 *et seq.*, and with 44 CFR part 65.

For rating purposes, the currently effective community number is shown and must be used for all new policies and renewals.

The modified BFEs are the basis for the floodplain management measures that the community is required to either adopt or to show evidence of being already in effect in order to qualify or to remain qualified for participation in the National Flood Insurance Program (NFIP).

These modified BFEs, together with the floodplain management criteria required by 44 CFR 60.3, are the minimum that are required. They should not be construed to mean that the community must change any existing ordinances that are more stringent in their floodplain management requirements. The community may at any time enact stricter requirements of its own, or pursuant to policies established by other Federal, State, or regional entities.

These modified BFEs are used to meet the floodplain management requirements of the NFIP and are also used to calculate the appropriate flood insurance premium rates for new buildings built after these elevations are made final, and for the contents in these buildings.

The changes in BFEs are in accordance with 44 CFR 65.4.

National Environmental Policy Act. This rule is categorically excluded from the requirements of 44 CFR part 10, Environmental Consideration. No environmental impact assessment has been prepared.

Regulatory Flexibility Act. The Mitigation Division Director certifies that this rule is exempt from the requirements of the Regulatory Flexibility Act because modified base flood elevations are required by the Flood Disaster Protection Act of 1973, 42 U.S.C. 4105, and are required to maintain community eligibility in the NFIP. No regulatory flexibility analysis has been prepared.

Regulatory Classification. This final rule is not a significant regulatory action under the criteria of section 3(f) of Executive Order 12866 of September 30, 1993, Regulatory Planning and Review, 58 FR 51735.

Executive Order 13132, Federalism. This rule involves no policies that have

federalism implications under Executive Order 13132.

Executive Order 12988, Civil Justice Reform. This rule meets the applicable standards of Executive Order 12988.

List of Subjects in 44 CFR Part 65

Flood insurance, Floodplains, Reporting and recordkeeping requirements.

■ Accordingly, 44 CFR part 65 is amended to read as follows:

PART 65—[AMENDED]

■ 1. The authority citation for part 65 continues to read as follows:

Authority: 42 U.S.C. 4001 *et seq.*; Reorganization Plan No. 3 of 1978, 3 CFR, 1978 Comp., p. 329; E.O. 12127, 44 FR 19367, 3 CFR, 1979 Comp., p. 376.

§ 65.4 [Amended]

■ 2. The tables published under the authority of § 65.4 are amended as follows:

State and county	Location	Dates and names of newspaper where notice was published	Chief executive officer of community	Effective date of modification	Community number
Illinois: Cook, Case No. 04–05–3545P, FEMA Docket No. P–7646.	Village of Matteson	August 4, 2005, August 11, 2005, *The Daily Southtown*.	Mr. Mark Stricker, President, Village of Matteson, 4900 Village Commons, Matteson, Illinois 60443.	July 22, 2005	170123
Texas: Bexar, Case No. 04–06–1194P, FEMA Docket No. P–7646.	City of San Antonio	August 10, 2005, August 17, 2005, *San Antonio Express News*.	The Honorable Phil Hardberger, Mayor, City of San Antonio, Post Office Box 839966, San Antonio, Texas 78283–3966.	August 2, 2005	480045
Wisconsin: Milwaukee and Washington, Case No. 04–05–3539P, FEMA Docket No. P–7646.	City of Milwaukee	August 5, 2005, August 12, 2005, *The Milwaukee Courier*.	The Honorable Tom Barrett, Mayor, City of Milwaukee, 200 East Wells Street, Room 201, Milwaukee, Wisconsin 53202.	November 11, 2005	550278
Wisconsin: Case No. 04–05–3539P, FEMA Docket No. P–7646.	City of Glendale	August 4, 2005, August 11, 2005, *The North Shore Herald*.	The Honorable R. Jay Hintz, Mayor, City of Glendale, 6936 North Braeburn Lane, Glendale, Wisconsin 53209.	November 11, 2005	550275

(Catalog of Federal Domestic Assistance No. 83.100, ''Flood Insurance.'')

Dated: February 2, 2006.

David I. Maurstad,

Acting Director, Mitigation Division, Federal Emergency Management Agency, Department of Homeland Security.

[FR Doc. 06–1821 Filed 2–27–06; 8:45 am]

BILLING CODE 9110–12–P

DEPARTMENT OF HOMELAND SECURITY

Federal Emergency Management Agency

44 CFR Part 65

Changes in Flood Elevation Determinations

AGENCY: Federal Emergency Management Agency (FEMA), Department of Homeland Security, Mitigation Division.

ACTION: Final rule.

SUMMARY: Modified Base (1% annual chance) Flood Elevations (BFEs) are finalized for the communities listed below. These modified elevations will be used to calculate flood insurance premium rates for new buildings and their contents.

DATES: *Effective Dates:* The effective dates for these modified BFEs are indicated on the following table and revise the Flood Insurance Rate Map(s) (FIRMs) in effect for each listed community prior to this date.

ADDRESSES: The modified BFEs for each community are available for inspection at the office of the Chief Executive Officer of each community. The respective addresses are listed in the table below.

FOR FURTHER INFORMATION CONTACT: Doug Bellomo, P.E., Hazard Identification Section, FEMA, 500 C Street SW., Washington, DC 20472, (202) 646–2903.

SUPPLEMENTARY INFORMATION: FEMA makes the final determinations listed below of modified BFEs for each community listed. These modified elevations have been published in newspapers of local circulation and ninety (90) days have elapsed since that publication. The Mitigation Division Director has resolved any appeals resulting from this notification.

The modified BFEs are not listed for each community in this notice. However, this rule includes the address of the Chief Executive Officer of the community where the modified base flood elevation determinations are available for inspection.

The modifications are made pursuant to Section 206 of the Flood Disaster Protection Act of 1973, 42 U.S.C. 4105, and are in accordance with the National Flood Insurance Act of 1968, 42 U.S.C. 4001 *et seq.*, and with 44 CFR Part 65.

For rating purposes, the currently effective community number is shown and must be used for all new policies and renewals.

The modified BFEs are the basis for the floodplain management measures that the community is required to either adopt or to show evidence of being already in effect in order to qualify or to remain qualified for participation in the National Flood Insurance Program (NFIP).

These modified elevations, together with the floodplain management criteria required by 44 CFR 60.3, are the minimum that are required. They

should not be construed to mean that the community must change any existing ordinances that are more stringent in their floodplain management requirements. The community may at any time enact stricter requirements of its own, or pursuant to policies established by other Federal, state or regional entities.

These modified elevations are used to meet the floodplain management requirements of the NFIP and are also used to calculate the appropriate flood insurance premium rates for new buildings built after these elevations are made final, and for the contents in these buildings.

The changes in BFEs are in accordance with 44 CFR 65.4.

National Environmental Policy Act. This rule is categorically excluded from the requirements of 44 CFR part 10, Environmental Consideration. No environmental impact assessment has been prepared.

Regulatory Flexibility Act. The Mitigation Division Director certifies that this rule is exempt from the requirements of the Regulatory Flexibility Act because modified BFEs are required by the Flood Disaster Protection Act of 1973, 42 U.S.C. 4105, and are required to maintain community eligibility in the NFIP. No regulatory flexibility analysis has been prepared.

Regulatory Classification. This final rule is not a significant regulatory action under the criteria of Section 3(f) of Executive Order 12866 of September 30, 1993, Regulatory Planning and Review, 58 FR 51735.

Executive Order 13132, Federalism. This rule involves no policies that have federalism implications under Executive Order 13132.

Executive Order 12988, Civil Justice Reform. This rule meets the applicable standards of Executive Order 12988.

List of Subjects in 44 CFR Part 65

Flood insurance, floodplains, reporting and recordkeeping requirements.

■ Accordingly, 44 CFR part 65 is amended to read as follows:

PART 65—[AMENDED]

■ 1. The authority citation for part 65 continues to read as follows:

Authority: 42 U.S.C. 4001 *et seq.*; Reorganization Plan No. 3 of 1978, 3 CFR, 1978 Comp., p. 329; E.O. 12127, 44 FR 19367, 3 CFR, 1979 Comp., p. 376.

§ 65.4 [Amended]

■ 2. The tables published under the authority of § 65.4 are amended as follows:

State and county	Location	Dates and name of newspaper where notice was published	Chief executive officer of community	Effective date of modification	Community number
Connecticut: Litchfield, (FEMA Docket No. D–7579).	Town of Harwinton	September 6, 2005, September 13, 2005, The Register Citizen.	Ms. Marie Knudsen, Town of Harwinton First Selectman, Harwinton Town Hall, 100 Bentley Drive, Harwinton, Connecticut 06791.	December 13, 2005	090147 B
Connecticut: Litchfield, (FEMA Docket No. D–7579).	Town of Litchfield	September 6, 2005, September 13, 2005, The Register Citizen.	Mr. Leo Paul, Town of Litchfield First Selectman, Town Offices, 74 West Street, P.O. Box 488, Litchfield, Connecticut 06759.	December 13, 2005	090047 B
Connecticut: Litchfield, (FEMA Docket No. D–7579).	City of Torrington	September 6, 2005, September 13, 2005, The Register Citizen.	The Honorable Owen J. Quinn, Mayor of the City of Torrington, Municipal Building, 140 Main Street, Torrington, Connecticut 06790.	December 13, 2005	095081 B
Pennsylvania: Chester, (FEMA Docket No. D–7579).	Township of Atglen	August 11, 2005, August 18, 2005, Daily Local News	The Honorable Wesley Vincent, Mayor of the Borough of Atglen, P.O. Box 250, Atglen, Pennsylvania 19310.	November 17, 2005	420273 D
Pennsylvania: Lancaster, (FEMA Docket No. D–7579).	Township of Sadsbury	August 11, 2005, August 18, 2005, Parkesburg Post Ledger	Mr. N. Eugene Lammey, Chairman of the Township of Sadsbury Board of Supervisors, 7182 White Oak Road, Christiana, Pennsylvania 17509.	November 17, 2005	421782 E
Pennsylvania: Chester, (FEMA Docket No. D–7579).	Township of West Sadsbury.	August 11, 2005, August 18, 2005, Parkesburg Post Ledger	Mr. James Landis, Chairman of the Township of West Sadsbury Board of Supervisors, 6400 N. Moscow Road, Parkesburg, Pennsylvania 19365.	November 17, 2005	422281 D

(Catalog of Federal Domestic Assistance No. 83.100, ''Flood Insurance.'')

Dated: February 3, 2006.

David I. Maurstad,

Acting Director, Mitigation Division, Federal Emergency Management Agency, Department of Homeland Security.

[FR Doc. 06–1820 Filed 2–27–06; 8:45 am]

BILLING CODE 9110–12–P

DEPARTMENT OF HOMELAND SECURITY

Federal Emergency Management Agency

44 CFR Part 65

Changes in Flood Elevation Determinations

AGENCY: Federal Emergency Management Agency (FEMA), Department of Homeland Security.

ACTION: Final rule.

SUMMARY: Modified Base (1% annual-chance) Flood Elevations (BFEs) are finalized for the communities listed below. These modified BFEs will be used to calculate flood insurance premium rates for new buildings and their contents.

DATES: *Effective Dates:* The effective dates for these modified BFEs are indicated on the following table and revise the Flood Insurance Rate Maps (FIRMs) in effect for the listed communities prior to this date.

ADDRESSES: The modified BFEs for each community are available for inspection at the office of the Chief Executive Officer of each community. The respective addresses are listed in the table below.

FOR FURTHER INFORMATION CONTACT: Doug Bellomo, P.E., Hazard Identification Section, Mitigation Division, FEMA, 500 C Street, SW., Washington, DC 20472, (202) 646–2903.

SUPPLEMENTARY INFORMATION: FEMA makes the final determinations listed below of the modified BFEs for each community listed. These modified BFEs have been published in newspapers of local circulation and ninety (90) days have elapsed since that publication.

The Mitigation Division Director of the Federal Emergency Management Agency resolved any appeals resulting from this notification.

The modified BFEs are not listed for each community in this notice. However, this rule includes the address of the Chief Executive Officer of the community where the modified BFEs determinations are available for inspection.

The modified BFEs are made pursuant to Section 206 of the Flood Disaster Protection Act of 1973, 42 U.S.C. 4105, and are in accordance with the National Flood Insurance Act of 1968, 42 U.S.C. 4001 *et seq.*, and with 44 CFR Part 65.

For rating purposes, the currently effective community number is shown and must be used for all new policies and renewals.

The modified BFEs are the basis for the floodplain management measures that the community is required to either adopt or to show evidence of being already in effect in order to qualify or to remain qualified for participation in the National Flood Insurance Program (NFIP).

These modified BFEs, together with the floodplain management criteria required by 44 CFR 60.3, are the minimum that are required. They should not be construed to mean that the community must change any existing ordinances that are more stringent in their floodplain management requirements. The community may at any time enact stricter requirements of its own, or pursuant to policies established by other Federal, State, or regional entities.

These modified BFEs are used to meet the floodplain management requirements of the NFIP and are also used to calculate the appropriate flood insurance premium rates for new buildings built after these elevations are made final, and for the contents in these buildings.

The changes in BFEs are in accordance with 44 CFR 65.4.

National Environmental Policy Act

This rule is categorically excluded from the requirements of 44 CFR Part 10, Environmental Consideration. No environmental impact assessment has been prepared.

Regulatory Flexibility Act

The Mitigation Division Director of the Federal Emergency Management Agency certifies that this rule is exempt from the requirements of the Regulatory Flexibility Act because modified BFEs are required by the Flood Disaster Protection Act of 1973, 42 U.S.C. 4105, and are required to maintain community eligibility in the NFIP. No regulatory flexibility analysis has been prepared.

Regulatory Classification

This final rule is not a significant regulatory action under the criteria of Section 3(f) of Executive Order 12866 of September 30, 1993, Regulatory Planning and Review, 58 FR 51735.

Executive Order 13132, Federalism

This rule involves no policies that have federalism implications under Executive Order 13132.

Executive Order 12988, Civil Justice Reform

This rule meets the applicable standards of Executive Order 12988.

List of Subjects in 44 CFR Part 65

Flood insurance, Floodplains, Reporting and recordkeeping requirements.

■ Accordingly, 44 CFR Part 65 is amended to read as follows:

PART 65—[AMENDED]

■ 1. The authority citation for part 65 continues to read as follows:

Authority: 42 U.S.C. 4001 *et seq.*; Reorganization Plan No. 3 of 1978, 3 CFR, 1978 Comp., p. 329; E.O. 12127, 44 FR 19367, 3 CFR, 1979 Comp., p. 376.

§ 65.4 [Amended]

■ 2. The tables published under the authority of § 65.4 are amended as follows:

State and county	Location and Case No.	Date and name of newspaper where notice was published	Chief executive officer of community	Effective date of modification	Community number
Alabama: Coffee; (FEMA Docket No.: B–7452).	Unincorporated Areas (04–04–A853P).	February 23, 2005; March 3, 2005; *The Enterprise Ledger*.	The Honorable Doug Dalrymple, Chairman, Coffee County, County Courthouse, Two County Complex, New Brockton, Alabama 36351.	February 10, 2005	010239
Alaska: Anchorage Borough; (FEMA Docket No.: B–7452).	*Municipality of Anchorage* (04–10–0831P).	April 27, 2005; May 4, 2005; *Anchorage Daily News*.	The Honorable Mark Begich, Mayor, Municipality of Anchorage, P.O. Box 196650, Anchorage, Alaska 99519–6650.	August 3, 2005	020005

State and county	Location and Case No.	Date and name of newspaper where notice was published	Chief executive officer of community	Effective date of modification	Community number
Arizona:					
Gila; (FEMA Docket No.: B–7448).	City of Globe (04–09–0928P).	June 16, 2004; June 23, 2004; *Arizona Silver Belt*.	The Honorable Stanley Gibson, Mayor, City of Globe, 150 North Pine Street, Globe, Arizona 85501.	September 22, 2004 ..	040029
Maricopa; (FEMA Docket No.: B–7448).	City of Avondale (04–09–0311P).	June 17, 2004; June 24, 2004; *Arizona Republic*.	The Honorable Ronald J. Drake, Mayor, City of Avondale, 525 North Central Avenue, Avondale, Arizona 85323.	September 23, 2004	040038
Maricopa; (FEMA Docket No.: B–7451).	City of Avondale (04–09–0552P).	January 6, 2005; January 13, 2005; *Arizona Republic*.	The Honorable Ronald J. Drake, Mayor, City of Avondale, 525 North Central Avenue, Avondale, Arizona 85323.	December 21, 2004 ..	040038
Maricopa; (FEMA Docket No.: B–7448).	Town of Buckeye (04–09–0585P).	June 17, 2004; June 24, 2004; *Buckeye Valley Newspaper*.	The Honorable Dusty Hull, Mayor, Town of Buckeye, 100 North Apache Road, Suite A, Buckeye, Arizona 85326.	May 27, 2004	040039
Maricopa; (FEMA Docket No.: B–7448).	Town of Buckeye (04–09–0544P).	June 17, 2004; June 24, 2004; *Buckeye Valley Newspaper*.	The Honorable Dusty Hull, Mayor, Town of Buckeye, 100 North Apache Road, Suite A, Buckeye, Arizona 85326.	May 27, 2004	040039
Maricopa; (FEMA Docket No.: B–7451).	Town of Carefree (04–09–1301P).	December 23, 2004; December 30, 2004; *Arizona Business Gazette*.	The Honorable Edward C. Morgan, Mayor, Town of Carefree, P.O. Box 740, Carefree, Arizona 85377.	November 24, 2004 ..	040126
Maricopa; (FEMA Docket No.: B–7450).	City of Glendale (03–09–1653P).	September 23, 2004; September 30, 2004; *Arizona Business Gazette*.	The Honorable Elaine M. Scruggs, Mayor, City of Glendale, 5850 West Glendale Avenue, Glendale, Arizona 85301.	December 30, 2004 ..	040045
Maricopa; (FEMA Docket No.: B–7450).	City of Glendale (04–09–0318P).	September 23, 2004; September 30, 2004; *Arizona Business Gazette*.	The Honorable Elaine M. Scruggs, Mayor, City of Glendale, 5850 West Glendale Avenue, Glendale, Arizona 85301.	December 30, 2004 ..	040045
Maricopa; (FEMA Docket No.: B–7450).	City of Goodyear (03–09–1653P).	September 23, 2004; September 30, 2004; *Arizona Business Gazette*.	The Honorable James M. Cavanaugh, Mayor, City of Goodyear, 190 North Litchfield Road, Goodyear, Arizona, 85338.	December 30, 2004 ..	040046
Maricopa; (FEMA Docket No.: B–7450).	City of Goodyear (03–09–1653P).	December 2, 2004; December 29, 2004; *Arizona Business Gazette*.	The Honorable James M. Cavanaugh, Mayor, City of Goodyear, 190 North Litchfield Road, Goodyear, Arizona, 85338.	December 30, 2004 ..	040046
Maricopa; (FEMA Docket No.: B–7451).	City of Goodyear (04–09–0318P).	September 23, 2004; September 30, 2004; *Arizona Business Gazette*.	The Honorable James M. Cavanaugh, Mayor, City of Goodyear, 190 North Litchfield Road, Goodyear, Arizona, 85338.	March 10, 2005	040046
Maricopa; (FEMA Docket No.: B–7450).	City of Litchfield Park (03–09–1653P).	September 23, 2004; September 30, 2004; *Arizona Business Gazette*.	The Honorable J. Woodfin "Woody" Thomas, Mayor, City of Litchfield Park, 214 West Wigwam Boulevard, Litchfield, Arizona, 85340.	December 30, 2004 ..	040128
Maricopa; (FEMA Docket No.: B–7450).	City of Peoria (04–09–0960P).	August 12, 2004; August 19, 2004; *Arizona Business Gazette*.	The Honorable John Keegan, Mayor, City of Peoria, Municipal Complex, 89401 West Monroe Street, Peoria, Arizona, 85345.	November 18, 2004 ..	040050
Maricopa; (FEMA Docket No.: B–7448).	City of Phoenix (02–09–290P).	June 3, 2004; June 10, 2004; *Arizona Business Gazette*.	The Honorable Phil Gordon, Mayor, City of Phoenix, 200 West Washington Street, 11th Floor, Phoenix, Arizona, 85003–1611.	September 9, 2004 ...	040051

State and county	Location and Case No.	Date and name of newspaper where notice was published	Chief executive officer of community	Effective date of modification	Community number
Maricopa; (FEMA Docket No.: B–7448).	City of Phoenix (02–09–1019P).	June 17, 2004; June 24, 2004; *Arizona Business Gazette*.	The Honorable Phil Gordon, Mayor, City of Phoenix, 200 West Washington Street, 11th Floor, Phoenix, Arizona, 85003–1611.	September 23, 2004	040051
Maricopa; (FEMA Docket No.: B–7450).	City of Phoenix (04–09–0716P).	July 1, 2004; July 8, 2004; *Arizona Business Gazette*.	The Honorable Phil Gordon, Mayor, City of Phoenix, 200 West Washington Street, 11th Floor, Phoenix, Arizona, 85003–1611.	June 22, 2004	040051
Maricopa; (FEMA Docket No.: B–7451).	City of Phoenix (03–09–0448P).	December 2, 2004; December 9, 2004; *Arizona Business Gazette*.	The Honorable Phil Gordon, Mayor, City of Phoenix, 200 West Washington Street, 11th Floor, Phoenix, Arizona, 85003–1611.	March 10, 2005	040051
Maricopa; (FEMA Docket No.: B–7451).	City of Goodyear (04–09–0381P).	December 23, 2004; December 30, 2004; *Arizona Business Gazette*.	The Honorable Phil Gordon, Mayor, City of Phoenix, 200 West Washington Street, 11th Floor, Phoenix, Arizona, 85003–1611.	March 30, 2005	040051
Maricopa; (FEMA Docket No.: B–7452).	City of Phoenix (03–09–0661P).	April 21, 2004; April 28, 2004; *Arizona Business Gazette*.	The Honorable Phil Gordon, Mayor, City of Phoenix, 200 West Washington Street, 11th Floor, Phoenix, Arizona, 85003–1611.	July 28, 2005	040051
Maricopa; (FEMA Docket No.: B–7451).	City of Scottsdale (04–09–1301P).	December 23, 2004; December 30, 2004; *Arizona Business Gazette*.	The Honorable Mary Manross, Mayor, City of Scottsdale, 3939 North Drinkwater Boulevard, Scottsdale, Arizona, 85251.	November 24, 2004 ..	045012
Maricopa; (FEMA Docket No.: B–7452).	City of Scottsdale (05–09–0403X).	February 24 2005; March 3, 2005; *Arizona Business Gazette*.	The Honorable Mary Manross, Mayor, City of Scottsdale, 3939 North Drinkwater Boulevard, Scottsdale, Arizona, 85251.	February 4, 2005	045012
Maricopa; (FEMA Docket No.: B–7448).	Unincorporated Areas (04–09–0311P).	June 17, 2004; June 24, 2004; *Arizona Republic*.	The Honorable Andrew W. Kunasek, Chairman, Maricopa County, Board of Supervisors, 301 West Jefferson Street, 10th Floor, Phoenix, Arizona 85003.	September 23, 2004	040037
Maricopa; (FEMA Docket No.: B–7450).	Unincorporated Areas (03–09–1653P).	September 23, 2005; September 30, 2004; *Arizona Business Gazette*.	The Honorable Andrew W. Kunasek, Chairman, Maricopa County, Board of Supervisors, 301 West Jefferson Street, 10th Floor, Phoenix, Arizona 85003.	December 30, 2004 ..	040037
Maricopa; (FEMA Docket No.: B–7450).	Unincorporated Areas (04–09–0318P).	September 23, 2004; September 30, 2004; *Arizona Business Gazette*.	The Honorable Andrew W. Kunasek, Chairman, Maricopa County, Board of Supervisors, 301 West Jefferson Street, 10th Floor, Phoenix, Arizona 85003.	December 30, 2004 ..	040037
Maricopa; (FEMA Docket No.: B–7451).	Unincorporated Areas (03–09–1190P).	October 21, 2004; October 28, 2004; *Arizona Business Gazette*.	The Honorable Andrew W. Kunasek, Chairman, Maricopa County Board of Supervisors, 301 West Jefferson Street, 10th Floor, Phoenix, Arizona 85003.	October 12, 2005	040037
Maricopa; (FEMA Docket No.: B–7451).	Unincorporated Areas (04–09–0552P).	January 6, 2005; January 13, 2005; *Arizona Republic*.	The Honorable Andrew W. Kunasek, Chairman, Maricopa County Board of Supervisors, 301 West Jefferson Street, 10th Floor, Phoenix, Arizona 85003.	December 21, 2004 ...	040037
Pima; (FEMA Docket No.: B–7448).	Town of Marana (02–09–1039P).	June 10, 2004; June 17, 2004; *Tucson Citizen*.	The Honorable Bobby Sutton, Jr., Mayor, Town of Marana, 13251 North Lon Adams Road, Marana, Arizona 85653.	September 16, 2004 ..	040118
Pima; (FEMA Docket No. B–7448).	Town of Marana (04–09–0308P).	May 6, 2004; May 13, 2004; *Daily Territorial*.	The Honorable Bobby Sutton, Jr., Mayor, Town of Marana, 13251 North Lon Adams Road, Marana, Arizona 85653.	August 12, 2004	040118
Pima; (FEMA Docket No.: B–7451).	Town of Marana (03–09–1071P).	December 2, 2004; December 9, 2004; *Tucson Citizen*.	The Honorable Bobby Sutton, Jr., Mayor, Town of Marana, 13251 North Lon Adams Road, Marana, Arizona 85653.	March 10, 2005	040118

State and county	Location and Case No.	Date and name of newspaper where notice was published	Chief executive officer of community	Effective date of modification	Community number
Pima; (FEMA Docket No.: B–7451).	Town of Marana (04–09–0697P).	December 16, 2004; December 23, 2004; *Daily Territorial*.	The Honorable Bobby Sutton, Jr., Mayor, Town of Marana, 13251 North Lon Adams Road, Marana, Arizona 85653.	March 23, 2005	040118
Pima; (FEMA Docket No.: B–7452).	Town of Marana (03–09–1149P).	April 28, 2005; May 5, 2005; *Daily Territorial*.	The Honorable Bobby Sutton, Jr., Mayor, Town of Marana, 13251 North Lon Adams Road, Marana, Arizona 85653.	August 4, 2005	040118
Pima; (FEMA Docket No.: B–7450).	City of Tucson (04–09–0621P).	July 29, 2004; August 5, 2004; *Daily Territorial*.	The Honorable Bob Walkup, Mayor, Town of Tucson, 255 West Alameda Street, Tucson, Arizona 85701.	November 4, 2004	040076
Pima; (FEMA Docket No.: B–7452).	City of Tucson (04–09–0547P).	April 21, 2005; April 28, 2005; *Daily Territorial*.	The Honorable Bob Walkup, Mayor, City of Tucson, City Hall, 255 West Alameda Street, Tucson, Arizona 85701.	July 28, 2005	040076
Pima; (FEMA Docket No.: B–7448).	Unincorporated Areas (02–09–1039P).	June 10, 2004; June 17, 2004; *Tucson Citizen*.	The Honorable Sharon Bronson, Chair, Pima County, Board of Supervisors, 130 West Congress Street, 11th Floor, Tucson, Arizona 85701.	September 16, 2004 ..	040073
Pima; (FEMA Docket No.: B–7451).	Unincorporated Areas (03–09–1071P).	December 2, 2004; December 9, 2004; *Tucson Citizen*.	The Honorable Sharon Bronson, Chair, Pima County, Board of Supervisors, 130 West Congress Street, 11th Floor, Tucson, Arizona 85701.	March 10, 2005	040073
Pima; (FEMA Docket No.: B–7451).	Unincorporated Areas (03–09–1300P).	November 10, 2004; November 18, 2004; *Daily Territorial*.	The Honorable Sharon Bronson, Chair, Pima County, Board of Supervisors, 130 West Congress Street, 11th Floor, Tucson, Arizona 85701.	October 26, 2004	040073
Pinal; (FEMA Docket No.: B–7451).	Unincorporated Areas (03–09–1071P).	December 1, 2004; December 8, 2004; *Copper Basin News*.	The Honorable Lionel D. Ruiz, Chairman, Pinal County Board of Supervisors, P.O. Box 827, Florence, Arizona 85232.	March 10, 2004	040077
Pima; (FEMA Docket No.: B–7452).	Unincorporated Areas (03–09–1149P).	April 28, 2005; May 5, 2005; *Daily Territorial*.	The Honorable Sharon Bronson, Chair, Pima County, Board of Supervisors, 130 West Congress Street, 11th Floor, Tucson, Arizona 85701.	August 4, 2005	040073
Yavapai; (FEMA Docket No.: B–7450).	Town of Prescott Valley (03–09–1663P).	July 8, 2004; July 15, 2004; *Prescott Daily Courier*.	The Honorable Richard Killingsworth, Mayor, Town of Prescott Valley, Civic Center, 7501 East Civic Circle, Prescott Valley, Arizona 86314.	October 14, 2004	040121
Yavapai; (FEMA Docket No.: B–7450).	Unincorporated Areas (04–09–0725P).	July 22, 2004; July 29, 2004; *Prescott Daily Courier*.	The Honorable Lorna Street, Chairman, Yavapai County, Board of Supervisors, 1015 Fair Street, Room 310, Prescott, Arizona 86301.	October 28, 2004	040093
Yuma; (FEMA Docket No.: B–7451).	Unincorporated Areas (04–09–0557P).	December 23, 2004; December 30, 2004; *Yuma Sun*.	The Honorable Lucy Shipp, Chairman, Yuma County Board of Supervisors, 198 South Main Street, Yuma, Arizona 85364.	March 30, 2005	040099
California:					
Alameda; (FEMA Docket No.: B–7452).	City of Hayward (04–09–0592P).	April 23, 2005; April 30, 2005; *Daily Review*.	The Honorable Roberta Cooper, Mayor, City of Hayward, 777 B Street, Hayward, California 94541–5007.	April 11, 2005	065033
Butte; (FEMA Docket No.: B–7451).	City of Chico (04–09–0415P).	December 23, 2004; December 30, 2004; *Chico Enterprise-Record*.	The Honorable Maureen Kirk, Mayor, City of Chico, P.O. Box 3420, Chico, California 95927.	March 31, 2005	060746
Contra Costa; (FEMA Docket No.: B–7450).	City of Clayton (04–09–0463P).	August 26, 2004; September 2, 2004; *Contra Costa Times*.	The Honorable Peter Laurence, Mayor, City of Clayton, Clayton City Hall, 6000 Heritage Trail, Clayton, California 94517–0280.	December 2, 2004	050027

State and county	Location and Case No.	Date and name of newspaper where notice was published	Chief executive officer of community	Effective date of modification	Community number
Contra Costa; (FEMA Docket No.: B–7450).	City of Clayton (04–09–0463P).	August 26, 2004; September 2, 2004; *Contra Costa Times*.	The Honorable Peter Laurence, Mayor, City of Clayton, Clayton City Hall, 6000 Heritage Trail, Clayton, California 94517–0280.	December 2, 2004	060027
Contra Costa; (FEMA Docket No.: B–7450).	City of Concord (04–09–0463P).	August 26, 2004; September 2, 2004; *Contra Costa Times*.	The Honorable Mark Peterson, Mayor, City of Concord, Concord City Hall, 1950 Parkside Drive, Concord, California 94519.	December 2, 2004	065022
Contra Costa; (FEMA Docket No.: B–7452).	City of Hercules (05–09–0327P).	April 14, 2005; April 21, 2005; *West County Times*.	The Honorable Frank Batara, Mayor, City of Hercules, 111 Civic Drive, Hercules, California 94547.	July 21, 2005	060434
Kern; ; (FEMA Docket No.: B–7450).	Unincorporated Areas (04–09–0755P).	August 26, 2004; September 2, 2004; *Bakersfield Californian*.	Mr. John McQuiston, Chairman, Kern County, Board of Supervisors 1115 Truxtun Avenue, Fifth Floor, Bakersfield, California 93301.	July 23, 2004	060075
Los Angeles; ; (FEMA Docket No.: B–7452).	City of Agoura Hills (04–09–1686P).	March 24, 2005; March 31, 2005; *The Acorn*.	The Honorable Denis Weber, Mayor, City of Agoura Hills, 30001 Ladyface Court, Agoura Hills, California 91301.	June 30, 2005	065072
Los Angeles; ; (FEMA Docket No.: B–7448).	City of Burbank (02–09–874P).	June 16, 2004; June 23, 2004; *Burbank Leader*.	The Honorable Stacey Murphy, Mayor, City of Burbank, P.O. Box 6459, Burbank, California 91510–6459.	May 20, 2004	065018
Los Angeles; ; (FEMA Docket No.: B–7451).	City of Palmdale (04–09–1388P).	December 2, 2004; December 9, 2004; *Los Angeles Times*.	The Honorable James C. Ledford, Jr., Mayor, City of Palmdale, 38300 North Sierra Highway, Palmdale, California 93550–4798.	March 10, 2005	060144
Los Angeles; ; (FEMA Docket No.: B–7451).	Unincorporated Areas (04–09–1388P).	December 2, 2004; December 9, 2004; *Los Angeles Times*.	The Honorable Don Knabe, Chairman, Los Angeles County, Board of Supervisors, 500 West Temple Street, Room 866, Los Angeles, California 90012.	March 10, 2005	065043
Riverside; ; (FEMA Docket No.: B–7450).	City of Corona (04–09–0832P).	July 22, 2004; July 29, 2004; *Press Enterprise*.	The Honorable Jeff Miller, Mayor, City of Corona, 815 West Sixth Street, Corona, California 92882.	October 28, 2004	060250
Sacramento; ; (FEMA Docket No.: B–7450).	Unincorporated Areas (04–09–0420P).	October 7, 2004; October 14, 2004; *Daily Recorder*.	The Honorable Muriel Johnson, Chair, Sacramento County, Board of Supervisors, 700 H Street, Suite 2450, Sacramento, California 95814.	January 13, 2005	060262
San Diego; ; (FEMA Docket No.: B–7452).	City of Chula Vista (04–09–1682P).	March 22, 2005; March 29, 2005; *San Diego Union-Tribune*.	The Honorable Stephen C. Padilla, Mayor, City of Chula Vista, 276 Fourth Avenue, Chula Vista, California 91910.	June 28, 2005	065021
San Diego; (FEMA Docket No.: B–7448).	City of Escondido (03–09–1334P).	June 10, 2004; June 17, 2004; *North County Times*.	The Honorable Lori Pfeiler, Mayor, City of Escondido, 201 North Broadway, Escondido, California 92025.	May 21, 2004	060290
San Diego; (FEMA Docket No.: B–7450).	City of National City (04–09–1445X).	July 29, 2004; August 5, 2004; *San Diego Union-Tribune*.	The Honorable Nick Inzunza, Mayor, City of National City, National City Civic Center, 1243 National City Boulevard, National City, California 91950.	November 4, 2004	060293

State and county	Location and Case No.	Date and name of newspaper where notice was published	Chief executive officer of community	Effective date of modification	Community number
San Diego; (FEMA Docket No.: B–7451).	City of Poway; (03–09–1583P).	January 27, 2005; February 3, 2005; *Poway News Chieftain*.	The Honorable Mickey Cafagna, Mayor, City of Poway, P.O. Box 789, Poway, California 92074–0789.	May 5, 2005	060702
San Diego; (FEMA Docket No.: B–7448).	City of San Diego (02–09–0909X).	April 29, 2004; May 6, 2004; *San Diego Daily Transcript*.	The Honorable Richard M. Murphy, Mayor, City of San Diego, 202 C Street, 11th Floor, San Diego, California 92101.	August 5, 2004;	060295
San Diego; (FEMA Docket No.: B–7451).	City of San Diego (04–09–1311P).	November 4, 2004; November 11, 2004; *San Diego Daily Transcript*.	The Honorable Dick Murphy, Mayor, City of San Diego, 202 C Street, 11th Floor, San Diego, California 92101.	February 10, 2005	060295
San Diego; (FEMA Docket No.: B–7452).	City of San Diego (04–09–1682P).	March 22, 2005; March 29, 2005; *San Diego Union-Tribune*.	The Honorable Dick Murphy, Mayor, City of San Diego, 202 ''C'' Street, Eleventh Floor, San Diego, California 92101.	June 28, 2005	065295
San Diego; (FEMA Docket No.: B–7450).	City of Vista (03–09–1498P).	August 19, 2004; August 26, 2004; *North County Times*.	The Honorable Morris Vance, Mayor, City of Vista, P.O. Box 1988, Vista, California 92085.	November 26, 2004 ..	060297
San Diego; (FEMA Docket No.: B–7448).	Unincorporated Areas (04–09–0909X).	April 29, 2004; May 6, 2004; *San Diego Daily Transcript*.	The Honorable Dianne Jacob, Chairwoman, San Diego County, Board of Supervisors, 1600 Pacific Highway, Room 335, San Diego, California 92101.	August 5, 2004	060284
San Diego; (FEMA Docket No.: B–7448).	Unincorporated Areas (03–09–1334P).	June 10, 2004; June 17, 2004; *North County Times*.	The Honorable Greg Cox, Chairwoman, San Diego County, Board of Supervisors, 1600 Pacific Highway, Room 335, San Diego, California 92101.	May 21, 2004	060284
Santa Barbara; (FEMA Docket No.: B–7450).	Unincorporated Areas (03–09–1650P).	September 2, 2004; September 9, 2004; *Santa Barbara News-Press*.	The Honorable Joseph Centeno, Chair, Santa Barbara County, Board of Supervisors, 511 East Lakeside Parkway, Suite 141, Santa Maria, California 93455.	December 9, 2004	060331
San Diego; (FEMA Docket No.: B–7452).	Unincorporated Areas (04–09–1360P).	March 24, 2005; March 31, 2005; *San Diego Union-Tribune*.	The Honorable Dianne Jacob, Chairperson, San Diego County, Board of Supervisors, County Administration Center, 1600 Pacific Highway, San Diego, California 92101.	March 10, 2005	060284
Santa Clara; (FEMA Docket No.: B–7450).	City of San Jose (04–09–0959P).	August 5, 2004; August 12, 2004; *San Jose Mercury News*.	The Honorable Ron Gonzales, Mayor, City of San Jose, 801 North First Street, San Jose, California 95110.	November 12, 2004 ...	060349
Solano; (FEMA Docket No.: B–7448).	City of Fairfield (04–09–0394P).	April 29, 2004; May 6, 2004; *Daily Republic*.	The Honorable Karin MacMillan, Mayor, City of Fairfield, 1000 Webster Street, Fairfield, California 94533.	August 5, 2004	060370
Ventura; (FEMA Docket No.: B–7450).	City of Simi Valley (04–09–0054P).	October 14, 2004; October 21, 2004; *Ventura County Star*.	The Honorable William Davis, Mayor, City of Simi Valley, 2929 Tapo Canyon Road, Simi Valley, California 93063–2199.	January 20, 2005	060421
Colorado:					
Adams; (FEMA Docket No.: B–7452).	City of Commerce City (04–08–0577P).	February 2, 2005; February 9, 2005; *Brighton Standard-Blade*.	The Honorable Sean Ford, Mayor, City of Commerce City, 5291 East 60th Avenue, Blade Commerce City, Colorado 80022.	May 11, 2005	080006

State and county	Location and Case No.	Date and name of newspaper where notice was published	Chief executive officer of community	Effective date of modification	Community number
Adams; (FEMA Docket No.: B–7452).	City of Thornton (04–08–0577P).	February 2, 2005; February 9, 2005; *Brighton Standard-Blade*.	The Honorable Noel Busck, Mayor, City of Thornton, 9500 Civic Center Drive, Thornton, Colorado 80229.	May 11, 2005	080007
Adams; (FEMA Docket No.: B–7448).	Unincorporated Areas (02–08–250P).	June 23, 2004; June 30, 2004; *Brighton Standard-Blade*.	The Honorable Elaine T. Valente, Chairperson, Adams County Board of Commissioners, 450 South Fourth Avenue, Brighton, Colorado 80601.	September 29, 2004 ..	080001
Adams; (FEMA Docket No.: B–7448).	Unincorporated Areas (03–08–0677P).	April 9, 2004; April 16, 2004; *Eastern Colorado News*.	The Honorable Elaine T. Valente, Chairperson, Adams County Board of Commissioners, 450 South Fourth Avenue, Brighton, Colorado 80601.	July 16, 2004	080001
Adams; (FEMA Docket No.: B–7452).	Unincorporated Areas (04–08–0577P).	February 2, 2005; February 9, 2005; *Brighton Standard-Blade*.	The Honorable Elaine T. Valente, Chairperson, Adams County Board of Commissioners, 450 South Fourth Avenue, Brighton, Colorado 80601.	May 11, 2005	080001
Adams; (FEMA Docket No.: B–7448).	City of Westminster (02–08–250P).	June 23, 2004; June 30, 2004; *Brighton Standard-Blade*.	The Honorable Ed Moss, Mayor, City of Westminster, 4800 West 92nd Avenue, Westminster, Colorado 80031.	September 29, 2004	080008
Adams and Jefferson; (FEMA Docket No.: B–7448).	City of Westminster (03–08–0645P).	May 13, 2004; May 20, 2004; *Westminster Window*.	The Honorable Ed Moss, Mayor, City of Westminster, 4800 West 92nd Avenue, Westminster, Colorado 80031.	August 19, 2004	080008
Arapahoe; (FEMA Docket No.: B–7452).	City of Centennial (05–08–0060P).	March 17, 2005; March 24, 2005; *The Littleton Independent*.	The Honorable Randy Pye, Mayor, City of Centennial, City of Centennial Office, 12503 East Euclid Drive, Suite 200, Centennial, Colorado 80111.	March 3, 2005	080315
Boulder; (FEMA Docket No.: B–7448).	City of Boulder (04–08–0098P).	June 10, 2004; June 17, 2004; *Boulder Daily Camera*.	The Honorable William R. Toor, Mayor, City of Boulder, P.O. Box 791, Boulder, Colorado 80306.	September 16, 2004	080024
Boulder; (FEMA Docket No.: B–7451).	City of Boulder (04–08–0494P).	November 10, 2004; November 17, 2004; *Boulder Daily Camera*.	The Honorable William R. Toor, Mayor, City of Boulder, P.O. Box 791, Boulder, Colorado 80306.	November 1, 2004	080024
Boulder and Weld; (FEMA Docket No.: B–7448).	Town of Erie (04–08–0066P).	April 28, 2004; May 5, 2004; *Erie Review*.	The Honorable Barbara Connors, Chairperson, Town of Erie, P.O. Box 750, Erie, Colorado 80516.	August 4, 2004	080181
Boulder; (FEMA Docket No.: B–7448).	City of Lafayette (04–08–0259P).	May 27, 2004; June 3, 2004; *Boulder Daily Camera*.	The Honorable Chris Berry, Mayor, City of Lafayette, 1290 South Public Road, Lafayette, Colorado 80026.	September 1, 2004 ...	080026
Boulder; (FEMA Docket No.: B–7450).	City of Longmont (03–08–0580P).	July 1, 2004; July 8, 2004; *Daily Times Call*.	The Honorable Julia Pirmack, Mayor, City of Longmont, 350 Kimbark Street, Longmont, Colorado 80501.	October 7, 2004	080027
Boulder; (FEMA Docket No.: B–7450).	City of Longmont (04–08–0463P).	September 23, 2004; September 30, 2004; *Longmont Daily Times Call*.	The Honorable Julia Pirmack, Mayor, City of Longmont, 350 Kimbark Street, Longmont, Colorado 80501.	December 16, 2004 ..	080027
Boulder; (FEMA Docket No.: B–7448).	Unincorporated Areas (04–08–0259P).	May 27, 2004; June 3, 2004; *Boulder Daily Camera*.	The Honorable Paul Danish, Chairman, Boulder County Board of Commissioners, P.O. Box 471, Boulder, Colorado 80306.	September 1, 2004 ...	080023

State and county	Location and Case No.	Date and name of newspaper where notice was published	Chief executive officer of community	Effective date of modification	Community number
Boulder; (FEMA Docket No.: B–7450).	Unincorporated Areas (04–08–0580P).	July 1, 2004; July 8, 2004; *Daily Times Call*.	The Honorable Paul Danish, Chairman, Boulder County Board of Commissioners, P.O. Box 471, Boulder, Colorado 80306.	October 7, 2004	080023
Boulder; (FEMA Docket No.: B–7451).	Unincorporated Areas (04–08–0494P).	November 10, 2004; November 17, 2004; *Boulder Daily Camera*.	The Honorable Paul Danish, Chairman, Boulder County Board of Commissioners, P.O. Box 471, Boulder, Colorado 80306.	November 1, 2004	080023
Broomfield; (FEMA Docket No.: B–7448).	City and County of Broomfield (03–08–0022P).	May 5, 2004; May 12, 2004; *Broomfield Enterprise*.	The Honorable Karen Stuart, Mayor, City and County of Broomfield, One DesCombes Drive, Broomfield, Colorado 80020.	August 25, 2004	085073
Broomfield; (FEMA Docket No.: B–7448).	City and County of Broomfield (04–08–0259P).	May 26, 2004; June 2, 2004; *Broomfield Enterprise*.	The Honorable Karen Stuart, Mayor, City and County of Broomfield, One DesCombes Drive, Broomfield, Colorado 80020.	September 1, 2004 ...	085073
Broomfield and Jefferson; (FEMA Docket No.: B–7448).	City and County of Broomfield (02–08–447P).	June 9, 2004; June 16, 2004; *Broomfield Enterprise*.	The Honorable Karen Stuart, Mayor, City and County of Broomfield, One DesCombes Drive, Broomfield, Colorado 80020.	September 15, 2004	085073
Broomfield and Jefferson; (FEMA Docket No.: B–7448).	City of Westminster (02–08–447P).	June 9, 2004; June 16, 2004; *Broomfield Enterprise*.	The Honorable Ed Moss, Mayor, City of Westminster, 4800 West 92nd Avenue, Westminster, Colorado 80031.	September 15, 2004	080008
Denver; (FEMA Docket No.: B–7452).	City and County of Denver (04–08–0657P).	March 23, 2005; March 30, 2005; *Rocky Mountain News*.	The Honorable John W. Hickenlooper, Mayor, City and County of Denver, 1437 Bannock Street, Suite 350, Denver, Colorado 80202.	February 23, 2005	080046
Douglas; (FEMA Docket No.: B–7448).	Unincorporated Areas (03–08–0425P).	April 22, 2004; April 29, 2004; *Douglas County News Press*.	The Honorable James R. Sullivan, Chairman, Douglas County Board of Commissioners, 100 Third Street, Castle Rock, Colorado 80104.	July 29, 2004	080049
Douglas; (FEMA Docket No.: B–7452).	Unincorporated Areas (04–08–0696P).	March 3, 2005; March 10, 2005; *Douglas County News-Press*.	The Honorable Walter M. Maxwell, Chairman, Douglas County Board of Commissioners, 100 Third Street, Castle Rock, Colorado 80104.	February 17, 2005	080049
Douglas; (FEMA Docket No.: B–7452).	Unincorporated Areas (04–08–0022P).	March 31, 2005; April 7, 2005; *Douglas County News-Press*.	The Honorable Walter M. Maxwell, Chairman, Douglas County Board of Commissioners, 100 Third Street, Castle Rock, Colorado 80104.	March 21, 2005	080049
El Paso; (FEMA Docket No.: B–7448).	City of Colorado Springs (03–08–0229P).	May 27, 2004; June 3, 2004; *The Gazette*.	The Honorable Lionel Rivera, Mayor, City of Colorado Springs, P.O. Box 1575, Colorado Springs, Colorado 80901.	September 2, 2004 ...	080060
El Paso; (FEMA Docket No.: B–7450).	City of Colorado Springs (04–08–0314P).	September 23, 2004; September 30, 2004; *The Gazette*.	The Honorable Lionel Rivera, Mayor, City of Colorado Springs, P.O. Box 1575, Colorado Springs, Colorado 80901.	December 30, 2004 ..	080060
El Paso; (FEMA Docket No.: B–7450).	City of Colorado (03–08–0689P).	July 1, 2004; July 8, 2004; *The Gazette*.	The Honorable Lionel Rivera, Mayor, City of Colorado Springs, P.O. Box 1575, Colorado Springs, Colorado 80901.	October 7, 2004	080060

State and county	Location and Case No.	Date and name of newspaper where notice was published	Chief executive officer of community	Effective date of modification	Community number
El Paso; (FEMA Docket No.: B–7450).	City of Colorado Springs (04–08–0434P).	August 26, 2004; September 2, 2004; *The Gazette*.	The Honorable Lionel Rivera, Mayor, City of Colorado Springs, P.O. Box 1575, Colorado Springs, Colorado 80901.	December 2, 2004	080060
El Paso; (FEMA Docket No.: B–7448).	Town of Green Mountain (04–08–0136P).	April 8, 2004; April 15, 2004; *The Gazette Falls*.	The Honorable Richard Bratton, Mayor, Town of Green Mountain, P.O. Box 524, Green Mountain Falls, CO 80819.	July 15, 2004	080062
El Paso; (FEMA Docket No.: B–7448).	City of Manitou Springs (04–08–0013P).	June 10, 2004; *Pikes Peak Bulletin*.	The Honorable Marcy Morrison, Mayor, City of Manitou Springs, 606 Manitou Avenue, Manitou Springs, Colorado 80829.	May 12, 2004	080063
El Paso; (FEMA Docket No.: B–7448).	Unincorporated Areas (03–08–0318P).	April 28, 2004; May 5, 2004; *El Paso County News*.	The Honorable Chuck Brown, Chair, El Paso County, Board of Commissioners, 27 East Vermijo Avenue, Colorado Springs, Colorado 80903–2208.	April 9, 2004	080059
El Paso; (FEMA Docket No.: B–7450).	Unincorporated Areas (03–08–0689P).	July 1, 2004; July 8, 2004; *The Gazette*.	The Honorable Chuck Brown, Chair, El Paso County, Board of Commissioners, 27 East Vermijo Avenue, Colorado Springs, Colorado 80903–2208.	October 7, 2004	080059
El Paso; (FEMA Docket No.: B–7450).	Unincorporated Areas (03–08–0062P).	August 11, 2004; August 18, 2004; *El Paso County News*.	The Honorable Chuck Brown, Chair, El Paso County, Board of Commissioners, 27 East Vermijo Avenue, Colorado Springs, Colorado 80903–2208.	November 18, 2004 ..	080059
El Paso; (FEMA Docket No.: B–7450).	Unincorporated Areas (04–08–0114P).	September 22, 2004; September 29, 2004; *El Paso County News*.	The Honorable Chuck Brown, Chair, El Paso County, Board of Commissioners, 27 East Vermijo Avenue, Colorado Springs, Colorado 80903–2208.	December 29, 2004 ..	080059
El Paso; (FEMA Docket No.: B–7451).	Unincorporated Areas (04–08–0587P).	November 10, 2004; November 17, 2004; *El Paso County News*.	The Honorable Chuck Brown, Chair, El Paso County, Board of Commissioners, 27 East Vermijo Avenue, Colorado Springs, Colorado 80903–2208.	February 16, 2005	080059
El Paso; (FEMA Docket No.: B–7451).	Unincorporated Areas (04–08–0427P).	January 19, 2005; January 26, 2005; *El Paso County News*.	The Honorable Chuck Brown, Chair, El Paso County, Board of Commissioners, 27 East Vermijo Avenue, Colorado Springs, Colorado 80903–2208.	April 27, 2005	080059
El Paso; (FEMA Docket No.: B–7452).	Unincorporated Areas (04–08–0519P).	February 2, 2005; February 9, 2005; *El Paso County News*.	The Honorable Chuck Brown, Chairman, El Paso County, Board of Commissioners, 27 East Vermijo Avenue, Colorado Springs, Colorado 80903–2208.	May 11, 2005	080059
El Paso; (FEMA Docket No.: B–7452).	Unincorporated Areas (04–08–0709P).	February 9, 2005; February 16, 2005; *El Paso County News*.	The Honorable Chuck Brown, Chairman, El Paso County, Board of Commissioners, 27 East Vermijo Avenue, Colorado Springs, Colorado 80903–2208.	May 18, 2005	080059
Eagle; (FEMA Docket No.: B–7448).	Town of Eagle (04–08–0145P).	May 27, 2004; June 3, 2004; *Eagle Valley Enterprise*.	The Honorable Roxie Deane, Mayor, Town of Eagle, 200 Broadway, Eagle Colorado 81631.	September 2, 2004 ...	080238
Eagle; (FEMA Docket No.: B–7448).	Unincorporated Areas (04–08–0145P).	May 27, 2004; June 3, 2004; *Eagle Valley Enterprise*.	The Honorable Michael Gallagher, Chairman, Eagle County, Board of Commissioners, P.O. Box 850 Eagle, Colorado 81631.	September 2, 2004 ...	080051
Gilpin; (FEMA Docket No.: B–7452).	City of Black Hawk (04–08–0333P).	March 18, 2005; March 25, 2005; *Weekly Register Call*.	The Honorable Kathryn Eccker, Mayor, City of Black Hawk, P.O. Box 17, Black Hawk, Colorado 80422.	June 24, 2005	080076

State and county	Location and Case No.	Date and name of newspaper where notice was published	Chief executive officer of community	Effective date of modification	Community number
Jefferson; (FEMA Docket No.: B–7452).	City of Lakewood (05–08–0126P).	March 24, 2005; March 31, 2005; *The Lakewood Sentinel*.	The Honorable Steve Burkholder, Mayor, City of Lakewood, Lakewood Civic Center, South 480 South Allison Parkway , Lakewood, Colorado 80226.	February 22, 2005	085075
Summit; (FEMA Docket No.: B–7450).	Town of Breckenridge (04–08–0049P).	July 9, 2004; July 16, 2004; *Summit County Journal*.	The Honorable Ernie Blake, Mayor, Town of Breckenridge, 150 Ski Hill Road, Breckenridge, Colorado 80424.	October 15, 2004	080172
Summit; (FEMA Docket No.: B–7450).	Unincorporated Areas (02–08–0102P).	July 16, 2004; July 23, 2004 *Summit County Journal*.	The Honorable Bill Wallace, Chairman, Summit County, Board of Commissioners, County Courthouse, P.O. Box 68, Breckenridge, Colorado 80424.	October 22, 2004	080290
Weld; (FEMA Docket No.: B–7450).	Town of Firestone (04–08–0410P).	October 6, 2004; October 13, 2004; *Farmer and Miner*.	The Honorable Michael Simone, Mayor, Town of Firestone, 151 Grant Avenue, Firestone, Colorado 80520.	January 12, 2005	080241
Weld; (FEMA Docket No.: B–7450).	Town of Frederick (04–08–0410P).	October 6, 2004; October 13, 2004; *Farmer and Miner*.	The Honorable Eric Doering, Mayor, Town of Frederick, 401 Locust Street, Frederick, Colorado 80530.	January 12, 2005	080244
Weld; (FEMA Docket No.: B–7450).	Unincorporated Areas (04–08–0410P).	October 6, 2004; October 13, 2004; *Farmer and Miner*.	The Honorable Robert D. Masden, Chair, Weld County, Board of Commissioners, P.O. Box 758, Greeley, Colorado 80632.	January 12, 2005	080266
Weld; (FEMA Docket No.: B–7451).	Town of Windsor (04–08–0430P).	November 26, 2004; December 3, 2004; *Windsor Daily Tribune*.	The Honorable Edward Starck, Mayor, Town of Windsor, 301 Walnut Street, Windsor, Colorado 80550.	March 4, 2005	080264
Connecticut:					
Fairfield; (FEMA Docket No.: G–7452).	Town of Greenwich (05–01–0130P).	March 3, 2005; March 10, 2005; *Greenwich Times*.	The Honorable Jim Lash, First Selectman, Town of Greenwich, Town Hall, 101 Field Point Road, Greenwich, Connecticut 06830.	February 7, 2005	090008
New London; (FEMA Docket No.: B–7452).	City of New London (05–01–0174P).	May 12, 2005; May 19, 2005; *The Day*.	Mr. Richard M. Brown, City Manager, City of New London, 181 State Street, New London, Connecticut 06320.	April 19, 2005	090100
Florida:					
Broward; (FEMA Docket No.: B–7452).	City of Hallandale Beach (05–004–0018P).	March 24, 2005; March 31, 2005; *Sun Sentinel*.	The Honorable Joy Cooper, Mayor, City of Hallandale Beach, 400 South Federal Highway, Hallandale Beach, Florida 33009.	March 9, 2005	125110
Sarasota; (FEMA Docket No.; B–7450).	City of Sarasota (04–04–A194P).	July 15, 2004; July 22, 2004; *Sarasota Herald-Tribune*.	Mr. Michael A. McNees, City Manager, City of Sarasota, 1565 First Street, Sarasota, Florida 34236.	June 24, 2004	125150
Idaho:					
Ada; (FEMA Docket No.: B–7450).	Unincorporated Areas (04–10–0213P).	August 19, 2004; August 26, 2004; *Idaho Statesman*.	The Honorable Judy Peavey-Derr, Chairman, Ada County, Board of Commissioners, County Courthouse, 200 West Front Street, Boise, Idaho 83702.	November 26, 2004 ..	160001
Ada; (FEMA Docket No.: B–7450).	Unincorporated Areas (04–10–0379P).	September 2, 2004; September 9, 2004; *Idaho Statesman*.	The Honorable Judy Peavey-Derr, Chairman, Ada County Board of Commissioners, County Courthouse, 200 West Front Street, Boise, Idaho 83702.	December 9, 2004	160001
Ada; (FEMA Docket No.: B–7452).	Unincorporated Areas (04–10–0520P).	March 24, 2005; March 31, 2005; *The Idaho Statesman*.	The Honorable Judy Peavey-Derr, Chairman, Ada County, Board of Commissioners, 200 West Front Street, Boise, Idaho 83702.	June 30, 2005	160001
Illinois:					

State and county	Location and Case No.	Date and name of newspaper where notice was published	Chief executive officer of community	Effective date of modification	Community number
Cook; (FEMA Docket No.: B–7452).	City of Hickory Hills (05–005–0128P).	April 21, 2005; April 28, 2005; *Daily Southtown*.	The Honorable Michael Howley, Mayor, City of Hickory Hills, 8652 West 95th Street, Hickory Hills, Illinois 60457.	March 28, 2005	170103
Cook; (FEMA Docket No.: B–7452).	Village of Justice (05–05–0128O).	April 21, 2005; April 28, 2005; *Daily Southtown*.	The Honorable Melvin D. Van Allen, Village President, Village of Justice, 7800 South Archer Road, Justice, Illinois 60458.	March 28, 2005	170112
Madison; (FEMA Docket No.: B–7452).	City of Highland (05–05–0534P).	March 24, 2005; March 31, 2005; *The Highland News Leader*.	The Honorable Bob Bowman, Mayor, City of Highland, P.O. Box 218, Highland, Illinois 62249.	April 4, 2005	170445
Indiana: Hamilton; (FEMA Docket No.: B–7452).	Town of Westfield (05–05–0417P).	March 22, 2005; March 29, 2005; *The Noblesville Ledger*.	The Honorable Teresa Otis Skelton, Town Council President, Town of Westfield, 130 Penn Street, Westfield, Indiana 46074.	March 10, 2005	180083
Iowa:					
Johnson; (FEMA Docket No.: B–7452).	City of Coralville (05–07–0424P).	May 12, 2005; May 19, 2005; *Iowa City Press-Citizen*.	The Honorable Jim Fausett, Mayor, City of Carolville, 1512 Seventh Street, Coralville, Iowa 52241.	April 25, 2005	190169
Linn; (FEMA Docket No.: B–7451).	City of Cedar Rapids (04–07–A097P).	October 14, 2004; October 21, 2004; *Cedar Rapids Gazette*.	The Honorable Paul D. Pate, Mayor, City of Cedar Rapids, City Hall, Third Floor, 50 Second Avenue Bridge, Cedar Rapids, Iowa 52401.	September 21, 2004	190187
Linn; (FEMA Docket No.: B–7451).	City of Marion (04–07–A097P).	October 14, 2004; October 21, 2004; *Cedar Rapids Gazette*.	The Honorable John Nieland, Mayor, City of Marion, 1100 Eighth Avenue, Marion, Iowa 52302.	September 21, 2004	190191
Kentucky: Warran; (FEMA Docket No.: B–7452).	City of Bowling Green (04–04–A310P).	March 23, 2005; March 30, 2005; *Park City Daily News*.	The Honorable Sandy Jones, Mayor, City of Bowling Green, 1001 College Street, Bowling Green, Kentucky 42102–0430.	March 9, 2005	210219
Michigan:					
Macomb; (FEMA Docket No.: B–7452).	Township of Macomb (05–05–0281P).	February 18, 2005; February 25, 2005; *Macomb County Legal News*.	The Honorable John D. Brennan, Township Supervisor, Macomb Township, 54111 Broughton Road, Macomb, Michigan 48042.	January 12, 2005	260445
Macomb; (FEMA Docket No.: B–7452).	Township of Washington (04–005–A257P).	January 26, 2005; February 2, 2005; *The Romeo Observer*.	The Honorable Gary Kirsh, Supervisor, Washington Township, P.O. Box 940067, Washington, Michigan 48094.	January 18, 2005	260447
Monroe; (FEMA Docket No.: B–7452).	Town of Bedford (05–05–0658P).	May 5, 2005; May 12, 2005; *The Monroe Evening News*.	The Honorable Walt Wilburn, Township Supervisor, Township of Bedford, 8100 Jackman Road, Box H, Temperance, Michigan 48182.	April 20, 2005	260142
Missouri: Platte; (FEMA Docket No.: B–7452).	City of Riverside (04–07–A209P).	March 24, 2005; March 31, 2005; *The Landmark*.	The Honorable Betty Burch, Mayor, City of Riverside, 2950 Northwest Vivion Road, Riverside, Missouri 64150.	March 2, 2005	290296
Montana:					
Lincoln; (FEMA Docket No.: B–7462).	City of Libby (04–08–0419P).	March 23, 2005; March 30, 2005; *The Western News*.	The Honorable Anthony Berget, Mayor, City of Libby, P.O. Box 1428, Libby, Montana 59923.	March 1, 2005	300042
Lincoln; (FEMA Docket No.: B–7452).	Unincorporated Areas (04–08–419P).	March 23, 2005; March 30, 2005; *The Western News*.	The Honorable Marianne Roose, Chair, Lincoln County, Board of Commissioners, 512 California Avenue, Libby, Montana 59923.	March 1, 2005	300157
Missoula; (FEMA Docket No.: B–7450).	City of Missoula (04–08–0371P).	August 26, 2004; September 2, 2004; *The Missoulian*.	The Honorable Mike Kadas, Mayor, City of Missoula, 435 Ryman Street, Missoula, Montana 59802.	July 23, 2004	300049

State and county	Location and Case No.	Date and name of newspaper where notice was published	Chief executive officer of community	Effective date of modification	Community number
Missoula; (FEMA Docket No.: B–7450).	Unincorporated Areas (04–08–0371P).	August 26, 2004; September 2, 2004; *The Missoulian*.	The Honorable Barbara Evans, Chairman, Missoula County, Board of Commissioners, 200 West Broadway, Missoula, Montana 59802.	July 23, 2004	300048
Nebraska:					
Hall; (FEMA Docket No.: B–7451).	City of Grand Island (04–07–A319P).	November 4, 2004; November 11, 2004; *Grand Island Independent*.	The Honorable Jay Vavricek, Mayor, City of Grand Island, P.O. Box 1968, Grand Island, Nebraska 68802.	October 19, 2004	310103
Hall; (FEMA Docket No.: B–7451).	Unincorporated Areas (04–07–A319P).	November 4, 2004; November 11, 2004; *Grand Island Independent*.	The Honorable Pamela E. Lancaster, Chair, Hall County, Board of Supervisors, 2809 Apache Road, Grand Island, Nebraska 68801.	October 19, 2004	310100
Sarpy; (FEMA Docket No.: B–7452).	Unincorporated Areas (04–07–A507P).	March 23, 2005; March 30, 2005; *Bellevue Leader*.	The Honorable Inez Boyd, Chair, Sarpy County, Board of Commissioners, 1210 Golden Gate Drive, Suite 1116, Papillion, Nebraska 68046–2894.	February 14, 2005	310190
Saunders; (FEMA Docket No.: B–7452).	Unincorporated Areas (04–07–A507P).	March 24, 2005; March 31, 2005; *Wahoo News*.	The Honorable Kenneth Kunci, Chairman, Saunders County Board of Supervisors, 109 North Railway, Prague, Nebraska 68050.	February 14, 2005	310195
Nevada:					
Elko; (FEMA Docket No.: B–7450).	City of Elko (02–09–1203P).	July 22, 2004; July 29, 2004; *Elko Daily Free Press*.	The Honorable Michael J. Franzoia, Mayor, City of Elko, 1751 College Avenue, Elko, Nevada 89801.	October 28, 2004	320010
Independent City; (FEMA Docket No.: B–7452).	City of Carson City (04–09–1128P).	April 7, 2005; April 14, 2005; *Nevada Appeal*.	The Honorable Marv Teixeira, Mayor, City of Carson City, 201 North Carson Street, Suite 1, Carson City, Nevada 89701.	July 14, 2005	320001
Nye; (FEMA Docket No.: B–7451).	Unincorporated Areas (04–09–0133P).	November 4, 2004; November 11, 2004; *Tonopah Times Bonanza and Goldfield News*.	The Honorable Henry Neth, Chairman, Nye County, Board of Commissioners, P.O. Box 153, Tonopah, Nevada 89049.	November 8, 2004	320018
Washoe; (FEMA Docket No.: B–7452).	City of Reno (04–09–1534P).	April 14, 2005; April 21, 2005; *Reno Gazette-Journal*.	The Honorable Robert Cashell, Mayor, City of Reno, P.O. Box 1900, Reno, Nevada 89505.	July 21, 2005	320020
North Carolina:					
Dare; (FEMA Docket No.: B–7452).	Unincorporated Areas (04–04–A520P).	October 21, 2004; October 28, 2004; *Coastland Times*.	The Honorable Warren Judge, Chairman, Dare County, Board of Commissioners, P.O. Box 1000, Manteo, North Carolina 27954.	October 14, 2004	375348
Dare; (FEMA Docket No.: B–7452).	Unincorporated Areas (05–04–0985P).	March 31, 2005; April 7, 2005; *Coastland Times*.	The Honorable Warren Judge, Chairman, Dare County, Board of Commissioners, P.O. Box 1000, Manteo, North Carolina 27924.	March 15, 2005	375348
Durham; (FEMA Docket No.: B–7452).	Unincorporated Areas (04–04–A165P).	April 7, 2005; April 14, 2005; *The Herald Sun*.	Mr. Michael M. Ruffin, Durham County, Manager, 200 East Main Street, Second Floor, Durham, North Carolina 27701.	July 14, 2005	370085
Mecklenburg; (FEMA Docket No.: B–7452).	City of Charlotte (04–04–B034P).	April 14, 2005; April 21, 2005; *Charlotte Observer*.	The Honorable Patrick McCrory, Mayor, City of Charlotte, 600 East Fourth Street, Charlotte, North Carolina 28202.	July 21, 2005	370159

State and county	Location and Case No.	Date and name of newspaper where notice was published	Chief executive officer of community	Effective date of modification	Community number
Mecklenburg; (FEMA Docket No.: B–7452).	Unincorporated Areas, (04–04–B034P).	April 14, 2005; April 21, 2005; *Charlotte Observer*.	Mr. Harry L. Jones, Sr., County Manager, Mecklenburg County, Charlotte-Mecklenburg, Government Center, 600 East Fourth Street, 11th Floor, Charlotte, North Carolina 28202.	July 21, 2005	370158
Rowan; (FEMA Docket No.: B–7448).	City of Salisbury (03–04–575P).	April 15, 2004; April 22, 2004; *Salisbury Post*.	The Honorable Susan W. Kluttz, Mayor, City of Salisbury, 217 South Main Street, Salisbury, North Carolina 28144.	July 22, 2004	370215
Ohio: Fairfield; (FEMA Docket No.: B–7451).	Unincorporated Areas (04–05–A672P).	December 9, 2004; December 16, 2004; *Lancaster Eagle-County Gazette*.	The Honorable Judith K. Shupe, Fairfield County Commissioner, County Courthouse, 210 East Main Street, Lancaster, Ohio 43130.	March 17, 2005	390158
Oklahoma: Oklahoma; (FEMA Docket No.: B–7452).	City of Oklahoma City (05–06–0201P).	March 23, 2005; March 30, 2005; *The Journal Record*.	The Honorable Mick Cornett, Mayor, City of Oklahoma City, 200 North Walker Avenue, Third Floor, Oklahoma City, Oklahoma 73102.	June 29, 2005	405378
Oregon: Clackamas; (FEMA Docket No.: B–7452).	Unincorporated Areas (05–10–0129P).	May 5, 2005; May 12, 2005; *The Oregonian*.	The Honorable Martha Schrader, Chairperson, Clackamas County, Board of Commissioners, 2051 Kaen Road, Oregon City, Oregon 97045.	August 11, 2005	415588
Tennessee: Shelby; (FEMA Docket No.: B–7452).	City of Memphis (04–04–A797P).	December 30, 2004; January 6, 2005; *The Commercial Appeal*.	The Honorable Dr. Willie W. Herenton, Mayor, City of Memphis, City Hall, 125 North Main Street, Room 700, Memphis, Tennessee 38103.	December 15, 2004 ..	470177
Texas:					
Collin; (FEMA Docket No.: B–7452).	City of Plano (04–06–A213P).	March 10, 2005; March 17, 2005; *Plano Star Courier*.	The Honorable Pat Evans, Mayor, City of Plano, P.O. Box 860358, Plano, Texas 75086–0358.	February 25, 2005	480140
Dallas; (FEMA Docket No.: B–7452).	City of Garland (04–06–A335P).	April 29, 2005; May 5, 2005; *Dallas Morning News*.	The Honorable Bob Day, Mayor, City of Garland, 200 North Fifth Street, Garland, Texas 75040.	July 28, 2005	485471
Dallas; (FEMA Docket No.: B–7451).	City of Richardson (04–06–A201P).	December 23, 2004; December 30, 2004; *Dallas Morning News*.	The Honorable Gary Slagel, Mayor, City of Richardson, 411 West Arapaho Road, Richardson, Texas 75083.	March 30, 2005	480184
Dallas; (FEMA Docket No.: B–7452).	Town of Sunnyvale (05–06–0552P).	April 14, 2005; April 21, 2005; *The Mesquite News*.	The Honorable Jim Phaup, Mayor, Town of Sunnyvale, 537 Long Creek Road, Sunnyvale, Texas 75182.	July 21, 2005	480188
Denton; (FEMA Docket No.: B–7452).	City of Denton (04–06–A081P).	April 13, 2005; April 20, 2005; *Denton Record Chronicle*.	The Honorable Euline Brock, Mayor, City of Denton, 215 East McKinney Street, Denton, Texas 76201.	July 20, 2005	480194
Denton; (FEMA Docket No.: B–7452).	Unincorporated Areas (04–06–A302P).	April 14, 2005; April 21, 2005; *Denton Record Chronicle*.	The Honorable Mary Horn, Denton County Judge, Courthouse on the Square, 110 West Hickory Street, Second Floor, Denton, Texas 76201–4168.	July 21, 2005	480774
Midland; (FEMA Docket No.: B–7451).	City of Midland (04–06–A290P).	January 20, 2005; January 27, 2005; *Midland Reporter Telegram*.	The Honorable Michael J. Canon Mayor, City of Midland, 300 North Loraine, Midland, Texas 79702.	January 4, 2005	480477
Tarrant; (FEMA Docket No.: B–7452).	City of Arlington (04–06-A299P).	April 14, 2005; April 21, 2005; *Arlington Star-Telegram*.	The Honorable Robert Cluck, M.D., Mayor, City of Arlington, P.O. Box 90231, Arlington, Texas 76004–3231.	July 21, 2005	485454

State and county	Location and Case No.	Date and name of newspaper where notice was published	Chief executive officer of community	Effective date of modification	Community number
Tarrant; (FEMA Docket No.: B–7452).	City of Hurst (05–06–0126P).	March 10, 2005; March 17, 2005; *Fort Worth Star-Telegram*.	The Honorable Richard Ward, Mayor, City of Hurst, 1505 Precinct Line Road, Hurst, Texas 76054.	February 16, 2005	480601
Travis; (FEMA Docket No.: B–7452).	City of Austin (04–06–A121P).	March 16, 2005; March 23, 2005; *Austin American-Statesman*.	The Honorable Kirk P. Watson, Mayor, City of Austin, P.O. Box 1088, Austin, Texas 78767–2250.	June 22, 2005	480624
Utah:					
Salt Lake; (FEMA Docket No.: B–7452).	City of Salt Lake City (04–08–0707P).	March 24, 2005; March 31, 2005; *Desert News*.	The Honorable Rocky Anderson, Mayor, City of Salt Lake City, 451 South State Street, Room 306, Salt Lake City, Utah 84111.	February 10, 2005;	490105
Salt Lake; (FEMA Docket No.: B–7450).	City of South Jordan (04–08–0379P).	September 2, 2004; September 9, 2004; *Salt Lake Tribune*.	The Honorable W. Kent, Money, Mayor, City of South Jordan, 1600 West Towne Center Drive, South Jordan, Utah 84095.	December 9, 2004	490107
Salt Lake; (FEMA Docket No.: B–7448).	City of West Jordan (04–08–0014P).	April 22, 2004; April 29, 2004; *Salt Lake Tribune*.	The Honorable Bryan Holladay, Mayor, City of West Jordan, 8000 Redwood Road, West Jordan, Utah 84088.	March 25, 2004	490108
Virginia:					
Fauquier; (FEMA Docket No.: B–7452).	Unincorporated Areas (05–03–0157P).	April 14, 2005; April 21, 2005; *The Fauquier Citizen Fauquier*.	Mr. Paul McCulla, County Administrator, County 10 Hotel Street, Warrenton, Virginia 20186.	July 21, 2005	510055
Wisconsin:					
Dodge; (FEMA Docket No.: B–7451).	Unincorporated Areas (04–05–A339P).	December 2, 2004; December 9, 2004; *Dodge County Independent News*.	The Honorable Russell Kottke, Chairman, Dodge County, Board of Supervisors, W8542 Laurel Hill Road, Fox Lake, Wisconsin 53933.	March 10, 2005	550094
Fond du Lac; (FEMA Docket No.: B–7452).	Unincorporated Areas (04–05–A486P).	March 24, 2005; March 31, 2005; *Fond du Lac Reporter*.	The Honorable Brenna Garrison-Bruden, County Board Chair, Fond du Lac County, 160 South Macy Street, Fond du Lac, Wisconsin 54935.	April 8, 2005	550131
Washington; (FEMA Docket No.: B–7452).	Unincorporated Areas (05–05–1018P).	May 12, 2005; May 19, 2005; *West Bend Daily News*.	The Honorable Kenneth F. Miller, Chairperson, Washington County, Board of Supervisors, 432 East Washington Street, West Bend, Wisconsin 53095.	August 18, 2005	550471
Washington: King; (FEMA Docket No.: B–7451).	City of Issaquah (03–10–0465P).	November 17, 2004; November 24, 2004; *Issaquah Press*.	The Honorable Ava Frisinger, Mayor, City of Issaquah, P.O. Box 1307, Issaquah, Washington 98027.	February 23, 2005	530079
Wyoming: Teton; (FEMA Docket No.: B–7452).	Unincorporated Areas (04–08–0488P).	March 2, 2005; March 9, 2005; *Jackson Hole News*.	The Honorable Larry Jorgenson, Chair, Teton County, Board of Commissioners, P.O. Box 3594, Jackson, Wyoming 83001.	June 1, 2005	560094

(Catalog of Federal Domestic Assistance No. 83.100, ''Flood Insurance.'')

Dated: December 22, 2005.

David I. Maurstad,

Acting Director, Mitigation Division, Federal Emergency Management Agency, Department of Homeland Security.

[FR Doc. 06–1826 Filed 2–27–06; 8:45 am]

BILLING CODE 9110–12–P

DEPARTMENT OF HOMELAND SECURITY

Federal Emergency Management Agency

44 CFR Part 67

Final Flood Elevation Determinations

AGENCY: Federal Emergency Management Agency (FEMA), Department of Homeland Security, Mitigation Division.

ACTION: Final rule.

SUMMARY: Base (1% annual chance) Flood Elevations (BFEs) and modified BFEs are made final for the communities listed below. The BFEs and modified BFEs are the basis for the floodplain management measures that each community is required either to adopt or to show evidence of being

already in effect in order to qualify or remain qualified for participation in the National Flood Insurance Program (NFIP).

DATES: *Effective Dates:* The date of issuance of the Flood Insurance Rate Map (FIRM) showing BFEs and modified BFEs for each community. This date may be obtained by contacting the office where the maps are available for inspection as indicated on the table below.

ADDRESSES: The final BFEs for each community are available for inspection at the office of the Chief Executive Officer of each community. The respective addresses are listed in the table below.

FOR FURTHER INFORMATION CONTACT: Doug Bellomo, P.E., Hazard Identification Section, FEMA, 500 C Street SW., Washington, DC 20472, (202) 646–2903.

SUPPLEMENTARY INFORMATION: FEMA makes the final determinations listed below for the modified BFEs for each community listed. These modified elevations have been published in newspapers of local circulation and ninety (90) days have elapsed since that publication. The Mitigation Division Director has resolved any appeals resulting from this notification.

This final rule is issued in accordance with Section 110 of the Flood Disaster Protection Act of 1973, 42 U.S.C. 4104, and 44 CFR Part 67.

The Agency has developed criteria for floodplain management in floodprone areas in accordance with 44 CFR Part 60.

Interested lessees and owners of real property are encouraged to review the proof Flood Insurance Study and FIRM available at the address cited below for each community.

The BFEs and modified BFEs are made final in the communities listed below. Elevations at selected locations in each community are shown.

National Environmental Policy Act. This rule is categorically excluded from the requirements of 44 CFR Part 10, Environmental Consideration. No environmental impact assessment has been prepared.

Regulatory Flexibility Act. The Mitigation Division Director certifies that this rule is exempt from the requirements of the Regulatory Flexibility Act because final or modified BFEs are required by the Flood Disaster Protection Act of 1973, 42 U.S.C. 4104, and are required to establish and maintain community eligibility in the NFIP. No regulatory flexibility analysis has been prepared.

Regulatory Classification. This final rule is not a significant regulatory action under the criteria of Section 3(f) of Executive Order 12866 of September 30, 1993, Regulatory Planning and Review, 58 FR 51735.

Executive Order 13132, Federalism. This rule involves no policies that have federalism implications under Executive Order 13132.

Executive Order 12988, Civil Justice Reform. This rule meets the applicable standards of Executive Order 12988.

List of Subjects in 44 CFR Part 67

Administrative practice and procedure, flood insurance, reporting and recordkeeping requirements.

■ Accordingly, 44 CFR Part 67 is amended as follows:

PART 67—[AMENDED]

■ 1. The authority citation for Part 67 continues to read as follows:

Authority: 42 U.S.C. 4001 *et seq.*; Reorganization Plan No. 3 of 1978, 3 CFR, 1978 Comp., p. 329; E.O. 12127, 44 FR 19367, 3 CFR, 1979 Comp., p. 376.

§ 67.11 [Amended]

■ 2. The tables published under the authority of § 67.11 are amended as follows:

Source of flooding and location	#Depth in feet above ground. *Elevation in feet (NGVD) •Elevation in feet (NAVD)
MASSACHUSETTS	
Marshfield (Town), Plymouth County (FEMA Docket No. D–7624)	
Massachusetts Bay, Duxbury Marsh:	
Approximately 300 feet southwest of the intersection of Careswell Street and Colby Hewitt Lane	*10
Approximately 1,700 feet southeast of the intersection of Careswell Street and Colby Hewitt Lane	*13
Massachusetts Bay:	
Approximately 1,500 feet north of the intersection of Bay Street and Canal Street	*11
Approximately 896 feet east of the intersection of Cove Street and Central Street ..	*23
Massachusetts Bay, Green Harbor River:	
Approximately 400 feet west of the intersection of Meetinghouse Lane and Stagecoach Drive	*10
Massachusetts Bay:	
At the intersection of Hancock Street and Ashburton Avenue	#2
Maps available for inspection at the Marshfield Town Hall, Building Department, 870 Moraine Street, Marshfield, Massachusetts.	

(Catalog of Federal Domestic Assistance No. 83.100, ''Flood Insurance.'')

Dated: February 3, 2006.

David I. Maurstad,

Acting Director, Mitigation Division, Federal Emergency Management Agency, Department of Homeland Security.

[FR Doc. 06–1822 Filed 2–27–06; 8:45 am]

BILLING CODE 9110–12–P

DEPARTMENT OF HOMELAND SECURITY

Federal Emergency Management Agency

44 CFR Part 67

Final Flood Elevation Determinations

AGENCY: Federal Emergency Management Agency (FEMA), Department of Homeland Security.

ACTION: Final rule.

SUMMARY: Base (1% annual chance) Flood Elevations (BFEs) and modified BFEs are made final for the communities listed below. The BFEs and modified BFEs are the basis for the floodplain management measures that each community is required either to adopt or to show evidence of being already in effect in order to qualify or remain qualified for participation in the National Flood Insurance Program (NFIP).

DATES: *Effective Dates:* The date of issuance of the Flood Insurance Rate Map (FIRM) showing BFEs and modified BFEs for each community. This date may be obtained by contacting the office where the maps are available for inspection as indicated on the table below.

ADDRESSES: The final BFEs for each community are available for inspection at the office of the Chief Executive Officer of each community. The respective addresses are listed in the table below.

FOR FURTHER INFORMATION CONTACT: Doug Bellomo, P.E., Hazard Identification Section, FEMA, 500 C

Street, SW., Washington, DC 20472, (202) 646–2903.

SUPPLEMENTARY INFORMATION: FEMA makes the final determinations listed below for the modified BFEs for each community listed. These modified elevations have been published in newspapers of local circulation and ninety (90) days have elapsed since that publication. The Mitigation Division Director has resolved any appeals resulting from this notification.

This final rule is issued in accordance with Section 110 of the Flood Disaster Protection Act of 1973, 42 U.S.C. 4104, and 44 CFR part 67.

The Agency has developed criteria for floodplain management in floodprone areas in accordance with 44 CFR part 60.

Interested lessees and owners of real property are encouraged to review the proof Flood Insurance Study and FIRM available at the address cited below for each community.

The BFEs and modified BFEs are made final in the communities listed below. Elevations at selected locations in each community are shown.

National Environmental Policy Act. This rule is categorically excluded from the requirements of 44 CFR Part 10, Environmental Consideration. No environmental impact assessment has been prepared.

Regulatory Flexibility Act. The Mitigation Division Director certifies that this rule is exempt from the requirements of the Regulatory Flexibility Act because final or modified BFEs are required by the Flood Disaster Protection Act of 1973, 42 U.S.C. 4104, and are required to establish and maintain community eligibility in the NFIP. No regulatory flexibility analysis has been prepared.

Regulatory Classification. This final rule is not a significant regulatory action under the criteria of Section 3(f) of Executive Order 12866 of September 30, 1993, Regulatory Planning and Review, 58 FR 51735.

Executive Order 13132, Federalism. This rule involves no policies that have federalism implications under Executive Order 13132.

Executive Order 12988, Civil Justice Reform. This rule meets the applicable standards of Executive Order 12988.

List of Subjects in 44 CFR Part 67

Administrative practice and procedure, flood insurance, reporting and recordkeeping requirements.

■ Accordingly, 44 CFR Part 67 is amended as follows:

PART 67—[AMENDED]

■ 1. The authority citation for Part 67 continues to read as follows:

Authority: 42 U.S.C. 4001 *et seq.*; Reorganization Plan No. 3 of 1978, 3 CFR, 1978 Comp., p. 329; E.O. 12127, 44 FR 19367, 3 CFR, 1979 Comp., p. 376.

§ 67.11 [Amended]

■ 2. The tables published under the authority of § 67.11 are amended as follows:

Source of Flooding and Location	#Depth in feet above ground. *Elevation in feet (NGVD) •Elevation in feet (NAVD)
NEW HAMPSHIRE	
Cheshire County (FEMA Docket No. D–7636)	
Connecticut River:	
Approximately 1.2 miles downstream of Boston and Maine Railroad	•229
At the upstream county boundary	•301
Towns of Hinsdale, Chesterfield, Walpole, and Westmoreland	
Sprague Brook:	
At the confluence with Connecticut River	•227
Approximately 5 feet downstream of State Route 19	•227
Town of Hinsdale	
Blaneherd Brook:	
At the confluence with Connecticut River	•253
Approximately 200 feet upstream of State Route 12 and 123	•253
Town of Walpole	
Ashuelot River:	
At the downstream Town of Sullivan corporate limit, approximately 1,480 feet downstream of State Route 10	•846
At the upstream Town of Sullivan corporate limits, approximately 145 feet downstream of State Route 10	•862
Town of Sullivan	
Town of Chesterfield	
Maps available for inspection at the Town of Chesterfield Selectmen's Office, 504 Route 63, Chesterfield, New Hampshire.	
Town of Hinsdale	
Maps available for inspection at the Hinsdale Town Hall, 11 Main Street, Hinsdale, New Hampshire.	
Town of Sullivan	
Maps available for inspection at the Town of Sullivan Selectmen's Office, 452 Centre Street, Sullivan, New Hampshire.	
Town of Walpole	
Maps available for inspection at the Walpole Town Hall, 34 Elm Street, Walpole, New Hampshire.	
Town of Westmoreland	
Maps available for inspection at the Town of Westmoreland Selectmen's Office, 780 Route 63, Westmoreland, New Hampshire.	
Sullivan County (FEMA Docket No. D–7636)	
Connecticut River:	
Approximately 0.5 mile upstream of the downstream County boundary	•300
At County boundary	•344
Towns of Charlestown, Cornish, Plainfield, and City of Claremont	
Beaver Brook No. 1:	
At the confluence with Connecticut River	•308
Approximately 1.3 miles upstream of the confluence	•308
Town of Charlestown	
Little Sugar River:	
At the confluence with Connecticut River	•310
Approximately 1,625 feet upstream of the confluence with Connecticut River	•310
Town of Charlestown	
Ox Brook:	
At the confluence with Connecticut River	•311
Approximately 1,420 feet upstream of the confluence	•311
Town of Charlestown	
Blow-Me-Down Brook:	
At the confluence with Connecticut River	•330
Approximately 1.2 miles upstream of the confluence	•320
Town of Cornish	
Sugar River:	
At the confluence with Connecticut River	•320
Approximately 1.2 miles upstream of the confluence with Connecticut River	•320
City of Claremont	
North Branch Sugar River:	
Approximately 540 feet downstream of corporate limits	•514
Approximately 60 feet downstream of corporate limits	•515
Town of Croydon	
Town of Charlestown	
Maps available for inspection at the Charlestown Town Hall, 26 Railroad Street, Charlestown, New Hampshire.	
City of Claremont	
Maps available for inspection at the City of Claremont Planning and Development Office, 14 North Street, Claremont, New Hampshire.	
Town of Cornish	

Source of Flooding and Location	#Depth in feet above ground. *Elevation in feet (NGVD) •Elevation in feet (NAVD)
Maps available for inspection at the Cornish Town Offices, 488 Townhouse Road, Cornish, New Hampshire.	
Town of Croydon	
Maps available for inspection at the Croydon Town Office, 879 New Hampshire Route 10, Croydon, New Hampshire.	
NORTH CAROLINA	
New Hanover County (FEMA Docket No. D–7622)	
Burnt Mill Creek:	
Approximately 500 feet upstream of railroad	•9
Approximately 1,425 feet upstream of Varsity Drive	•37
City of Wilmington	
Mott Creek:	
Just upstream of South College Road	•22
Approximately 0.2 mile upstream of Lone Eagle Court	•27
New Hanover County (Unincorporated Areas)	
Mott Creek Tributary 1:	
At the confluence with Mott Creek	•13
Approximately 300 feet downstream of Carolina Beach Road	•15
New Hanover County (Unincorporated Areas)	
Smith Creek:	
Approximately 1,225 feet downstream of the confluence of Kings Grant Tributary	•9
Approximately 300 feet upstream of Dove Field Road	•38
New Hanover County (Unincorporated Areas)	
Spring Branch:	
Approximately 0.3 mile upstream of North Kerr Avenue	•8
Approximately 0.4 mile upstream of Martin Luther King Jr. Parkway	•31
New Hanover County (Unincorporated Areas), City of Wilmington	
Bradley Creek Tributary 1:	
Approximately 60 feet upstream of Eastwood Road	•18
Approximately 0.2 mile upstream of Eastwood Road	•18
City of Wilmington	
Island Creek:	
Just downstream of Sidbury Road	•19
Approximately 1.2 miles upstream of Sidbury Road	•24
New Hanover County (Unincorporated Areas)	
Prince George Creek Tributary 3:	
Approximately 500 feet upstream of the confluence with Prince George Creek	•21
Approximately 0.6 mile upstream of Sidbury Road	•34
New Hanover County (Unincorporated Areas)	
Murrayville Tributary:	
Approximately 0.2 mile upstream of Murrayville Road	•26
Approximately 1.0 mile upstream of North College Road	•36
New Hanover County (Unincorporated Areas)	
Ness Creek:	
Approximately 2.0 miles upstream of the confluence with Northeast Cape Fear River	•8
Approximately 1,900 feet upstream of Todd Avenue	•32
New Hanover County (Unincorporated Areas)	
Ness Creek Tributary 2:	
At the confluence with Ness Creek	•26
Just upstream of Caladan Road	•31
New Hanover County (Unincorporated Areas)	
Prince George Creek:	
Just upstream of Castle Hayne Road	•10
Just downstream of Sidbury Road	•28
New Hanover County (Unincorporated Areas)	
Pumkin Creek:	
Approximately 500 feet upstream of the confluence with Prince George Creek	•14
Approximately 50 feet upstream of Juvenile Center Road	•31
New Hanover County (Unincorporated Areas)	
Wildcat Branch:	
Approximately 0.5 mile upstream of the confluence with Northeast Cape Fear River Tributary 2	•9
Just upstream of Blue Clay Road	•27
New Hanover County (Unincorporated Areas)	
Atlantic Ocean/Intracoastal Waterway:	
Approximately 750 feet northeast of the intersection of U.S. Route 421 North Lake Park Boulevard and Spencer Farlow Drive	•10
Approximately 1,000 feet south of the intersection of Jack Parker Boulevard and South Lumina Avenue	•19
New Hanover County (Unincorporated Areas), Town of Carolina Beach, Town of Kure Beach, City of Wilmington, Town of Wrightsville Beach	
Cape Fear River:	
Approximately 0.6 mile upstream of the New Hanover/Pender/Brunswick County boundary	•8
At the New Hanover/Pender/Brunswick County boundary	•9
New Hanover County (Unincorporated Areas)	
Town of Carolina Beach	
Maps available for inspection at the Carolina Beach Town Hall, Planning Department, 1121 North Lake Park Boulevard, Carolina Beach, North Carolina.	
Town of Kure Beach	
Maps available for inspection at the Kure Beach Town Hall, 117 Settlers Lane, Kure Beach, North Carolina.	
New Hanover County (Unincorporated Areas)	
Maps available for inspection at the New Hanover County Inspections Department, Market Place Mall, 230 Market Place Drive, Suite 110, Wilmington, North Carolina.	
City of Wilmington	
Maps available for inspection at the Wilmington City Hall, Zoning Department, 102 North 3rd Street, Wilmington, North Carolina.	
Town of Wrightsville Beach:	
Maps available for inspection at the Wrightsville Beach Town Hall, Planning Department, 321 Causeway Drive, Wrightsville Beach, North Carolina.	
Wake County (FEMA Docket No. D–7622)	
Adams Branch:	
At Corwin Road	•276
Approximately 800 feet upstream of Corwin Road	•280
Town of Garner	
Armory Tributary:	
Approximately 0.5 mile upstream of confluence with Richland Creek (Basin 18, Stream 13)	•366
Approximately 0.7 mile upstream of confluence with Richland Creek (Basin 18, Stream 13)	•377
Wake County (Unincorporated Areas), City of Raleigh	
Basal Creek:	
At the confluence with Richland Creek (Basin 5, Stream 1)	•273
Approximately 250 feet upstream of St. Catherines Drive	•309
Wake County (Unincorporated Areas), Town of Wake Forest	
Basin 10, Stream 2:	
At the confluence with Little River (Basin 10, Stream 1)	•219
At Morphus Bridge Road	•219
Wake County (Unincorporated Areas)	

Source of Flooding and Location	#Depth in feet above ground. *Elevation in feet (NGVD) •Elevation in feet (NAVD)
Basin 10, Stream 5:	
At the confluence with Little River (Basin 10, Stream 1)	•243
Approximately 0.6 mile upstream of Lizard Lick Road	•291
Wake County (Unincorporated Areas)	
Basin 10, Stream 6:	
At Lizard Lick Road	•252
Approximately 280 feet upstream of Edgemont Road	•339
Wake County (Unincorporated Areas)	
Basin 10, Stream 9:	
At the confluence with Little River (Basin 10, Stream 1)	•254
At State Highway 96	•289
Wake County (Unincorporated Areas)	
Basin 10, Stream 10:	
At the confluence with Little River (Basin 10, Stream 1)	•257
Approximately 250 feet upstream of Fowler Road	•258
Wake County (Unincorporated Areas)	
Basin 10, Stream 13:	
At the confluence with Basin 10, Stream 14	•277
Approximately 1.7 miles upstream of the confluence with Basin 10, Stream 14	•344
Wake County (Unincorporated Areas)	
Basin 10, Stream 14:	
Approximately 0.4 mile upstream of the confluence with Little River (Basin 10, Stream 1)	•267
At Franklin/Wake County boundary	•306
Wake County (Unincorporated Areas)	
Basin 11, Stream 4:	
At U.S. Highway 64	•240
Approximately 700 feet upstream of Ferrell Road	•341
Wake County (Unincorporated Areas)	
Basin 11, Stream 7:	
At Wake/Johnston County boundary	•278
Approximately 0.4 mile upstream of the Wake/Johnston County boundary	•308
Wake County (Unincorporated Areas)	
Basin 12, Stream 3:	
At Old Crews Road	•244
Approximately 0.4 mile upstream of Horton Road	•293
Town of Knightdale, Wake County (Unincorporated Areas)	
Basin 14, Stream 2:	
Confluence with Marks Creek (Basin 14, Stream 1)	•183
Approximately 0.4 mile upstream of Lake Myra Road	•225
Wake County (Unincorporated Areas)	
Basin 14, Stream 3:	
At the confluence with Marks Creek (Basin 14, Stream 1)	•202
Approximately 0.4 mile upstream of Presentation Street	•244
Wake County (Unincorporated Areas)	
Basin 18, Stream 13:	
Upstream side of Sorrell Grove Church Road	•290
At the Wake/Durham County boundary	•320
Town of Morrisville, Wake County (Unincorporated Areas)	
Basin 18, Stream 13 Tributary:	
At the confluence with Basin 18, Stream 13	•318
Approximately 0.6 mile upstream of the confluence with Basin 18, Stream 13	•318
Wake County (Unincorporated Areas), Town of Morrisville	
Basin 18, Stream 4:	
Approximately 150 feet upstream of Grove Barton Road	•318
Approximately 0.2 mile upstream of Country Trail	•400
Wake County (Unincorporated Areas), City of Raleigh	
Basin 18, Stream 7:	
At the confluence with Sycamore Creek (Basin 18, Stream 6)	•324
Approximately 0.5 mile upstream of the confluence with Sycamore Creek (Basin 18, Stream 6)	•343
City of Raleigh	
Basin 20, Stream 5:	
Approximately 0.5 mile upstream of confluence with Swift Creek	•202
Approximately 1.7 miles upstream of confluence with Swift Creek	•257
Wake County (Unincorporated Areas)	
Basin 23, Stream 2:	
At the confluence with Black Creek (Basin 23, Stream 1)	•234
Approximately 1.0 mile upstream of John Adams Road	•320
Wake County (Unincorporated Areas)	
Basin 23, Stream 2 Tributary:	
At confluence with Basin 23, Stream 2	•239
Approximately 175 feet upstream of John Adams Road	•248
Wake County (Unincorporated Areas)	
Basin 23, Stream 3:	
At the confluence with Black Creek	•283
Approximately 0.9 mile upstream of Maude Stewart Road	•360
Wake County (Unincorporated Areas), Town of Fuquay-Varina	
Basin 23, Stream 4:	
At confluence with Basin 23, Stream 3	•292
Approximately 1,775 feet upstream of Eddie Howard Road	•352
Wake County (Unincorporated Areas)	
Basin 23, Stream 5:	
At the confluence with Black Creek	•301
Approximately 0.9 mile upstream of confluence with Black Creek	•331
Wake County (Unincorporated Areas), Town of Fuquay-Varina	
Beaverdam Creek (Basin 11, Stream 3):	
Approximately 0.7 mile upstream of Pearces Road	•319
Approximately 320 feet upstream of Pippin Road	•330
Wake County (Unincorporated Areas)	
Beaverdam Creek (Basin 12, Stream 1):	
At Old Crews Road	•231
Approximately 0.2 mile upstream of Lucas Road	•296
Wake County (Unincorporated Areas)	
Beaverdam Creek (Basin 18, Stream 28):	
Approximately 650 feet upstream of Scotland Street	•221
At the upstream side of Glenwood Avenue	•247
City of Raleigh	
Beaverdam Creek (Basin 15, Stream 21):	
At Kyle Drive	•235
Approximately 450 feet upstream of U.S. Highway 401	•244
City of Raleigh	
Beddingfield Creek:	
Approximately 250 feet upstream of Shotwell Road	•164
Approximately 625 feet upstream of Shotwell Road	•166
Wake County (Unincorporated Areas)	
Big Branch (Basin 10, Stream 8):	
At the confluence with Little River	•254
Approximately 0.3 mile upstream of Zebulon Road	•288
Wake County (Unincorporated Areas)	
Big Branch (Basin 18, Stream 21):	
Approximately 250 feet upstream of Chaswick Drive	•215
Approximately 0.3 mile upstream of East Millbrook Road	•315

Source of Flooding and Location	#Depth in feet above ground. *Elevation in feet (NGVD) •Elevation in feet (NAVD)
City of Raleigh	
Big Branch (Basin 30, Stream 2):	
At the confluence with Walnut Creek (Basin 30, Stream 1)	•180
Approximately 0.4 mile downstream of Auburn Church Road	•242
City of Raleigh, Wake County (Unincorporated Areas), Town of Garner	
Big Branch Tributary No. 1 (Basin 30, Stream 6):	
Approximately 950 feet upstream of the confluence with Big Branch (Basin 30, Stream 2)	•185
Approximately 0.5 mile upstream of Interstate 40	•217
City of Raleigh, Wake County (Unincorporated Areas), Town of Garner	
Big Branch Tributary No. 3:	
At the confluence with Big Branch Tributary No. 1 (Basin 30, Stream 6)	•197
Approximately 0.3 mile upstream of Interstate 40	•222
City of Raleigh, Wake County (Unincorporated Areas), Town of Garner	
Black Creek (Basin 23, Stream 1):	
At Johnston County boundary	•213
Approximately 1.0 mile upstream of confluence of Basin 23, Stream 5	•325
Wake County (Unincorporated Areas), Town of Fuquay-Varina	
Bridges Branch:	
Approximately 0.2 mile upstream of Barksdale Drive	•205
Approximately 0.3 mile upstream of Barksdale Drive	•208
City of Raleigh	
Brier Creek (Basin 18, Stream 14):	
Approximately 0.6 mile upstream of the confluence with Stirrup Iron Creek (Basin 18, Stream 12)	•284
Approximately 0.7 mile upstream of Nelson Road	•329
Town of Cary, Wake County (Unincorporated Areas)	
Buffalo Creek (Basin 9, Stream 1):	
At Robertsons Pond Dam	•291
Approximately 0.8 mile upstream of Fowler Road	•399
Wake County (Unincorporated Areas)	
Cedar Fork (Basin 10, Stream 15):	
At the confluence with Little River (Basin 10, Stream 1)	•287
Approximately 3.4 miles upstream of the confluence with Little River (Basin 10, Stream 1)	•360
Wake County (Unincorporated Areas), Town of Rolesville	
Coles Branch (Basin 18, Stream 24):	
Approximately 0.2 mile upstream of Cary Parkway	•335
Approximately 850 feet upstream of Maynard Road	•369
Town of Cary, Wake County (Unincorporated Areas)	
Crabtree Creek (Basin 18, Stream 9):	
At Ebenezer Church Road	•253
Approximately 1.5 miles upstream of Reedy Creek Road	•258
City of Raleigh	
Crabtree Creek Tributary No. 6 (Basin 18, Stream 20):	
Approximately 0.3 mile downstream of Weston Parkway	•311
Approximately 500 feet upstream of Weston Parkway	•337
Town of Cary, Wake County (Unincorporated Areas)	
Dutchmans Branch (Basin 20, Stream 17):	
At the confluence with Swift Creek (Basin 20, Stream 1) (Lake Wheeler)	•289
At the downstream side of Blaney Franks Road	•289
Wake County (Unincorporated Areas)	
Fowlers Mill Creek (Basin 10, Stream 12):	
Approximately 0.2 mile upstream of the confluence with Little River (Basin 10, Stream 1)	•266
Approximately 1.4 miles upstream of Pullytown Road	•313
Wake County (Unincorporated Areas)	
Guffy Branch (Basin 21, Stream 4):	
At the confluence with Little Creek (Basin 21, Stream 1)	•231
Approximately 4.3 miles above the confluence with Little Creek (Basin 21, Stream 1)	•355
Wake County (Unincorporated Areas)	
Hatchet Grove Tributary (Basin 18, Stream 25):	
Approximately 350 feet downstream of Hatchet Grove Dam Tributary	•314
Approximately 0.7 mile upstream of Hatchet Grove Dam Tributary	•338
Town of Cary, Wake County (Unincorporated Areas)	
Hodges Creek (Basin 8, Stream 1):	
Approximately 0.2 mile upstream of Old Crews Road	•222
Approximately 1.4 miles upstream of R. C. Watson Road	•337
Wake County (Unincorporated Areas)	
Hominy Creek (Basin 10, Stream 7):	
At Lizard Lick Road	•253
Approximately 0.3 mile upstream of Hodge Road	•337
Wake County (Unincorporated Areas)	
Horse Creek (Basin 4, Stream 1):	
Approximately 0.3 mile downstream of Wake/Franklin County boundary	•337
At the Wake/Franklin County boundary	•342
Wake County (Unincorporated Areas)	
Juniper Branch (Basin 21, Stream 2):	
At the confluence with Little Creek (Basin 21, Stream 1)	•261
Approximately 0.8 mile upstream of Pagan Road	•327
Wake County (Unincorporated Areas)	
Lakemont Tributary (Basin 18, Stream 22):	
At the confluence with Big Branch (Basin 18, Stream 21)	•254
Approximately 250 feet downstream of Pinecroft Drive	•313
City of Raleigh	
Ledge Creek:	
At the confluence with Falls Lake	•262
At the Wake/Granville County boundary	•262
Wake County (Unincorporated Areas)	
Lens Branch (Basin 20, Stream 22):	
At the confluence with Swift Creek (Basin 20, Stream 1)	•312
Approximately 500 feet downstream of Lochmere Drive	•313
Town of Cary, Wake County (Unincorporated Areas)	
Little Beaverdam Lake:	
Entire shoreline	•262
Wake County (Unincorporated Areas)	
Little Beaverdam Creek (Basin 2, Stream 2):	
Just upstream of the confluence with Little Beaverdam Lake	•262
Approximately 0.7 mile downstream of the Wake/Granville County boundary	•297
Wake County (Unincorporated Areas)	
Little Black Creek (Basin 23, Stream 8):	
At Johnston County boundary	•228
Approximately 0.6 mile upstream of Walter Myatt Road	•300

Source of Flooding and Location	#Depth in feet above ground. *Elevation in feet (NGVD) •Elevation in feet (NAVD)
Wake County (Unincorporated Areas)	
Little Brier Creek (Basin 18, Stream 15):	
At the confluence with Brier Creek (Basin 18, Stream 14)	•322
At the downstream side of Lumley Road	•322
City of Raleigh	
(Basin 18, Stream 16):	
Just downstream of Interstate 70	•347
Approximately 300 feet upstream of the Wake County/Durham County boundary	•388
City of Raleigh, Wake County (Unincorporated Areas)	
Little Creek (Basin 11, Stream 2):	
At Cemetery Road	•278
Approximately 0.3 mile upstream of U.S. 64	•312
Town of Zebulon, Wake County (Unincorporated Areas)	
Little Creek (Basin 21, Stream 1):	
At the Wake County/Johnston County boundary	•220
Approximately 2.3 miles upstream of the confluence of Juniper Branch	•335
Wake County (Unincorporated Areas)	
Little River (Basin 10, Stream 1):	
At Johnston/Wake County boundary	•216
At Franklin/Wake County boundary	•325
Wake County (Unincorporated Areas), Town of Wendell, Town of Zebulon	
Lizard Lick Creek (Basin 10, Stream 23):	
At the confluence with Little River (Basin 10, Stream 1)	•222
At Wendell Boulevard	•226
Town of Wendell, Wake County (Unincorporated Areas)	
Marks Creek (Basin 14, Stream 1):	
Approximately 325 feet downstream of Wake/Johnston County boundary	•176
Approximately 0.8 mile downstream of Knightdale Eaglerock Road	•208
Wake County (Unincorporated Areas)	
Marsh Creek (Basin 18, Stream 17):	
At Skycrest Drive	•203
Approximately 650 feet downstream of Falls Church Road	•315
City of Raleigh, Wake County (Unincorporated Areas)	
Millbrook Tributary to Marsh Creek (Basin 18, Stream 19):	
Approximately 50 feet upstream of confluence with Marsh Creek (Basin 18, Stream 17)	•237
At Brockton Drive	•240
City of Raleigh, Wake County (Unincorporated Areas)	
Mills Branch (Basin 22, Stream 5):	
Approximately 50 feet upstream of railroad	•274
Approximately 0.7 mile upstream of railroad	•301
Wake County (Unincorporated Areas)	
Mingo Creek (Basin 12, Stream 2):	
At the confluence with Beaverdam Creek (Basin 12, Stream 1)	•206
At Smithfield Road	•272
Town of Knightdale, Wake County (Unincorporated Areas)	
Moccasin Creek (Basin 11, Stream 1):	
Approximately 380 feet downstream of U.S. 264	•211
Approximately 0.7 mile upstream of Henry Baker Road	•307
Wake County (Unincorporated Areas)	
New Hope Tributary to Marsh Creek (Basin 18, Stream 18):	
Approximately 1,150 feet upstream of the confluence with Marsh Creek	•215
Approximately 150 feet upstream of Calvary Drive	•293
City of Raleigh	
Newlight Creek (Basin 3, Stream 1):	
Approximately 450 feet upstream of the confluence of Basin 3, Stream 8	•280
At the Wake County/Granville County boundary	•283
Wake County (Unincorporated Areas)	
Northeast Tributary to Turkey Creek (Basin 18, Stream 4):	
Approximately 100 feet upstream of Grove Barton Road	•318
Approximately 0.3 mile upstream of County Trail	•400
City of Raleigh, Wake County (Unincorporated Areas)	
Perry Creek (Basin 10, Stream 19):	
At the confluence with Little River (Basin 10, Stream 1)	•318
Approximately 325 feet downstream of Old Pearce Road	•381
Wake County (Unincorporated Areas)	
Perry Creek (Basin 15, Stream 26):	
Approximately 225 feet downstream of the confluence with Perry Creek East Branch	•197
Approximately 0.8 mile upstream of Rainwater Drive	•355
City of Raleigh, Wake County (Unincorporated Areas)	
Perry Creek East Branch (Basin 15, Stream 27):	
At the confluence with Perry Creek (Basin 15, Stream 26)	•197
Approximately 650 feet upstream of the confluence with Perry Creek (Basin 15, Stream 26)	•197
City of Raleigh, Wake County (Unincorporated Areas)	
Richland Creek (Basin 5, Stream 1):	
Approximately 1,050 feet downstream of New Falls of the Neuse Road	•205
At the Wake/Franklin County boundary	•301
City of Raleigh, Wake County (Unincorporated Areas), Town of Wake Forest	
Richland Creek Tributary:	
At the confluence with Richland Creek (Basin 5, Stream 1)	•228
Approximately 1.2 miles upstream of the confluence with Richland Creek (Basin 5, Stream 1)	•311
Town of Wake Forest, Wake County (Unincorporated Areas)	
Rocky Branch (Basin 30, Stream 5):	
At the confluence with Walnut Creek (Basin 30, Stream 1)	•236
Approximately 200 feet downstream of Western Boulevard	•297
City of Raleigh	
Snipes Creek:	
Approximately 100 feet upstream of the confluence of Basin 11, Stream 7	•278
Approximately 0.6 mile upstream of Highway 96	•330
Wake County (Unincorporated Areas), Town of Zebulon	
Swift Creek (Basin 20, Stream 1):	
At Old Stage Road	•246
Approximately 700 feet upstream of U.S. Highway 64	•359
Town of Cary, Wake County (Unincorporated Areas), Town of Garner	
Swift Creek Tributary No. 7 (Basin 20, Stream 24):	
At the confluence with Swift Creek (Basin 20, Stream 1)	•332
Approximately 0.3 mile upstream of the confluence with Swift Creek (Basin 20, Stream 1)	•332
Town of Cary, Wake County (Unincorporated Areas)	

Source of Flooding and Location	#Depth in feet above ground. *Elevation in feet (NGVD) •Elevation in feet (NAVD)
Sycamore Creek (Basin 18, Stream 6):	
At confluence with Crabtree Creek (Basin 18, Stream 9)	•254
Approximately 1 mile upstream of Leesville Road	•450
City of Raleigh, Wake County (Unincorporated Areas)	
Turkey Creek (Basin 18, Stream 5):	
At the confluence with Sycamore Creek (Basin 18, Stream 6)	•254
Approximately 1.3 miles upstream of Ebenezer Church Road	•279
City of Raleigh, Wake County (Unincorporated Areas)	
Unnamed Tributary (#1) to Swift Creek:	
Approximately 425 feet downstream of Wake/Johnston County boundary	•216
Approximately 125 feet downstream of Wake/Johnston County boundary	•216
Wake County (Unincorporated Areas)	
Walnut Creek (Basin 30, Stream 1):	
Approximately 0.8 mile upstream of the confluence with Neuse River (Basin 15, Stream 1)	•173
Approximately 0.3 mile upstream of Maynard Road	•452
Town of Cary, Wake County (Unincorporated Areas), City of Raleigh	
Buckhorn Creek:	
Approximately 500 feet downstream of Cass Holt Road	•232
Approximately 0.45 mile upstream of Honeycutt Road	•444
Wake County (Unincorporated Areas)	
Jim Branch:	
At the confluence with Harris Reservoir	•232
Approximately 1.0 mile upstream of the confluence with Harris Reservoir	•252
Wake County (Unincorporated Areas)	
Cary Branch:	
At the confluence with Harris Reservoir	•232
Approximately 2.3 miles upstream of the confluence with Norris Branch	•326
Wake County (Unincorporated Areas), Town of Holly Springs	
Harris Reservoir:	
Entire shoreline within Wake County	•232
Wake County (Unincorporated Areas), Town of Holly Springs	
Norris Branch:	
At the confluence with Cary Creek	•239
Approximately 500 feet upstream of Avent Ferry Road	•276
Wake County (Unincorporated Areas)	
Utley Creek:	
At the confluence with White Oak Creek (Basin 26, Stream 1)	•232
Approximately 3.3 miles upstream of the confluence with White Oak Creek	•329
Wake County (Unincorporated Areas), Town of Holly Springs	
White Oak Creek (Basin 26, Stream 1):	
At the confluence of Harris Reservoir	•232
Approximately 1,600 feet upstream of Highway 1	•311
Wake County (Unincorporated Areas), Town of Holly Springs	
Big Branch (Basin 26, Stream 5):	
At the confluence with White Oak Creek	•248
Approximately 0.4 mile upstream of Highway 1	•307
Wake County (Unincorporated Areas), Town of Holly Springs	
Little Branch (Basin 26, Stream 3):	
At the confluence with Big Branch (Basin 26, Stream 5)	•250
Approximately 1.7 miles upstream of New Hill Road	•310
Wake County (Unincorporated Areas), Town of Holly Springs	
Little Branch Tributary (Basin 26, Stream 4):	
At the confluence with Little Branch (Basin 26, Stream 3)	•265
Approximately 1.0 mile upstream of the confluence with Little Branch	•282
Wake County (Unincorporated Areas)	
Little White Oak Creek (Basin 26, Stream 9):	
At the confluence with Harris Reservoir.	
Approximately 0.8 mile upstream of Highway 1.	
Wake County (Unincorporated Areas)	
Little White Oak Creek Tributary 2:	
At the confluence with Little White Oak Creek (Basin 26, Stream 9)	•247
Approximately 900 feet upstream of the confluence with Little White Oak Creek (Basin 26, Stream 9)	•261
Wake County (Unincorporated Areas)	
Thomas Creek:	
At the confluence with Harris Reservoir	•232
Approximately 100 feet downstream of Highway 1	•245
Wake County (Unincorporated Areas)	
Big Branch:	
At the confluence with Harris Reservoir	•232
Approximately 0.9 mile upstream of Highway 1	•298
Wake County (Unincorporated Areas)	
Little Beaver Creek (Basin 27, Stream 1):	
Approximately 0.7 mile upstream of the Chatham/Wake County boundary	•239
Approximately 1.2 miles upstream of New Hill Olive Chapel Road	•284
Wake County (Unincorporated Areas)	
Morris Branch:	
At Chatham/Wake County boundary	•264
Approximately 750 feet upstream of Howard Road	•336
Wake County (Unincorporated Areas), Town of Cary	
Kenneth Branch (Basin 24, Stream 6):	
At railroad	•394
Approximately 1,750 feet upstream of railroad	•394
Wake County (Unincorporated Areas), Town of Fuquay-Varina	
Angier Creek (Basin 24, Stream 4):	
Just upstream of railroad	•368
Approximately 0.4 mile upstream of railroad	•378
Wake County (Unincorporated Areas), Town of Fuquay-Varina	
Neills Creek:	
At Harnett/Wake County boundary	•263
Approximately 1.3 miles upstream of Harnett/Wake County boundary	•300
Wake County (Unincorporated Areas)	
Beaver Creek (Basin 27, Stream 2):	
At the confluence with Jordan Lake	•238
Approximately 1,100 feet up stream of Castleburg Drive	•370
Wake County (Unincorporated Areas), Town of Apex	
Jacks Branch (Basin 28, Stream 4):	
At the confluence with White Oak Creek (Basin 28, Stream 1)	•273
Approximately 1.5 miles upstream of the confluence with White Oak Creek	•331
Wake County (Unincorporated Areas)	

Source of Flooding and Location	#Depth in feet above ground. *Elevation in feet (NGVD) •Elevation in feet (NAVD)
White Oak Creek (Basin 28, Stream 1):	
At the Wake/Chatham County boundary	•238
Approximately 0.6 mile upstream of Park Village Drive	•369
Wake County (Unincorporated Areas), Town of Cary	
Clark Branch (Basin 28, Stream 3):	
At the confluence with White Oak Creek	•256
Approximately 0.5 mile upstream of Green Level Church Road	•302
Wake County (Unincorporated Areas)	
Basin 28, Stream 8:	
At the confluence with White Oak Creek	•262
Approximately 0.3 mile upstream of Hendricks Road	•303
Wake County (Unincorporated Areas), Town of Cary	
Basin 28, Stream 7:	
At the confluence with Basin 28, Stream 8	•275
Approximately 0.4 mile upstream of the confluence with Basin 28, Stream 8	•290
Town of Cary	
Batchelor Branch (Basin 28, Stream 6):	
At the confluence with White Oak Creek	•268
Approximately 1,000 feet upstream of State Route 55	•356
Wake County (Unincorporated Areas), Town of Cary	
Reedy Branch (Basin 27, Stream 5):	
At the confluence with Beaver Creek (Basin 27, Stream 2)	•239
Approximately 0.4 mile upstream of the confluence with Reedy Branch Tributary (Basin 27, Stream 6)	•274
Wake County (Unincorporated Areas)	
Reedy Branch Tributary (Basin 27, Stream 6):	
Approximately 200 feet upstream of the confluence with Reedy Branch (Basin 27, Stream 5)	•266
Approximately 800 feet upstream of Kelly Road	•310
Wake County (Unincorporated Areas), Town of Apex	
Kenneth Creek (Basin 24, Stream 2):	
At the Harnett/Wake County boundary	•257
Approximately 0.4 mile upstream of the Harnett/Wake County boundary	•262
Town of Fuquay-Varina	
Basin 20, Stream 20:	
At the confluence with Swift Creek	•292
Approximately 475 feet upstream of the confluence with Swift Creek	•292
Wake County (Unincorporated Areas)	
Kit Creek (Basin 29, Stream 7):	
Just upstream of Louis Stevens Road	•259
Approximately 0.2 mile upstream of Davis Drive	•292
Wake County (Unincorporated Areas), Town of Morrisville	
Kit Creek Tributary 1 (Basin 29, Stream 11):	
At the confluence with Kit Creek (Basin 29, Stream 7)	•261
Approximately 0.3 mile upstream of Davis Drive	•284
Wake County (Unincorporated Areas)	
Town of Apex	
Maps available for inspection at the Town of Apex Engineering Department, 73 Hunter Street, Apex, North Carolina.	
Town of Cary	
Maps available for inspection at the Town of Cary Stormwater Services Department, 318 North Academy Street, Cary, North Carolina.	
Town of Fuquay-Varina	
Maps available for inspection at the Town of Fuquay-Varina Planning Department, 401 Old Honeycutt Road, Fuquay-Varina, North Carolina.	
Town of Garner	
Maps available for inspection at the Town of Garner Engineering Department, 900 7th Avenue, Building B, Garner, North Carolina.	
Town of Holly Springs	
Maps available for inspection at the Town of Holly Springs Engineering Department, 128 South Main Street, Holly Springs, North Carolina.	
Town of Knightdale	
Maps available for inspection at the Town of Knightdale Planning Department, 950 Steeple Square Court, Knightdale, North Carolina.	
Town of Morrisville	
Maps available for inspection at the Morrisville Town Hall, 100 Town Hall Drive, Morrisville, North Carolina.	
City of Raleigh	
Maps available for inspection at the City of Raleigh Planning Department, 222 West Hargett Street, 4th Floor, Raleigh, North Carolina.	
Town of Rolesville	
Maps available for inspection at the Rolesville Town Hall, 200 East Young Street, Rolesville, North Carolina.	
Wake County (Unincorprated Areas	
Maps available for inspection at the Wake County Office Building, Community Development Services Department, 336 Fayetteville Street Mall, 5th Floor, Raleigh, North Carolina.	
Town of Wake Forest	
Maps available for inspection at the Town of Wake Forest Planning Department, 401 Elm Avenue, Wake Forest, North Carolina.	
Town of Wendell	
Maps available for inspection at the Town of Wendell Planning Department, 15 East Fourth Street, Wendell, North Carolina.	
Town of Zebulon	
Maps available for inspection at the Town of Zebulon Planning Department, 100 North Arendell Avenue, Zebulon, North Carolina.	
WEST VIRGINIA	
Wyoming County (FEMA Docket No. D–7622)	
Barkers Creek:	
At the confluence with Guyandotte River	•1,395
Approximately 2.5 miles upstream of Milam Fork	•2,410
Clear Fork:	
At the upstream Town of Oceana corporate limits	•1,291
Approximately 0.5 mile upstream of Koppers City Bottom Road 2	•1,376
Wyoming County (Unincorporated Areas)	
Gooney Otter Creek:	
At the confluence with Barkers Creek	•1,654
Approximately 1.1 miles upstream of Noseman Branch	•1,929
Wyoming County (Unincorporated Areas)	
Huff Creek:	
At the Wyoming County boundary	•973
Approximately 10.5 miles upstream of county boundary	•1,530
Wyoming County (Unincorporated Areas)	
Indian Creek:	
At the confluence with the Guyandotte River	•1,137
Approximately 9.3 miles upstream of confluence with the Guyandotte River	•1,292
Wyoming County (Unincorporated Areas)	
Laurel Fork:	

Source of Flooding and Location	#Depth in feet above ground. *Elevation in feet (NGVD) •Elevation in feet (NAVD)
Just 30 feet downstream of State Route 10	•1,363
Approximately 0.5 mile upstream of Access Road	•1,847
Wyoming County (Unincorporated Areas)	
Muzzle Creek:	
At the confluence of Little Huff Creek	•1,078
Approximately 1.5 miles upstream of the confluence of Little Huff Creek	•1,177
Wyoming County (Unincorporated Areas)	
Slab Fork:	
Approximately 900 feet downstream of Caloric Road	•1,502
Approximately 2.1 miles upstream of Jesus Way Church Bridge	•1,651
Wyoming County (Unincorporated Areas)	
Wyoming County (Unincorporated Areas)	
Maps available for inspection at the Wyoming County Courthouse, Main Street, Pineville, West Virginia.	

(Catalog of Federal Domestic Assistance No. 83.100, ''Flood Insurance.'')

Dated: December 20, 2005.

David I. Maurstad,

Acting Director, Mitigation Division, Federal Emergency Management Agency, Department of Homeland Security.

[FR Doc. 06–1825 Filed 2–27–06; 8:45 am]

BILLING CODE 9110–12–P

DEPARTMENT OF HOMELAND SECURITY

Federal Emergency Management Agency

44 CFR Part 67

Final Flood Elevation Determinations

AGENCY: Federal Emergency Management Agency (FEMA), Department of Homeland Security.

ACTION: Final rule.

SUMMARY: Base (1% annual-chance) Flood Elevations and modified Base Flood Elevations (BFEs) are made final for the communities listed below. The BFEs and modified BFEs are the basis for the floodplain management measures that each community is required either to adopt or to show evidence of being already in effect in order to qualify or remain qualified for participation in the National Flood Insurance Program (NFIP).

DATES: *Effective Date:* The date of issuance of the Flood Insurance Rate Map (FIRM) showing BFEs and modified BFEs for each community. This date may be obtained by contacting the office where the FIRM is available for inspection as indicated in the table below.

ADDRESSES: The final base flood elevations for each community are available for inspection at the office of the Chief Executive Officer of each community. The respective addresses are listed in the table below.

FOR FURTHER INFORMATION CONTACT: Doug Bellomo, P.E., Hazard Identification Section, Federal Emergency Management Agency, 500 C Street, SW., Washington, DC 20472, (202) 646–2903.

SUPPLEMENTARY INFORMATION: The Federal Emergency Management Agency makes the final determinations listed below for the BFEs and modified BFEs for each community listed. These modified elevations have been published in newspapers of local circulation and ninety (90) days have elapsed since that publication. The Mitigation Division Director has resolved any appeals resulting from this notification.

This final rule is issued in accordance with Section 110 of the Flood Disaster Protection Act of 1973, 42 U.S.C. 4105, and 44 CFR part 67.

The Federal Emergency Management Agency has developed criteria for floodplain management in floodprone areas in accordance with 44 CFR part 60.

Interested lessees and owners of real property are encouraged to review the proof Flood Insurance Study and FIRM available at the address cited below for each community.

The BFEs and modified BFEs are made final in the communities listed below. Elevations at selected locations in each community are shown.

National Environmental Policy Act

This rule is categorically excluded from the requirements of 44 CFR Part 10, Environmental Consideration. No environmental impact assessment has been prepared.

Regulatory Flexibility Act

The Mitigation Division Director certifies that this rule is exempt from the requirements of the Regulatory Flexibility Act because modified base flood elevations are required by the Flood Disaster Protection Act of 1973, 42 U.S.C. 4105, and are required to establish and maintain community eligibility in the NFIP. No regulatory flexibility analysis has been prepared.

Regulatory Classification

This final rule is not a significant regulatory action under the criteria of Section 3(f) of Executive Order 12866 of September 30, 1993, Regulatory Planning and Review, 58 FR 51735.

Executive Order 13132, Federalism

This rule involves no policies that have federalism implications under Executive Order 13132.

Executive Order 12988, Civil Justice Reform

This rule meets the applicable standards of Executive Order 12988.

List of Subjects in 44 CFR Part 67

Administrative practice and procedure, Flood insurance, Reporting and recordkeeping requirements.

■ Accordingly, 44 CFR Part 67 is amended to read as follows:

PART 67—[AMENDED]

■ 1. The authority citation for Part 67 continues to read as follows:

Authority: 42 U.S.C. 4001 *et seq.*; Reorganization Plan No. 3 of 1978, 3 CFR, 1978 Comp., p. 329; E.O. 12127, 44 FR 19367, 3 CFR, 1979 Comp., p. 376.

§ 67.11 [Amended]

■ 2. The tables published under the authority of § 67.11 are amended as follows:

Source of flooding and location of referenced elevation	*Elevation in feet (NGVD) modified ♦Elevation in feet (NAVD) modified	Communities affected
Little Red River:		
Approximately 53.48 miles upstream of the confluence with the White River	♦248	FEMA Docket No. P7689, Cleburne County, (Unincorporated Areas).
Approximately 79.10 miles upstream of the confluence with the White River	♦299	
Sulphur Creek:		
Approximately 120 feet downstream of Libby Road	♦281	City of Heber Springs, Cleburne County, (Unincorporated Areas).
Approximately 1,900 feet upstream of Libby Road	♦289	

ADDRESSES:

Cleburne County, Arkansas (Unincorporated Areas).

Maps are available for inspection at 301 West Main Street, Heber Springs, Arkansas.

City of Heber Springs, Arkansas.

Maps are available for inspection at 1001 West Main Street, Heber Springs, Arkansas.

Artichoke Creek:		
Approximately 2,500 feet downstream of 225th Avenue Northwest	*1,072	FEMA Docket No. P7669, Swift County, (Unincorporated Areas).
Just upstream of 260th Avenue Northwest	*1,085	
Chippewa River:		
Just downstream of County Road 75	*1,028	City of Benson, Swift County, (Unincorporated Areas).
At the confluence of East Branch Chippewa River	*1,036	
Cottonwood Creek:		
Approximately 8,170 feet downstream of County Road 2	*991	City of Holloway, Swift County, (Unincorporated Areas).
Approximately 4,600 feet upstream of County Road 9	*1,020	
County Ditch No. 2:		
At County Route 54	*1,006	Swift County, (Unincorporated Areas).
Approximately 1,250 feet upstream of County Route 54	*1,006	
East Branch Chippewa River:		
At the confluence with the Chippewa River	*1,036	FEMA Docket No. P7669, City of Benson, Swift County, (Unincorporated Areas).
Just downstream of State Road 29	*1,036	
Judicial Ditch No. 19:		
Approximately 18,250 feet upstream of the confluence with East Branch Chippewa River	*1,040	Swift County, (Unincorporated Areas).
Approximately 39,350 feet upstream of the confluence with East Branch Chippewa River	*1,049	
Lake Malachy Outlet:		
Approximately 320 feet above confluence with Lake Malachy	*1,035	City of Clontarf, Swift County, (Unincorporated Areas).
Approximately 100 feet upstream of Grace Avenue	*1,043	
Minnesota River:		
At Marsh Lake Dam	*948	Swift County, (Unincorporated Areas).
Approximately 4,750 feet upstream of Marsh Lake Dam	*948	
Pomme De Terre River:		
Approximately 11,700 feet downstream of the Union Pacific Railroad	*975	City of Appleton, Swift County, (Unincorporated Areas).
Approximately 15,800 feet upstream of North Herrington Road	*1,008	

ADDRESSES:

City of Appleton, Swift County, Minnesota.

Maps are available for inspection at the City Office, 323 West Schlieman Avenue, Appleton, Minnesota.

City of Benson, Swift County, Minnesota.

Maps are available for inspection at City Hall, 1410 Kansas Avenue, Benson, Minnesota.

City of Clontarf, Swift County, Minnesota.

Maps are available for inspection at City Hall, 221 Clonmel Street, Clontarf, Minnesota.

City of Holloway, Swift County, Minnesota.

Source of flooding and location of referenced elevation	*Elevation in feet (NGVD) modified ♦Elevation in feet (NAVD) modified	Communities affected
Maps are available for inspection at City Hall, 220 DePue Street, Holloway, Minnesota.		
Swift County, Minnesota (Unincorporated Areas).		
Maps are available for inspection at 301 14th Street North, Benson, Minnesota.		
East Branch Knob Creek:		
At the confluence with Knob Creek	♦943	FEMA Docket No. P7691, City of Pilot Knob, Iron County, (Unincorporated Areas).
Approximately 4,170 feet upstream of Union Pacific Railroad	♦989	
Knob Creek:		
At the confluence with Stouts Creek	♦886	City of Ironton, City of Pilot Knob, Iron County, (Unincorporated Areas).
Approximately 2,410 feet upstream of Mulberry Street	♦1,012	
Railroad Creek:		
At the confluence with Stouts Creek	♦895	FEMA Docket No. P7691, City of Arcadia, Iron County, (Unincorporated Areas).
Approximately 300 feet upstream of State Route 21	♦990	
Shepherd Mountain Lake Creek:		
At the confluence with Stouts Creek	♦950	Iron County, (Unincorporated Areas).
Approximately 3,380 feet upstream of Guhse Lane	♦1,051	
Stouts Creek:		
Approximately 4,000 feet upstream of State Route 72	♦862	City of Arcadia, City of Ironton, Iron County, (Unincorporated Areas).
Approximately 5,860 feet upstream of the confluence of Shepherd Mountain Lake Creek	♦990	
West Branch Knob Creek:		
At the confluence with Knob Creek	♦933	Iron County, (Unincorporated Areas).
Approximately 2,140 feet upstream of Spitzmiller Drive	♦1,020	

ADDRESSES:

City of Arcadia, Iron County, Missouri.
Maps are available for inspection at 150 West Orchard, Arcadia, Missouri.
Iron County, Missouri (Unincorporated Areas).
Maps are available for inspection at 250 South Main Street, Ironton, Missouri.
City of Ironton, Iron County, Missouri.
Maps are available for inspection at 123 North Main, Ironton, Missouri.
City of Pilot Knob, Iron County, Missouri.
Maps are available for inspection at 112 South McCune Street, Pilot Knob, Missouri.

Duck Creek:		
Mouth at Ohio River	♦616	FEMA Docket No. P7689, City of Marietta, Washington County, (Unincorporated Areas).
Approximately 4,400 feet upstream of State Highway 26	♦616	
Muskingum River:		
Mouth at the Ohio River	♦615	City of Marietta, Washington County, (Unincorporated Areas).
Approximately 16,400 feet upstream of mouth	♦615	
Ohio River:		
Approximately 0.4 mile downstream of U.S. Highway 50	♦609	City of Belpre, City of Marietta, Washington County, (Unincorporated Areas).
Approximately 7.25 miles upstream of Willow Island Lock and Dam	♦617	

ADDRESSES:

Washington County, Ohio (Unincorporated Areas).
Maps are available for inspection at the Tax Map Office, 205 Putnam Street, Marietta, Ohio.
City of Belpre, Washington County, Ohio.
Maps are available for inspection at City Hall, 715 Park Drive, Belpre, Ohio.
City of Marietta, Washington County, Ohio.

Source of flooding and location of referenced elevation	*Elevation in feet (NGVD) modified ♦Elevation in feet (NAVD) modified	Communities affected
Maps are available for inspection at City Hall, 301 Putnam Street, Marietta, Ohio.		

♦ North American Vertical Datum of 1988.
* National Geodetic Vertical Datum.

(Catalog of Federal Domestic Assistance No. 83.100, ''Flood Insurance.'')

Dated: January 9, 2006.

David I. Maurstad,

Acting Director, Mitigation Division, Federal Emergency Management Agency, Department of Homeland Security.

[FR Doc. 06–1824 Filed 2–27–06; 8:45 am]

BILLING CODE 9110–12–P

DEPARTMENT OF HOMELAND SECURITY

Federal Emergency Management Agency

44 CFR Part 67

Final Flood Elevation Determinations

AGENCY: Federal Emergency Management Agency (FEMA), Department of Homeland Security.

ACTION: Final rule.

SUMMARY: Base (1% annual-chance) Flood Elevations and modified Base Flood Elevations (BFEs) are made final for the communities listed below. The BFEs and modified BFEs are the basis for the floodplain management measures that each community is required either to adopt or to show evidence of being already in effect in order to qualify or remain qualified for participation in the National Flood Insurance Program (NFIP).

DATES: *Effective Date:* The date of issuance of the Flood Insurance Rate Map (FIRM) showing BFEs and modified BFEs for each community. This date may be obtained by contacting the office where the FIRM is available for inspection as indicated in the table below.

ADDRESSES: The final base flood elevations for each community are available for inspection at the office of the Chief Executive Officer of each community. The respective addresses are listed in the table below.

FOR FURTHER INFORMATION CONTACT: Doug Bellomo, P.E., Hazard Identification Section, Federal Emergency Management Agency, 500 C Street, SW., Washington, DC 20472, (202) 646–2903.

SUPPLEMENTARY INFORMATION: The Federal Emergency Management Agency makes the final determinations listed below for the BFEs and modified BFEs for each community listed. These modified elevations have been published in newspapers of local circulation and ninety (90) days have elapsed since that publication. The Mitigation Division Director has resolved any appeals resulting from this notification.

This final rule is issued in accordance with Section 110 of the Flood Disaster Protection Act of 1973, 42 U.S.C. 4105, and 44 CFR Part 67.

The Federal Emergency Management Agency has developed criteria for floodplain management in floodprone areas in accordance with 44 CFR Part 60.

Interested lessees and owners of real property are encouraged to review the proof Flood Insurance Study and FIRM available at the address cited below for each community.

The BFEs and modified BFEs are made final in the communities listed below. Elevations at selected locations in each community are shown.

National Environmental Policy Act. This rule is categorically excluded from the requirements of 44 CFR Part 10, Environmental Consideration. No environmental impact assessment has been prepared.

Regulatory Flexibility Act. The Mitigation Division Director certifies that this rule is exempt from the requirements of the Regulatory Flexibility Act because modified base flood elevations are required by the Flood Disaster Protection Act of 1973, 42 U.S.C. 4105, and are required to establish and maintain community eligibility in the NFIP. No regulatory flexibility analysis has been prepared.

Regulatory Classification. This final rule is not a significant regulatory action under the criteria of Section 3(f) of Executive Order 12866 of September 30, 1993, Regulatory Planning and Review, 58 FR 51735.

Executive Order 13132, Federalism. This rule involves no policies that have federalism implications under Executive Order 13132.

Executive Order 12988, Civil Justice Reform. This rule meets the applicable standards of Executive Order 12988.

List of Subjects in 44 CFR Part 67

Administrative practice and procedure, Flood insurance, Reporting and record keeping requirements.

■ Accordingly, 44 CFR Part 67 is amended to read as follows:

PART 67—[AMENDED]

■ 1. The authority citation for Part 67 continues to read as follows:

Authority: 42 U.S.C. 4001 *et seq.*; Reorganization Plan No. 3 of 1978, 3 CFR, 1978 Comp., p. 329; E.O. 12127, 44 FR 19367, 3 CFR, 1979 Comp., p. 376.

§ 67.11 [Amended]

■ 2.The tables published under the authority of § 67.11 are amended as follows:

State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in feet (NGVD) Modified ♦Elevation in feet (NAVD) Modified
NM	Silver City (Town) Grant County (FEMA Docket No. P7699).	Central Arroyo	At the confluence with Maude's Creek	♦6,013
			Approximately 7,770 feet upstream of the confluence with Maude's Creek.	♦6,193

State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in feet (NGVD) Modified ♦Elevation in feet (NAVD) Modified
		Cottonwood Creek	Approximately 800 feet upstream of the confluence with Silva Creek.	♦5,953
			Approximately 190 feet upstream of Cain Drive.	♦6,067
		Maude's Creek	Approximately 210 feet downstream of U.S. Route 180.	♦6,000
			Approximately 6,100 feet upstream of U.S. Route 180.	♦6,125
		Pinos Altos Creek	Approximately 1,200 feet upstream of 32nd Street.	♦6,042
			Approximately 3,770 feet upstream of confluence of Tributary 8 to Pinos Altos Creek.	♦6,141
		Tributary 2 to Maude's Creek (Lower Reach).	Approximately 16,260 feet upstream of the confluence with Maude's Creek.	♦5,853
			Approximately 17,340 feet upstream of the confluence with Maude's Creek.	♦5,868
		Tributary 2 to Maude's Creek (Upper Reach).	Approximately 590 feet upstream of U.S. Route 180.	♦6,047
		Tributary 2 to Maude's Creek (Upper Reach).	Approximately 5,020 feet upstream of 32nd Street Bypass.	♦6,227
		Tributary 8 to Pinos Altos Creek.	At the confluence with Pinos Altos Creek	♦6,053
			Approximately 1,310 feet upstream of 40th Street.	♦6,145

ADDRESS:

Maps are available for inspection at the City Annex Building, 1211 North Hudson Street, Silver City, New Mexico.

♦North American Vertical Datum of 1988.

(Catalog of Federal Domestic Assistance No. 83.100, ''Flood Insurance.'')

Dated: February 2, 2006.

David I. Maurstad,

Acting Director, Mitigation Division, Federal Emergency Management Agency, Department of Homeland Security.

[FR Doc. 06–1823 Filed 2–27–06; 8:45 am]

BILLING CODE 9110–12–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 622

[Docket No. 001005281–0369–02; I.D. 022306B]

Fisheries of the Caribbean, Gulf of Mexico, and South Atlantic; Coastal Migratory Pelagic Resources of the Gulf of Mexico and South Atlantic; Trip Limit Reduction

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Temporary rule; inseason adjustment.

SUMMARY: NMFS reduces the trip limit in the commercial hook-and-line fishery for king mackerel in the southern Florida west coast subzone to 500 lb (227 kg) of king mackerel per day in or from the exclusive economic zone (EEZ). This trip limit reduction is necessary to protect the Gulf king mackerel resource.

DATES: This rule is effective 12:01 a.m., local time, February 25, 2006, through June 30, 2006, unless changed by further notification in the **Federal Register**.

FOR FURTHER INFORMATION CONTACT: Steve Branstetter, telephone 727–824–5305, fax 727–824–5308, e-mail *steve.branstetter@noaa.gov*.

SUPPLEMENTARY INFORMATION: The fishery for coastal migratory pelagic fish (king mackerel, Spanish mackerel, cero, cobia, little tunny, and, in the Gulf of Mexico only, dolphin and bluefish) is managed under the Fishery Management Plan for the Coastal Migratory Pelagic Resources of the Gulf of Mexico and South Atlantic (FMP). The FMP was prepared by the Gulf of Mexico and South Atlantic Fishery Management Councils (Councils) and is implemented under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) by regulations at 50 CFR part 622.

On April 27, 2000, NMFS implemented the final rule (65 FR 16336, March 28, 2000) that divided the Florida west coast subzone of the eastern zone into northern and southern subzones, and established their separate quotas. The quota for the hook-and-line fishery in the southern Florida west coast subzone is 520,312 lb (236,010 kg)(50 CFR 622.42(c)(1)(i)(A)(*2*)(*i*)).

In accordance with 50 CFR 622.44(a)(2)(ii)(B)(*2*), from the date that 75 percent of the southern Florida west coast subzone's quota has been harvested until a closure of the subzone's fishery has been effected or the fishing year ends, king mackerel in or from the EEZ may be possessed on board or landed from a permitted vessel in amounts not exceeding 500 lb (227 kg) per day.

NMFS has determined that 75 percent of the quota for Gulf group king mackerel from the southern Florida west coast subzone has been reached. Accordingly, a 500–lb (227–kg) trip limit applies to vessels in the commercial fishery for king mackerel in or from the EEZ in the southern Florida west coast subzone effective 12:01 a.m., local time, February 25, 2006. The 500–lb (227–kg) trip limit will remain in effect until the fishery closes or until the end of the current fishing year (June 30, 2006), whichever occurs first.

The Florida west coast subzone is that part of the eastern zone located south

and west of 25°20.4′ N. lat. (a line directly east from the Miami-Dade County, Florida, boundary) along the west coast of Florida to 87°31′06″ W. long. (a line directly south from the Alabama/Florida boundary). The Florida west coast subzone is divided into northern and southern subzones. From November 1 through March 31, the southern subzone is designated as the area extending south and west from 25°20.4′ N. lat. to 26°19.8′ N. lat. (a line directly west from the Lee/Collier County, Florida boundary), i.e., the area off Collier and Monroe Counties. Based on the current total allowable catch and the allocation ratios, the quota for the southern Florida west coast subzone is 1,040,625 lb (472,010 kg). The subzone's quota is further divided into two equal 520,312–lb (236,010–kg) quotas for vessels fishing with either run-around gillnets or hook-and-line gear.

Classification

This action responds to the best available information recently obtained from the fishery. The Assistant Administrator for Fisheries, NOAA, (AA), finds good cause to waive the requirement to provide prior notice and opportunity for public comment pursuant to the authority set forth at 5 U.S.C. 553(b)(3)(B) as such prior notice and opportunity for public comment is unnecessary and contrary to the public interest. Such procedures would be unnecessary because the rule itself already has been subject to notice and comment, and all that remains is to notify the public of the closure. Allowing prior notice and opportunity for public comment is contrary to the public interest because of the need to immediately implement this action in order to protect the fishery since the capacity of the fishing fleet allows for rapid harvest of the quota. Prior notice and opportunity for public comment will require time and would potentially result in a harvest well in excess of the established quota. For the aforementioned reasons, the AA also finds good cause to waive the 30–day delay in the effectiveness of this action under 5 U.S.C. 553(d)(3).

This action is taken under 50 CFR 622.43(a) and is exempt from review under Executive Order 12866.

Authority: 16 U.S.C. 1801 *et seq.*

Dated: February 23, 2006.

James P. Burgess,

Acting Director, Office of Sustainable Fisheries, National Marine Fisheries Service.

[FR Doc. 06–1859 Filed 2–23–06; 1:10 pm]

BILLING CODE 3510–22–S

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 679

[Docket No. 041126333–5040–02 ; I.D. 022206C]

Fisheries of the Economic Exclusive Zone Off Alaska; Shallow-Water Species Fishery by Vessels Using Trawl Gear in the Gulf of Alaska

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Temporary rule; closure.

SUMMARY: NMFS is prohibiting directed fishing for species that comprise the shallow-water species fishery by vessels using trawl gear in the Gulf of Alaska (GOA). This action is necessary because the first seasonal apportionment of the 2006 Pacific halibut bycatch allowance specified for the shallow-water species fishery in the GOA has been reached.

DATES: Effective 1200 hrs, Alaska local time (A.l.t.), February 23, 2006, through 1200 hrs, A.l.t., April 1, 2006.

FOR FURTHER INFORMATION CONTACT: Josh Keaton, 907–586–7228.

SUPPLEMENTARY INFORMATION: NMFS manages the groundfish fishery in the GOA exclusive economic zone according to the Fishery Management Plan for Groundfish of the Gulf of Alaska (FMP) prepared by the North Pacific Fishery Management Council under authority of the Magnuson-Stevens Fishery Conservation and Management Act. Regulations governing fishing by U.S. vessels in accordance with the FMP appear at subpart H of 50 CFR part 600 and 50 CFR part 679.

The first seasonal apportionment of the 2006 Pacific halibut bycatch allowance specified for the shallow-water species fishery in the GOA is 450 metric tons as established by the 2005 and 2006 harvest specifications for groundfish of the GOA (70 FR 8958, February 24, 2005), for the period 1200 hrs, A.l.t., January 20, 2006, through 1200 hrs, A.l.t., April 1, 2006.

In accordance with § 679.21(d)(7)(i), the Administrator, Alaska Region, NMFS, has determined that the first seasonal apportionment of the 2006 Pacific halibut bycatch allowance specified for the trawl shallow-water species fishery in the GOA has been reached. Consequently, NMFS is prohibiting directed fishing for the shallow-water species fishery by vessels using trawl gear in the GOA. The species and species groups that comprise the shallow-water species fishery are pollock, Pacific cod, shallow-water flatfish, flathead sole, Atka mackerel, skates and ''other species.''

This closure does not apply to fishing for pollock by vessels using pelagic trawl gear in those portions of the GOA open to directed fishing for pollock.

After the effective date of this closure the maximum retainable amounts at § 679.20(e) and (f) apply at any time during a trip.

Classification

This action responds to the best available information recently obtained from the fishery. The Assistant Administrator for Fisheries, NOAA (AA), finds good cause to waive the requirement to provide prior notice and opportunity for public comment pursuant to the authority set forth at 5 U.S.C. 553(b)(B) as such requirement is impracticable and contrary to the public interest. This requirement is impracticable and contrary to the public interest as it would prevent NMFS from responding to the most recent fisheries data in a timely fashion and would delay the closure of the shallow-water species fishery by vessels using trawl gear in the GOA.

The AA also finds good cause to waive the 30–day delay in the effective date of this action under 5 U.S.C. 553(d)(3). This finding is based upon the reasons provided above for waiver of prior notice and opportunity for public comment.

This action is required by § 679.21 and is exempt from review under Executive Order 12866.

Authority: 16 U.S.C. 1801 *et seq.*

Dated: February 22, 2006.

James P. Burgess,

Acting Director, Office of Sustainable Fisheries, National Marine Fisheries Service.

[FR Doc. 06–1858 Filed 2–23–06; 1:10 pm]

BILLING CODE 3510–22–S

Proposed Rules

Federal Register
Vol. 71, No. 39
Tuesday, February 28, 2006

This section of the FEDERAL REGISTER contains notices to the public of the proposed issuance of rules and regulations. The purpose of these notices is to give interested persons an opportunity to participate in the rule making prior to the adoption of the final rules.

DEPARTMENT OF AGRICULTURE

Animal and Plant Health Inspection Service

7 CFR Parts 319, 330, and 340

[Docket No. 03–002–2]

Importation of Nursery Stock

AGENCY: Animal and Plant Health Inspection Service, USDA.

ACTION: Proposed rule; reopening of comment period.

SUMMARY: We are reopening the comment period for our proposed rule that would make several changes to the nursery stock regulations. This action will allow interested persons additional time to prepare and submit comments.

DATES: We will consider all comments that we receive on or before March 31, 2006.

ADDRESSES: You may submit comments by either of the following methods:

- Federal eRulemaking Portal: Go to *http://www.regulations.gov* and, in the ''Search for Open Regulations'' box, select ''Animal and Plant Health Inspection Service'' from the agency drop-down menu, then click on ''Submit.'' In the Docket ID column, select APHIS–2005–0081 to submit or view public comments and to view supporting and related materials available electronically. After the close of the comment period, the docket can be viewed using the ''Advanced Search'' function in Regulations.gov.
- Postal Mail/Commercial Delivery: Please send four copies of your comment (an original and three copies) to Docket No. 03–002–1, Regulatory Analysis and Development, PPD, APHIS, Station 3A–03.8, 4700 River Road Unit 118, Riverdale, MD 20737–1238. Please state that your comment refers to Docket No. 03–002–1.

Reading Room: You may read any comments that we receive on Docket No. 03–002–1 in our reading room. The reading room is located in room 1141 of the USDA South Building, 14th Street and Independence Avenue, SW., Washington, DC. Normal reading room hours are 8 a.m. to 4:30 p.m., Monday through Friday, except holidays. To be sure someone is there to help you, please call (202) 690–2817 before coming.

Other Information: Additional information about APHIS and its programs is available on the Internet at *http://www.aphis.usda.gov.*

FOR FURTHER INFORMATION CONTACT: Dr. Arnold T. Tschanz, Senior Import Specialist, Commodity Import Analysis and Operations, PPQ, APHIS, 4700 River Road Unit 133, Riverdale, MD 20737–1236; (301) 734–5306.

SUPPLEMENTARY INFORMATION: On December 15, 2005, we published in the **Federal Register** (70 FR 74215–74235, Docket No. 03–002–1) a proposed rule that would make several amendments to the nursery stock regulations, including changes to eliminate various restrictions on the importation of plants *in vitro* and kenaf seed; to establish programs for the importation of approved plants from the Canary Islands and from Israel; to require an additional declaration on the phytosanitary certificate accompanying blueberry plants imported from Canada; to require that phytosanitary certificates include the genus and species names of the restricted articles they accompany; to change the phytosanitary certificate requirements for several restricted articles; to reduce the postentry quarantine growing period for *Hydrangea* spp. and for certain chrysanthemums; and to update the list of ports of entry and Federal plant inspection stations. We also proposed several other changes to update and clarify the regulations and improve their effectiveness.

Comments on the proposed rule were required to be received on or before February 13, 2006. We are reopening the comment period on Docket No. 03–002–1 until March 31, 2006. This action will allow interested persons additional time to prepare and submit comments. We will also consider all comments received between February 14, 2006, and the date of this notice.

Authority: 7 U.S.C. 450, 7701–7772, and 7781–7786; 21 U.S.C. 136 and 136a; 7 CFR 2.22, 2.80, and 371.3.

Done in Washington, DC, this 22nd day of February 2006.

Kevin Shea,

Acting Administrator, Animal and Plant Health Inspection Service.

[FR Doc. E6–2773 Filed 2–27–06; 8:45 am]

BILLING CODE 3410–34–P

DEPARTMENT OF AGRICULTURE

Agricultural Marketing Service

7 CFR Part 1150

[Docket No. DA–06–04]

National Dairy Promotion and Research Program; Section 610 Review

AGENCY: Agricultural Marketing Service, USDA.

ACTION: Notice of regulatory review and request for comments.

SUMMARY: This notice announces the Agricultural Marketing Service's (AMS) review of the National Dairy Promotion and Research Program (conducted under the Dairy Promotion and Research Order), using the criteria contained in Section 610 of the Regulatory Flexibility Act (RFA).

DATES: Written comments on this notice must be received by May 1, 2006.

ADDRESSES: Interested persons are invited to submit written comments concerning this notice of review to Whitney A. Rick, Chief, Promotion and Research Branch, USDA/AMS/Dairy Programs, STOP 0233—Room 2958–S, 1400 Independence Avenue, SW., Washington, DC 20250–0233. You may send your comments by using the electronic process available at the Federal Rulemaking portal at *http://www.regulations.gov*. All comments, which should reference the docket number and the date and page number of this issue of the **Federal Register**, will be made available for public inspection at the location provided above during regular business hours.

FOR FURTHER INFORMATION CONTACT: Whitney A. Rick, USDA/AMS/Dairy Programs, Promotion and Research Branch, Stop 0233—Room 2958–S, 1400 Independence Avenue, SW., Washington, DC 20250–0233, (202) 720–6909, *Whitney.Rick@usda.gov*.

SUPPLEMENTARY INFORMATION: The Dairy Production Stabilization Act of 1983

(Act) (7 U.S.C. Section 4501, *et seq.*) authorized a national dairy producer program designed to develop and finance promotion, research, and nutrition education programs to maintain and expand markets and uses for milk and dairy products in the contiguous 48 States. The program is conducted under the Dairy Promotion and Research Order (7 CFR part 1150).

The program became effective on May 1, 1984, when the Order was issued. The National Dairy Promotion and Research Program is funded by a mandatory assessment of 15 cents per hundredweight on all milk produced in the 48 contiguous states and marketed commercially. Producers can receive a credit of up to 10 cents a hundredweight for payments made to any State or regional dairy product promotion, research or nutrition education programs which are certified as qualified programs pursuant to the Order.

The Order provides for the establishment of the National Dairy Promotion and Research Board (Dairy Board) that is composed of 36 members appointed by the Secretary of Agriculture. Each member represents 1 of 13 Regions in the 48 contiguous States. The members of the Dairy Board serve 3-year terms and are eligible to be appointed to 2 consecutive terms.

AMS published in the **Federal Register** its plan (64 FR 8014, February 18, 1999), and later its updated plan (68 FR 48574, August 14, 2003), to review certain regulations using criteria contained in Section 610 of the RFA (5 U.S.C. 601–612). Given that many AMS regulations impact small entities, AMS decided as a matter of policy to review certain regulations which, although they may not meet the threshold requirement under Section 610 of the RFA, warrant review. Accordingly, this notice and request for comments is made for the National Dairy Promotion and Research Program (conducted under the Dairy Promotion and Research Order).

The purpose of the review is to determine whether the Order should be continued without change, amended, or rescinded (consistent with the objectives of the Act) to minimize any significant economic impact of rules upon a substantial number of small entities. AMS will consider the continued need for the Order; the nature of complaints or comments received from the public concerning the Order; the complexity of the Order; the extent to which the Order overlaps, duplicates, or conflicts with other Federal rules and, to the extent feasible, with State and local government rules; and the length of time since the Order has been evaluated or the degree to which technology, economic conditions, or other factors have changed in the area affected by the Order.

Written comments, views, opinions, and other information regarding the Order's impact on small businesses are invited.

Dated: February 23, 2006.

Lloyd C. Day,

Administrator, Agricultural Marketing Service.

[FR Doc. 06–1854 Filed 2–27–06; 8:45 am]

BILLING CODE 3410–02–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA–2006–23888; Directorate Identifier 2005–SW–03–AD]

RIN 2120–AA64

Airworthiness Directives; Eurocopter France Model AS350B, BA, B1, B2, B3, C, D, and D1 Helicopters

AGENCY: Federal Aviation Administration, DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: This document proposes adopting a new airworthiness directive (AD) for Eurocopter France (Eurocopter) Model AS350B, BA, B1, B2, B3, C, D, and D1 helicopters that have a Geneva Aviation, Inc. (Geneva) P132 console (console) installed. This proposal would require installing right and left side Geneva cyclic control sticks and modifying the cyclic grips and the co-pilot cyclic stand (receptacle). This proposal is prompted by reports that pilots had restricted cyclic stick travel when using Eurocopter factory-installed cyclic sticks in a helicopter that has been modified in accordance with a certain Supplemental Type Certificate (STC) for the installation of a Geneva P132 console. The actions specified by this proposed AD are intended to prevent restricting full lateral movement of the cyclic control during high lateral center of gravity (CG) load operations in high cross winds and during slope takeoffs or landings, and subsequent loss of control of the helicopter.

DATES: Comments must be received on or before May 1, 2006.

ADDRESSES: Use one of the following addresses to submit comments on this proposed AD:

- DOT Docket Web site: Go to *http://dms.dot.gov* and follow the instructions for sending your comments electronically;
- Government-wide rulemaking Web site: Go to *http://www.regulations.gov* and follow the instructions for sending your comments electronically;
- Mail: Docket Management Facility; U.S. Department of Transportation, 400 Seventh Street, SW., Nassif Building, Room PL–401, Washington, DC 20590;
- Fax: 202–493–2251; or
- Hand Delivery: Room PL–401 on the plaza level of the Nassif Building, 400 Seventh Street, SW., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

You may get the service information identified in this proposed AD from Geneva Aviation, Inc., 20021–80th Avenue Ave. South, Kent, Washington 98032; telephone: (800) 546–2210; fax: (800) 546–2220; Internet: *http://www.GenevaAviation.com*.

You may examine the comments to this proposed AD in the AD docket on the Internet at *http://dms.dot.gov*.

FOR FURTHER INFORMATION CONTACT: Vince Massey, Aviation Safety Engineer, FAA, Seattle Aircraft Certification Office, Systems and Equipment Branch, 1601 Lind Ave. SW., Renton, Washington 98055–4056; telephone (425) 917–6475, fax (425) 917–6590.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to submit any written data, views, or arguments regarding this proposed AD. Send your comments to the address listed under the caption **ADDRESSES.** Include the docket number ''FAA–2006–23888, Directorate Identifier 2005–SW–03–AD'' at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of the proposed AD. We will consider all comments received by the closing date and may amend the proposed AD in light of those comments.

We will post all comments we receive, without change, to *http://dms.dot.gov*, including any personal information you provide. We will also post a report summarizing each substantive verbal contact with FAA personnel concerning this proposed rulemaking. Using the search function of our docket Web site, you can find and read the comments to any of our dockets, including the name of the individual who sent or signed the comment. You may review the DOT's complete Privacy Act Statement in the **Federal Register** published on April 11, 2000 (65 FR 19477–78), or you may visit *http://dms.dot.gov*.

Examining the Docket

You may examine the docket that contains the proposed AD, any comments, and other information in person at the Docket Management System (DMS) Docket Office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The Docket Office (telephone 1–800–647–5227) is located at the plaza level of the Department of Transportation NaSSIF Building in Room PL–401 at 400 Seventh Street, SW., Washington, DC. Comments will be available in the AD docket shortly after the DMS receives them.

Discussion

Geneva has issued Service Bulletin GA107–7, dated June 14, 2005, which describes a condition that pilots may encounter regarding restricted cyclic control stick movement in helicopters that have a Geneva P132 console installed in accordance with STC No. SH4747NM. The Geneva center console is wider than the factory-installed Eurocopter console and may limit lateral cyclic movement under certain conditions. After issuance of the original STC for the wider Geneva center console, the FAA discovered that it limited the left lateral cyclic movement from the right seat and the right lateral cyclic movement from the left seat position. Therefore, the STC was revised to include a redesigned right and left cyclic stick. The right-side cyclic stick has been redesigned so that the neutral position of that cyclic control stick is offset 1″ to the right and the left-side cyclic control stick is offset 1″ to the left of the neutral position when compared to the original design of the helicopter. However, this redesign reduces the available lateral movement area to the right side of the right-seated pilot and the left side of the left-seated co-pilot. This may be more critical on the right side of the right-seated pilot because the cyclic grip flange is also on the right side of the cyclic stick. Therefore, during a large lateral cyclic movement to the right, the cyclic grip flange may contact the right-seated pilot's leg, thereby further limiting right cyclic movement. In helicopters with dual cyclic controls, even though it is less limiting because of the left cyclic offset, the right-sided cyclic grip flange contacting the right leg of the left-seated co-pilot may also limit right lateral cyclic movement. This reduced movement may not be noticed except during operations requiring cyclic movements near lateral limits (such as with a substantial lateral CG load, in high crosswinds, or during slope takeoffs and landings). The service bulletin specifies replacing the Eurocopter factory-installed pilot (right-side) cyclic stick and co-pilot (left-side) cyclic stick with a Geneva-manufactured right-side cyclic stick, part number (P/N) G12316–26, and left-side cyclic stick, P/N G12324–26. For cyclic sticks that have a ''Bendix'' cyclic grip without any cyclic grip flange, which has a 90-degree bend at the top of the cyclic stick, the service bulletin specifies replacing the Eurocopter factory-installed pilot and co-pilot cyclic sticks with a Geneva-manufactured right-side cyclic stick, P/N G12425–26, and left-side cyclic stick, P/N G12426–26 respectively. The service bulletin also specifies modifications of the flange at the base of the cyclic grips and the co-pilot cyclic stand (receptacle) to prevent inadvertent installation of the factory original co-pilot cyclic stick.

These helicopter models are manufactured in France and are type certificated for operation in the United States under the provisions of 14 CFR 21.29 and the applicable bilateral agreement. We have reviewed all available information and determined that AD action is necessary for products of these type designs, which have been modified in accordance with STC No. SH4747NM, that are certificated for operation in the United States.

This unsafe condition concerning the cyclic control is likely to exist or develop on other helicopters of the same type designs that have been modified in accordance with STC No. SH4747NM with the installation of a Geneva P132 console and are registered in the United States. Therefore, the proposed AD would require, within 60 days, replacing the left- and right-side cyclic control sticks; modifying the cyclic grip on both cyclic control sticks by removing a portion of the hand-support flange; and modifying the co-pilot cyclic stand (receptacle) to allow future installations of only the appropriate Geneva cyclic control sticks. The actions would be required to be done in accordance with the specified portions of the service bulletin described previously.

We estimate that this proposed AD would affect 122 helicopters of U.S. registry and the proposed actions would take approximately 14 work hours per helicopter to accomplish at an average labor rate of $65 per work hour. The Geneva cyclic sticks cost about $300 each or $600 per set. Geneva, the manufacturer of the console, has stated that it will supply left- and right-side cyclic sticks at no charge to current owners of Geneva P132 consoles, regardless of when they purchased the console. Based on these figures, we estimate the total cost impact of the proposed AD on U.S. operators to be $184,220 to do the replacements and modifications on all 122 helicopters in the fleet, or $111,020 assuming the cyclic sticks are provided at no cost to operators.

Regulatory Findings

We have determined that this proposed AD would not have federalism implications under Executive Order 13132. Additionally, this proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that the proposed regulation:

1. Is not a ''significant regulatory action'' under Executive Order 12866;

2. Is not a ''significant rule'' under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and

3. Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

We prepared a draft economic evaluation of the estimated costs to comply with this proposed AD. See the DMS to examine the draft economic evaluation.

Authority for This Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in subtitle VII, part A, subpart III, section 44701, ''General requirements.'' Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Safety.

The Proposed Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration proposes to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

PART 39—AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. Section 39.13 is amended by adding a new airworthiness directive to read as follows:

Eurocopter France: Docket No. FAA–2006–23888; Directorate Identifier 2005–SW–03–AD.

Applicability: Model AS350B, BA, B1, B2, B3, C, D, and D1 helicopters, with a Geneva Aviation, Inc. (Geneva) P132 Console installed in accordance with Supplemental Type Certificate No. SH4747NM, certificated in any category.

Compliance: Required within 60 days, unless accomplished previously.

To prevent restricting full lateral movement of the cyclic control during high lateral center of gravity (CG) load operations in high cross winds and during slope takeoffs or landings, and subsequent loss of control of the helicopter, accomplish the following:

(a) Remove the Eurocopter France installed pilot (right-side) and co-pilot (left-side) cyclic control sticks in accordance with paragraph 2.1 of the Instructions section of Geneva Aviation, Inc. Service Bulletin GA107–7, dated June 14, 2005 (SB).

(1) Install Geneva-manufactured cyclic control sticks, part number (P/N) G12316–26 (right side) and P/N G12324–26 (left side), or

(2) For installations with a ''Bendix'' cyclic grip, which has a 90-degree bend at the top of the cyclic control stick, install Geneva-manufactured cyclic control sticks, P/N G12425–26 (right side) and P/N G12426–26 (left side).

(b) If the base of the cyclic grip has a flange to help support the pilot's hand, modify both the pilot and co-pilot cyclic control grips by removing a 3/8 inch section of the flange in accordance with paragraph 2.2 of the Instructions section of the SB.

(c) Modify the co-pilot cyclic control stand (receptacle) by installing a blind rivet in accordance with paragraph 2.3 of the Instructions section of the SB.

(d) To request a different method of compliance or a different compliance time for this AD, follow the procedures in 14 CFR 39.19. Contact the Manager, Seattle Aircraft Certification Office, FAA, ATTN: Vince Massey, 1601 Lind Ave. SW., Renton, Washington 98055–4056; telephone (425) 917–6475, fax (425) 917–6590, for information about previously approved alternative methods of compliance.

Issued in Fort Worth, Texas, on February 2, 2006.

David A. Downey,

Manager, Rotorcraft Directorate, Aircraft Certification Service.

[FR Doc. E6–2759 Filed 2–27–06; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 71

[Docket No. FAA–2006–23590; Airspace Docket 06–ASO–2]

Proposed Establishment of Class D Airspace; Bay St. Louis, MS

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking.

SUMMARY: This notice proposes to establish Class D airspace at Bay St. Louis, MS. A federal contract tower with a weather reporting system is being constructed at Stennis International Airport. Therefore, the airport will meet criteria for Class D airspace. Class D surface area airspace is required when the control tower is open to contain Standard Instrument Approach Procedures (SIAPs) and other Instrument Flight Rules (IFR) operations at the airport. This action would establish Class D airspace extending upward from the surface to and including 2,500 feet MSL within a 4.2-mile radius of the airport.

DATES: Comments must be received on or before March 30, 2006.

ADDRESSES: Send comments on this proposal to the Docket Management System, U.S. Department of Transportation, Room Plaza 401, 400 Seventh Street, SW., Washington, DC 20590–0001. You must identify the docket number FAA–2006–23590 Airspace Docket No. 06–ASO–2, at the beginning of your comments. You may also submit comments on the Internet at *http://dms.dot.gov*. You may review the public docket containing the proposal, any comments received, and any final disposition in person in the Dockets Office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The Docket office (telephone 1–800–647–5527) is on the plaza level of the Department of Transportation NaSSIF Building at the above address.

An informal docket may also be examined during normal business hours at the office of the Regional Air Traffic Division, Federal Aviation Administration, Room 550, 1701 Columbia Avenue, College Park, Georgia 30337.

FOR FURTHER INFORMATION CONTACT: Mark D. Ward, Manager, Airspace and Procedures Branch, Air Traffic Division, Federal Aviation Administration, P.O. Box 20636, Atlanta, Georgia 30320; telephone (404) 305–5627.

SUPPLEMENTARY INFORMATION:

Comments Invited

Interested parties are invited to participate in this proposed rulemaking by submitting such written data, views or arguments as they may desire. Comments that provide the factual basis supporting the views and suggestions presented are particularly helpful in development reasoned regulatory decisions on the proposal. Comments are specifically invited on the overall regulatory, aeronautical, economic, environmental, and energy-related aspects of the proposal. Communications should identify both docket number and be submitted in triplicate to the address listed above. Commenters wishing the FAA to acknowledge receipt of their comments on this notice must submit with those comments a self-addressed, stamped postcard on which the following statement is made: ''Comments to Docket No. FAA–2006–23590/Airspace Docket No. 06–ASO–2.'' The postcard will be date/time stamped and returned to the commenter. All communications received before the specified closing date for comments will be considered before taking action on the proposed rule. The proposal contained in this notice may be changed in light of the comments received. A report summarizing each substantive public contact with FAA personnel concerned with this rulemaking will be filed in the docket.

Availability of NPRMs

An electronic copy of this document may be downloaded through the Internet at *http://dms.dot.gov.* Recently published rulemaking documents can also be accessed through the FAA's web page at *http://www.faa.gov* or the Superintendent of Document's Web page at *http://www.access.gpo.gov/nara.* Additionally, any person may obtain a copy of this notice by submitting a request to the Federal Aviation Administration, Office of Air Traffic Airspace Management, ATA–400, 800 Independence Avenue, SW., Washington, DC 20591, or by calling (202) 267–8783. Communications must identify both docket numbers for this notice. Persons interested in being placed on a mailing list for future

NPRM's should contact the FAA's Office of Rulemaking, (202) 267–9677, to request a copy of Advisory Circular No. 11–2A, Notice of Proposed Rulemaking Distribution System, which describes the application procedure.

The Proposal

The FAA is considering an amendment to part 71 of the Federal Aviation Regulations (14 CFR part 71) to establish Class D airspace at Bay St. Louis, MS. Class D airspace designations for airspace areas extending upward from the surface of the earth are published in Paragraph 5000 of FAA Order 7400.9N, dated September 1, 2005, and effective September 16, 2005, which is incorporated by reference in 14 CFR 71.1. The Class D airspace designations listed in this document would be published subsequently in the Order.

The FAA has determined that this proposed regulation only involves an established body of technical regulations for which frequent and routine amendments are necessary to keep them operationally current. It, therefore, (1) is not a ''significant regulatory action'' under Executive Order 12866; (2) is not a ''significant rule'' under DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979); and (3) does not warrant preparation of a Regulatory Evaluation as the anticipated impact is so minimal. Since this is a routine matter that will only affect air traffic procedures and air navigation, it is certified that this rule, when promulgated, will not have a significant economic impact on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR part 71

Airspace, Incorporation by reference, Navigation (air).

The Proposed Amendment

In consideration of the foregoing, the Federal Aviation Administration proposes to amend 14 CFR part 71 as follows:

PART 71—DESIGNATION OF CLASS A, CLASS B, CLASS C, CLASS D, AND CLASS E AIRSPACE AREAS; AIRWAYS; ROUTES; AND REPORTING POINTS

1. The authority citation for part 71 continues to read as follows:

Authority: 49 U.S.C. 106(g); 40103, 40113, 40120; E.O. 10854, 24 FR 9565, 3 CFR 1959–1963 Comp., p. 389.

§ 71.1 [Amended]

2. The incorporation by reference in 14 CFR 71.1 of Federal Aviation Administration Order 7400.9N, Airspace Designations and Reporting Points, dated September 1, 2005, and effective September 16, 2005, is amended as follows:

Paragraph 5000 Class D Airspace

* * * * *

ASO MS D Bay St. Louis, MS [NEW]

Stennis International Airport, MS
(Lat. 30°22′04″ N, long. 89°27′17″ W)

That airspace extending upward from the surface to and including 2,500 feet MLSL within a 4.2-mile radius of the Stennis International Airport. This Class D airspace area is effective during the specific days and times established in advance by a Notice to Airmen. The effective days and times will thereafter be continuously published in the Airport/Facility Directory.

* * * * *

Issued in College Park, Georgia, on February 10, 2006.

Mark D. Ward,

Acting Area Director, Air Traffic Division, Southern Region.

[FR Doc. 06–1811 Filed 2–27–06; 8:45 am]

BILLING CODE 4910–13–M

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 71

[Docket No. FAA–2006–23866; Airspace Docket No. 06–ASO–3]

Proposed Establishment of Class D and Class E Airspace; Proposed Amendment of Class E Airspace; Leesburg, FL

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking.

SUMMARY: This notice proposes to establish Class D and Class E4 airspace and amend Class E5 airspace at Leesburg, FL. A Federal contract lower with a weather reporting system is being constructed at the Leesburg Regional Airport. Therefore, the airport will meet the criteria for establishment of Class D and Class E4 airspace. Class D surface area airspace and Class E4 airspace designated as an extension to Class D airspace is required when the control tower is open to contain existing Class D airspace is required when the control tower is open to contain existing Standard Instrument Approach Procedures (SIAPs) and other Instrument Flight Rules (IFR) operations at the airport. This action would establish Class D airspace extending upward from the surface to but not including 1,600 feet MSL within a 4.1-mile radius of the Leesburg Regional Airport and a Class E4 airspace extension that is 4.8 miles wide and extends 7 miles southeast of the airport. A regional evaluation has determined the existing Class E5 airspace area should be amended to contain the Nondirectional Radio Beacon (NDB) Runway (RWY) 31 SIAP. As a result, controlled airspace extending upward from 700 feet Above Ground Level (AGL) needed to contain the SIAP will decrease from a 7-mile radius of the airport to a 6.6-mile radius of the airport and provide for the procedure turn area. Additionally, a technical amendment is required as a result of a name change from the Leesburg Municipal Airport to the Leesburg Regional Airport, which was effective August 25, 1997.

DATES: Comments must be received on or before March 30, 2006.

ADDRESSES: Send comments on this proposal to the Docket Management System, U.S. Department of Transportation, Room Plaza 401, 400 Seventh Street, SW., Washington, DC 20590–0001. You must identify the docket number FAA–2006–23866/ Airspace Docket No. 06–ASO–3, at the beginning of your comments. You may also submit comments on the Internet at *http://dms.dot.gov*. You may review the public docket containing the proposal, any comments received, and any final disposition in person in the Dockets Office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The Docket office (telephone 1–800–647–5527) is on the plaza level of the Department of Transportation NaSSIF Building at the above address.

An informal docket may also be examined during normal business hours at the office of the Regional Air Traffic Division, Federal Aviation Administration, Room 550, 1701 Columbia Avenue, College Park, Georgia 30337.

FOR FURTHER INFORMATION CONTACT: Walter R. Cochran, Manager, Airspace Branch, Air Traffic Division, Federal Aviation Administration, P.O. Box 20636, Atlanta, Georgia 30320; telephone (404) 305–5586.

SUPPLEMENTARY INFORMATION:

Comments Invited

Interested parties are invited to participate in this proposed rulemaking by submitting such written data, views or arguments as they may desire. Comments that provide the factual basis supporting the views and suggestions

presented are particularly helpful in developing reasoned regulatory decisions on the proposal. Comments are specifically invited on the overall regulatory, aeronautical, economic, environmental, and energy-related aspects of the proposal. Communications should identify both docket numbers and be submitted in triplicate to the address listed above. Commenters wishing the FAA to acknowledge receipt of their comments on this notice must submit with those comments a self-addressed, stamped postcard on which the following statement is made: ''Comments to Docket No. FAA–2006–23866/Airspace Docket No. 06–ASO–3.'' The postcard will be date/time stamped and returned to the commenter. All communications received before the specified closing date for comments will be considered before taking action on the proposed rule. The proposal contained in this notice may be changed in light of the comments received. A report summarizing each substantive public contact with FAA personnel concerned with this rulemaking will be filed in the docket.

Availability of NPRMs

An electronic copy of this document may be downloaded through the Internet at *http://dms.dot.gov.* Recently published rulemaking documents can also be accessed through the FAA's Web page at *http://www.faa.gov* or the Superintendent of Document's Web page at *http://www.access.gpo.gov/nara.* Additionally, any person may obtain a copy of this notice by submitting a request to the Federal Aviation Administration, Office of Air Traffic Airspace Management, ATA–400, 800 Independence Avenue, SW., Washington, DC 20591, or by calling (202) 267–8783. Communications must identify both docket numbers for this notice. Persons interested in being placed on a mailing list for future NPRM's should contact the FAA's Office of Rulemaking, (202) 267–9677, to request a copy of Advisory Circular No. 11–2A, Notice of Proposed Rulemaking Distribution System, which describes the application procedure.

The Proposal

The FAA is considering an amendment to part 71 of the Federal Aviation Regulations (14 CFR part 71) to establish Class D airspace and Class E4 airspace and amend Class E5 airspace at Leesburg, FL. Class D airspace designations for airspace areas extending upward from the surface of the earth, Class E airspace designations for airspace areas designated as an extension to a Class D airspace area and Class E airspace designations for airspace areas extending upward from 700 feet or more above the surface of the earth are published in Paragraphs 5000, 6004 and 6005 respectively, of FAA Order 7400.9N, dated September 1, 2005, and effective September 16, 2005, which is incorporated by reference in 14 CFR 71.1. The Class D and Class E airspace designations listed in this document would be published subsequently in the Order.

The FAA has determined that this proposed regulation only involves an established body of technical regulations for which frequent and routine amendments are necessary to keep them operationally current. It, therefore, (1) is not a ''significant regulatory action'' under Executive Order 12866; (2) is not a ''significant rule'' under DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979); and (3) does not warrant preparation of a Regulatory Evaluation as the anticipated impact is so minimal. Since this is a routine matter that will only affect air traffic procedures and air navigation, it is certified that this rule, when promulgated, will not have a significant economic impact on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 71

Airspace, Incorporation by reference, Navigation (air).

The Proposed Amendment

In consideration of the foregoing, the Federal Aviation Administration proposes to amend 14 CFR part 71 as follows:

PART 71—DESIGNATION OF CLASS A, CLASS B, CLASS C, CLASS D, AND CLASS E AIRSPACE AREAS; AIRWAYS; ROUTES; AND REPORTING POINTS

1. The authority citation for part 71 continues to read as follows:

Authority: 49 U.S.C. 106(g); 40103, 40113, 40120; E.O. 10854, 24 FR 9565, 3 CFR, 1959–1963 Comp., p. 389.

§ 71.1 [Amended]

2. The incorporation by reference in 14 CFR 71.1 of Federal Aviation Administration Order 7400.9N, Airspace Designations and Reporting Points, dated September 1, 2005, and effective September 16, 2005, is amended as follows:

Paragraph 5000 Class D Airspace

* * * * *

ASO FL D Leesburg, FL [NEW]

Leesburg Regional Airport, FL
(Lat. 28°49′22″ N, long. 81°48′32″ W)

That airspace extending upward from the surface to but not including 1,600 feet MSL within a 4.1-mile radius of Leesburg Regional Airport. This Class D airspace area is effective during the specific days and times established in advance by a Notice to Airmen. The effective days and times will thereafter be continuously published in the airport/Facility Directory.

* * * * *

Paragraph 6004 Class E4 Airspace Areas Designated as an Extension to a Class D Airspace Area

* * * * *

ASO FL E4 Leesburg, FL [NEW]

Leesburg Regional Airport, FL
(Lat. 28°49′22″ N, long. 81°48′32″ W)
Leesburg NDB
(Lat. 28°49′06″ N, long. 81°48′26″ W)

The airspace extending upward from the surface within 2.4 miles each side of the Leesburg NDB 111° bearing, extending from the 4.1-mile radius to 7 miles southeast of the NDB. This Class E4 airspace area is effective during the specific days and times established in advance by a Notice to Airmen. The effective days and times will thereafter be continuously published in the Airport/Facility Directory.

* * * * *

Paragraph 6005 Class E Airspace Areas Extending Upward from 700 feet or More Above the Surface of the Earth

* * * * *

ASO FL E5 Leesburg, FL [REVISED]

Leesburg Regional Airport, FL
(Lat. 28°49′22″ N, long. 81°48′32″ W)
Leesburg NDB
(Lat. 28°49′06″ N, long. 81°48′26″ W)

That airspace extending upward from 700 feet above the surface within a 6.6-mile radius of Leesburg Regional Airport, and within 4 miles southwest and 8 miles northeast of the 111° bearing from the Leesburg NDB extending from the 6.6-mile radius to 16 miles southeast of the airport.

* * * * *

Issued in College Park, Georgia, on February 10, 2006.

Mark D. Ward,

Acting Area Director, Air Traffic Division, Southern Region.

[FR Doc. 06–1812 Filed 2–27–06; 8:45 am]

BILLING CODE 4910–13–M

DEPARTMENT OF HOMELAND SECURITY

Coast Guard

33 CFR Part 165

[CGD17–05–002]

RIN 1625–AA87

Security Zone; High Capacity Passenger Vessels and Alaska Marine Highway System Vessels in Alaska

AGENCY: Coast Guard, DHS.

ACTION: Second supplemental notice of proposed rulemaking; request for comments.

SUMMARY: The Coast Guard is revising its first supplemental notice of proposed rule rulemaking published October 31, 2005, establishing permanent moving security zones around all escorted High Capacity Passenger Vessels (''HCPV'') and escorted Alaska Marine Highway System Vessels (''AMHS vessels'') during their transit in the navigable waters of the Seventeenth Coast Guard District to exempt from the provisions of this rule all commercial fishing vessels, as defined by applicable United States Code, only while actively engaged in fishing.

DATES: Comments and related material must reach the Coast Guard on or before March 30, 2006.

ADDRESSES: Documents indicated in this preamble as being available in the docket are part of docket CGD17–05–002 and are available for inspection or copying at United States Coast Guard, District 17 (dpi), 709 West 9th Street, Juneau, AK 99801 between 8 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: LT Matthew York, District 17 (dpi), 709 West 9th Street, Juneau, AK 99801, (907) 463–2821.

SUPPLEMENTARY INFORMATION:

Regulatory Information

We published a notice of proposed rulemaking (NPRM) entitled ''Regulated Navigation Area and Security Zones; High Capacity Passenger Vessels in Alaska'' in the **Federal Register** (70 FR 11595, March 9, 2005), docket number CGD17–05–002. That NPRM included provisions for a 250-yard speed restriction zone, a 25-yard security zone around moored and anchored vessels, and a waiver request process.

Additionally, we published a Supplemental Notice of Proposed Rulemaking (SNPRM) entitled ''Security Zone; High Capacity Passenger Vessels and Alaska Marine Highway System Vessels in Alaska'' in the **Federal Register** (70 FR 62261, October 31, 2005), docket number CGD17–05–002 which removed those three provisions from the proposed rule. The revised proposed security zones are limited to High Capacity Passenger Vessels (HCPV) and Alaska Marine Highway System Vessels (AMHS) vessels during transit in the waters of the Seventeenth Coast Guard District. These security zones will only apply to HCPV and AMHS vessels transiting under an escort as defined in the SNPRM. These permanent security zones have been carefully designed to minimally impact the public while providing protections for HCPV and AMHS vessels.

This Second Supplemental Notice of Proposed Rulemaking (SSNPRM) exempts all commercial fishing vessels, as defined by 46 U.S.C. 2101(11a), only while actively engaged in fishing.

Requests for Comments

The Coast Guard encourages interested persons to participate in this rulemaking by submitting written data, views, or arguments. Persons submitting comments should include their name and addresses, identifying this rulemaking (CGD17–05–002) and the specific section of this document to which each comment applies, and give the reason for each comment. Please submit all comments and attachments in an unbound format, no larger than 8½ by 11 inches, suitable for copying and electronic filing. Persons wanting acknowledgment of receipt of comment should enclose a stamped, self-addressed postcard or envelope.

Comments on this supplemental NPRM must reach the Coast Guard on or before March 30, 2006. The Coast Guard will consider all comments received during the comment period and may change this proposed rule in view of the comments.

The Coast Guard has not scheduled a public hearing at this time. You may request a public hearing by writing to the Seventeenth Coast Guard District at the address under **ADDRESSES.** The request should include the reasons why a hearing would be beneficial to the rulemaking. If it is determined that an opportunity for oral presentation will aid this rulemaking, the Coast Guard will schedule a public hearing at a time and place announced in a separate notice published in the **Federal Register**.

Background and Purpose

Due to increased awareness that future terrorist attacks are possible, the Coast Guard, as Lead Federal Agency for Maritime Homeland Security, has determined that the District Commander and the Captain of the Port must have the means to be aware of, detect, deter, intercept, and respond to threats, acts of aggression, and attacks by terrorists on the American homeland while maintaining our freedoms and sustaining the flow of commerce. Terrorists have demonstrated both desire and ability to utilize multiple means in different geographic areas to successfully carry out their terrorist missions, highlighted by the recent subway bombings in London.

During the past 3 years, the Federal Bureau of Investigation has issued several advisories to the public concerning the potential for terrorist attacks within the United States. The October 2002 attack on a tank vessel, M/V LIMBURG, off the coast of Yemen and the prior attack on the USS COLE demonstrate a continuing threat to U.S. maritime assets as described in the President's finding in Executive Order 13273 of August 21, 2002 (67 FR 56215, September 3, 2002) and Continuation of the National Emergency with Respect to Certain Terrorist Attacks, (67 FR 58317, September 13, 2002); and Continuation of the National Emergency With Respect To Persons Who Commit, Threaten To Commit, Or Support Terrorism, (67 FR 59447, September 20, 2002). Furthermore, the ongoing hostilities in Afghanistan and Iraq have made it prudent for U.S. port and waterway users to be on a higher state of alert because the Al Qaeda organization and other similar organizations have declared an ongoing intention to conduct armed attacks on U.S. interests worldwide.

In addition to escorting vessels, the Coast Guard has determined the need for additional security measures during their transit. A security zone is a tool available to the Coast Guard that may be used to control maritime traffic operating in the vicinity of these vessels. The District Commander has made a determination that it is necessary to establish a security zone around HCPV and AMHS vessels that are escorted to safeguard people, vessels and maritime traffic.

Discussion of Comments and Changes

For the supplemental notice of proposed rulemaking dated 31 October 2005, the Coast Guard received 2 documents containing comments to the proposed rule. Both documents were from parties representing the commercial fishing vessel trolling fleet. Their comments requested that commercial fishing vessels, while engaged in trolling, be exempt from the

rule because they also claim to have restricted maneuverability as any other 'vessel engaged in fishing' as defined by the Convention on the International Regulations for Preventing Collisions at Sea, 1972 (72COLREGS), Rule 3. Our responses to these comments are discussed in the following paragraphs.

The Coast Guard does not agree that all vessels engaged in trolling are necessarily restricted in their ability to maneuver so as to avoid collision as required under Rule 8 of the COLREGS. However, after careful consideration and research, the Coast Guard does accept the notion that a vessel engaged in commercial trolling does not pose any greater security risk than any other commercial fishing vessel engaged in fishing. Therefore, the Coast Guard has redefined the rule to exempt 'all commercial fishing vessels' as defined by 46 U.S.C. 2101(11a) while actively engaged in fishing. This includes any vessel that commercially engages in the catching, taking or harvesting of fish or an activity that can reasonably be expected to result in the catching, taking or harvesting of fish. Therefore, all commercial fishing vessels while actively engaged in fishing within the meaning of 46 U.S.C. 2101(11a) are exempted from the provisions of this rule.

One commenter expressed fear that the 25-yard moored and 100-yard in-transit restriction would be more harmful to the fishing industry than preventing someone from actually causing harm to a HCPV. We believe these concerns were raised and adequately addressed in the Small Entities section of the SNPRM (70 FR 62263 (October 31, 2005)) where we certified under 5 U.S.C. 605(b) that this rule would not have a significant economic impact on a substantial number of small entities, and in the Discussion of Comments and Changes section of the SNPRM (70 FR 62262 (October 31, 2005)) where we disagreed based upon clear policy guidance designed to prepare Coast Guard members on how to react appropriately when confronted with a use of force situation. We do not believe there is a need to be more prescriptive in this area.

Additionally, this commenter expressed concern on the practicality of knowing when the security zone would actually goes into effect. We believe this concern was raised and adequately addressed in the Discussion of Comments and Changes section of the SNPRM (70 FR 62262 (October 31, 2005)) where we described the security zone going into effect only when there is a Coast Guard asset on-scene, and in the Regulatory Text of the SNPRM (70 FR 62264 (October 31, 2005)) where we described that the local Captain of the Port may notify the maritime and general public by marine information broadcast of the periods during which individual security zones have been activated. We do not believe there is a need to be more prescriptive in this area.

Finally, the commenter requested clarification regarding vessel speeds, what is necessary in order gain permission to enter the security zone, and regulation enforcement and penalties. We believe these concerns were raised and adequately addressed in the Discussion of Comments and Changes section of the SNPRM (70 FR 62262 (October 31, 2005)) where we described that speed and course adjustments must be made early enough to allow for sufficient sea room for the safe passage of the HCPV or AMHS vessels. We also addressed this issue in the Discussion of Proposed Rule section of the SNPRM (70 FR 62263 (October 31, 2005)) where we described that persons desiring to transit within 100 yards of an escorted HCPV or AHMS vessel must first contact the designated on-scene representative on VHF channel 16 or 13 and obtain permission. Finally, in the Discussion of Comments and Changes section of the SNPRM (70 FR 62262–62263 (October 31, 2005)), we described the possibility of the Coast Guard seeking both criminal penalties, civil penalties, or both against violators of the HCPV and AMHC security zones. The specific penalties are in 33 CFR part 6, 33 U.S.C. 1221 et seq., and 50 U.S.C 191 et seq. We do not believe there is a need to be more prescriptive in this area.

Discussion of Proposed Rule

The Coast Guard is revising its first supplemental notice of proposed rule rulemaking exempt from the provisions of this rule all commercial fishing vessels, as defined by applicable United States Code, only while actively engaged in fishing. This proposed rule would establish permanent 100-yard security zones around HCPV and AMHS vessels that are being escorted by a Coast Guard surface, air, or by other state or Federal law enforcement agency designated by the Captain of the Port (COTP) during their transit through the Seventeenth Coast Guard District. Persons desiring to transit within 100 yards of an escorted HCPV or AHMS vessel in the Seventeenth Coast Guard District must contact the designated on scene representative on VHF channel 16 (156.800 MHz) or VHF channel 13 (156.650 MHz) and obtain permission to transit within 100 yards of the escorted HCPV or AMHS vessels. The boundaries of the Seventeenth Coast Guard District are defined in 33 CFR 3.85–1(b). This includes territorial waters 12 nautical miles from the territorial sea baseline as defined in 33 CFR part 2 subpart B.

Stationary vessels that are moored or anchored must remain moored or anchored when an escorted HCPV or AMHS vessel approaches within 100 yards of the stationary vessel unless the designated on scene representative has granted approval for the stationary vessel to do otherwise.

Regulatory Evaluation

Although one public comment stated that this action constitutes a significant regulatory action, the Coast Guard disagrees based on the relatively small size of the limited access area around each ship and the minimal amount of time that vessels will be restricted when the zone is being enforced. In addition, vessels that may need to enter the zones may request permission on a case-by-case basis from the on scene designated representatives. This proposed rule is not a ''significant regulatory action'' under section 3(f) of Executive Order 12866, Regulatory Planning and Review, and does not require an assessment of potential costs and benefits under section 6(a)(3) of that Order. The Office of Management and Budget has not reviewed it under that Order. It is not ''significant'' under the regulatory policies and procedures of the Department of Homeland Security (DHS).

We expect the economic impact of this proposed rule to be so minimal that a full Regulatory Evaluation under the regulatory policies and procedures of DHS is unnecessary.

Small Entities

Under the Regulatory Flexibility Act (5 U.S.C. 601–612), we have considered whether this proposed rule would have a significant economic impact on a substantial number of small entities. The term ''small entities'' comprises small businesses, not-for-profit organizations that are independently owned and operated and are not dominant in their fields, and governmental jurisdictions with populations of less than 50,000.

Therefore, the Coast Guard certifies under 5 U.S.C. 605(b) that this proposed rule, if adopted, will not have a significant economic impact on a substantial number of small entities. This permanent security zone only applies to HCPV and AMHS vessels that are transiting with an escort. It does not apply when the vessels are moored or

anchored. Furthermore, vessels desiring to enter the security zone may contact the designated on scene representative and request permission to enter the zone.

Assistance for Small Entities

Under section 213(a) of the Small Business Regulatory Enforcement Fairness Act of 1996 (Public Law 104–121), we offered to assist small entities in understanding this proposed rule so that they could better evaluate its effects on them and participate in the rulemaking process. If the proposed rule would affect your small business, organization, or governmental jurisdiction and you have questions concerning its provisions or options for compliance, please contact LT Matthew York, District 17 (dpi), 709 West 9th St, Room 753, Juneau, Alaska 99801. The Coast Guard will not retaliate against small entities that question or complain about this rule or any policy or action of the Coast Guard.

Collection of Information

This proposed rule calls for no new collection of information under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501–3520).

Federalism

A rule has implications for federalism under Executive Order 13132, Federalism, if it has a substantial direct effect on State or local governments and would either preempt State law or impose a substantial direct cost of compliance on them. We have analyzed this proposed rule under that Order and have determined that it does not have implications for federalism.

Unfunded Mandates Reform Act

The Unfunded Mandates Reform Act of 1995 (2 U.S.C. 1531–1538) requires Federal agencies to assess the effects of their discretionary regulatory actions. In particular, the Act addresses actions that may result in the expenditure by a State, local, or tribal government, in the aggregate, or by the private sector of $100,000,000 or more in any one year. Though this proposed rule would not result in such expenditure, we do discuss the effects of this proposed rule elsewhere in this preamble.

Taking of Private Property

This proposed rule does not affect a taking of private property or otherwise have taking implications under Executive Order 12630, Governmental Actions and Interference with Constitutionally Protected Property Rights.

Civil Justice Reform

This proposed rule meets applicable standards in sections 3(a) and 3(b)(2) of Executive Order 12988, Civil Justice Reform, to minimize litigation, eliminate ambiguity, and reduce burden.

Protection of Children

We have analyzed this proposed rule under Executive Order 13045, Protection of Children From Environmental Health Risks and Safety Risks. This proposed rule is not an economically significant rule and does not create an environmental risk to health or risk to safety that might disproportionately affect children.

Indian Tribal Governments

This proposed rule does not have tribal implications under Executive Order 13175, Consultation and Coordination with Indian Tribal Governments, because it would not have a substantial direct effect on one or more Indian tribes, on the relationship between the Federal government and Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes.

Energy Effects

We have analyzed this proposed rule under Executive Order 13211, Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use. We have determined that it is not a ''significant energy action'' under that order because it is not a ''significant regulatory action'' under Executive Order 12866 and is not likely to have a significant adverse effect on the supply, distribution, or use of energy. The Administrator of the Office of Information and Regulatory Affairs has not designated it as a significant energy action. Therefore, it does not require a Statement of Energy Effects under Executive Order 13211.

Technical Standards

The National Technology Transfer and Advancement Act (NTTAA) (15 U.S.C. 272 note) directs agencies to use voluntary consensus standards in their regulatory activities unless the agency provides Congress, through the Office of Management and Budget, with an explanation of why using these standards would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (*e.g.*, specifications of materials, performance, design, or operation; test methods; sampling procedures; and related management systems practices) that are developed or adopted by voluntary consensus standards bodies.

This proposed rule does not use technical standards. Therefore, we did not consider the use of voluntary consensus standards.

Environment

We have analyzed this proposed rule under Commandant Instruction M16475.lD, which guides the Coast Guard in complying with the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321–4370f), and have concluded that there are no factors in this case that would limit the use of a categorical exclusion under section 2.B.2 of the Instruction. Therefore, this rule is categorically excluded, under figure 2–1, paragraph (34)(g), of the Instruction, from further environmental documentation. Under figure 2–1, paragraph (34)(g) of the Instruction, an ''Environmental Analysis Check List'' and a ''Categorical Exclusion Determination'' are not required for this rule.

List of Subjects in 33 CFR Part 165

Harbors, Marine safety, Navigation (water), Reporting and recordkeeping requirements, Security measures, Waterways.

For the reasons discussed in the preamble, the Coast Guard proposes to amend 33 CFR part 165 as follows:

PART 165—REGULATED NAVIGATION AREAS AND LIMITED ACCESS AREAS

1. The authority citation for part 165 continues to read as follows:

Authority: 33 U.S.C. 1226, 1231; 46 U.S.C. Chapter 701; 50 U.S.C. 191, 195; 33 CFR 1.05–1(g), 6.04–1, 6.04–6, and 160.5; Pub. L. 107–295, 116 Stat. 2064; Department of Homeland Security Delegation No. 0170.1.

2. Add § 165.1711 to read as follows:

§ 165.1711 Security Zones; Waters of the Seventeenth Coast Guard District

(a) *Definitions.* As used in this section—

(1) *High Capacity Passenger Vessel (''HCPV'')* means a passenger vessel greater than 100 feet in length that is authorized to carry more than 500 passengers for hire.

(2) *Alaska Marine Highway System vessel (''AMHS vessel'')* means any vessel owned or operated by the Alaska Marine Highway System, including, but not limited to: M/V AURORA, M/V CHENEGA, M/V COLUMBIA, M/V FAIRWEATHER, M/V KENNICOTT, M/V LECONTE, M/V LITUYA, M/V MALASPINA, M/V MATANUSKA, M/V TAKU, and the M/V TUSTUMENA.

(3) *Designated on Scene Representative* means any U.S. Coast

Guard commissioned, warrant or petty officer who has been authorized by the District Commander or local Captain of the Port (COTP), as defined in 33 CFR part 3, subpart 3.85, to act on his or her behalf, or other Federal, State or local law enforcement Officers designated by the COTP.

(4) *Escorted HCPV or AMHS vessel* means a HCPV or AMHS vessel that is accompanied by one or more Coast Guard assets or Federal, State or local law enforcement agency assets as listed below:

(i) Coast Guard surface or air asset displaying the Coast Guard insignia.

(ii) State, Federal or local law enforcement assets displaying the applicable agency markings and or equipment associated with the agency.

(5) *State Law Enforcement Officer* means any State or local government law enforcement officer who has authority to enforce State or local criminal laws.

(6) *Federal Law Enforcement Officer* means any Federal government law enforcement officer who has authority to enforce Federal criminal laws.

(b) *Location.* The following areas are security zones: all waters within 100 yards around escorted High Capacity Passenger Vessels or escorted Alaska Marine Highway System vessels in the navigable waters of the Seventeenth Coast Guard District as defined in 33 CFR 3.85–1, from surface to bottom.

(c) *Regulations.* (1) No vessel may approach within 100 yards of an escorted HCPV or escorted AMHS vessel during their transits within the navigable waters of the Seventeenth Coast Guard District.

(2) Moored or anchored vessels that are overtaken by this moving zone must remain stationary at their location until the escorted vessel maneuvers at least 100 yards away.

(3) The local Captain of the Port may notify the maritime and general public by marine information broadcast of the periods during which individual security zones have been activated by providing notice in accordance with 33 CFR 165.7.

(4) Persons desiring to transit within 100 yards of a moving, escorted HCPV or AMHS vessel in the Seventeenth Coast Guard District must contact the designated on scene representative on VHF channel 16 (156.800 MHz) or VHF channel 13 (156.650 MHz) to receive permission.

(5) If permission is granted to transit within 100 yards of an escorted HCPV or AMHS vessel, all persons and vessels must comply with the instructions of the designated on scene representative.

(6) All commercial fishing vessels as defined by 46 U.S.C. 2101(11a) while actively engaged in fishing are exempted from the provisions of this rule.

Dated: February 10, 2006.

James C. Olson,

Rear Admiral, U.S. Coast Guard, Commander, Seventeenth Coast Guard District.

[FR Doc. E6–2614 Filed 2–27–06; 8:45 am]

BILLING CODE 4910–15–P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA–R07–OAR–2006–0086; FRL–8037–8]

Approval and Promulgation of Implementation Plans; State of Iowa

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: EPA proposes to approve the State Implementation Plan (SIP) revision submitted by the state of Iowa for the purpose of establishing exemptions for indoor sources of air pollution that are not directly vented to the outside but have emissions that leave the building through doors, vents or other means. This revision also clarifies that the permitting exemptions do not relieve the owner or operator of any source from any obligation to comply with any other applicable requirements. The state has determined that air pollution emissions from this equipment are negligible and these exemptions are likely to result in no significant impact on human health or the environment.

DATES: Comments on this proposed action must be received in writing by March 30, 2006.

ADDRESSES: Submit your comments, identified by Docket ID No. EPA–R07–OAR–2006–0086 by one of the following methods:

1. *http://www.regulations.gov:* Follow the on-line instructions for submitting comments.

2. E-mail: *Hamilton.heather@epa.gov.*

3. Mail: Heather Hamilton, Environmental Protection Agency, Air Planning and Development Branch, 901 North 5th Street, Kansas City, Kansas 66101.

4. Hand Delivery or Courier. Deliver your comments to: Heather Hamilton, Environmental Protection Agency, Air Planning and Development Branch, 901 North 5th Street, Kansas City, Kansas 66101. Such deliveries are only accepted during the Regional Office's normal hours of operation. The Regional Office's official hours of business are Monday through Friday, 8 to 4:30, excluding legal holidays.

Please see the direct final rule that is located in the Rules section of this **Federal Register** for detailed instructions on how to submit comments.

FOR FURTHER INFORMATION CONTACT: Heather Hamilton at (913) 551–7039, or by e-mail at *Hamilton.heather@epa.gov.*

SUPPLEMENTARY INFORMATION: In the final rules section of the **Federal Register**, EPA is approving the state's SIP revision as a direct final rule without prior proposal because the Agency views this as a noncontroversial revision amendment and anticipates no relevant adverse comments to this action. A detailed rationale for the approval is set forth in the direct final rule. If no relevant adverse comments are received in response to this action, no further activity is contemplated in relation to this action. If EPA receives relevant adverse comments, the direct final rule will be withdrawn and all public comments received will be addressed in a subsequent final rule based on this proposed action. EPA will not institute a second comment period on this action. Any parties interested in commenting on this action should do so at this time. Please note that if EPA receives adverse comment on part of this rule and if that part can be severed from the remainder of the rule, EPA may adopt as final those parts of the rule that are not the subject of an adverse comment. For additional information, see the direct final rule that is located in the rules section of this **Federal Register**.

Dated: February 17, 2006.

James B. Gulliford,

Regional Administrator, Region 7.

[FR Doc. 06–1787 Filed 2–27–06; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 52 and 81

[EPA–R09–OAR–2005–AZ–0008; FRL–8022–6]

Approval and Promulgation of Implementation Plans and Designation of Areas for Air Quality Planning Purposes; Arizona

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: EPA is proposing to approve the maintenance plan for the Douglas area in Cochise County, Arizona and grant the request submitted by the State to redesignate this area from nonattainment to attainment for the National Ambient Air Quality Standards for sulfur dioxide (SO_2).

DATES: Any comments on this proposal must be received by March 30, 2006.

ADDRESSES: Submit comments, identified by docket number EPA–R09–OAR–2005–150, by one of the following methods:

1. *Agency Web site: http://www.regulations.gov.* EPA prefers receiving comments through this electronic public docket and comment system. Follow the on-line instructions to submit comments.
2. *Federal eRulemaking Portal: http://www.regulations.gov.* Follow the on-line instructions.
3. *E-mail: tax.wienke@epa.gov.*
4. *Mail or deliver:* Wienke Tax, Office of Air Planning (AIR–2), U.S. Environmental Protection Agency, Region 9, 75 Hawthorne Street, San Francisco, CA 94105–3901.

Instructions: All comments will be included in the public docket without change and may be made available online at *http://www.regulations.gov* including any personal information provided, unless the comment includes Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Information that you consider CBI or otherwise protected should be clearly identified as such and should not be submitted through the agency Web site, eRulemaking portal, or e-mail. The agency Web site and eRulemaking portal are ''anonymous access'' systems, and EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send e-mail directly to EPA, your e-mail address will be automatically captured and included as part of the public comment. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment.

Docket: The index to the docket for this action is available electronically at *http://www.regulations.gov* and in hard copy at EPA Region IX, 75 Hawthorne Street, San Francisco, CA. While all documents in the docket are listed in the index, some information may be publicly available only at the hard copy location (e.g., copyrighted material), and some may not be publicly available in either location (e.g., CBI). To inspect the hard copy materials, please schedule an appointment during normal business hours with the contact listed in the **FOR FURTHER INFORMATION CONTACT** section.

FOR FURTHER INFORMATION CONTACT: Wienke Tax, Air Planning Office (AIR–2), Air Division, U.S. EPA, Region 9, (520) 622–1622. E-mail: *tax.wienke@epa.gov.*

SUPPLEMENTARY INFORMATION: In the Rules and Regulations section of this **Federal Register**, we are taking direct final action to approve the maintenance plan for the Douglas SO_2 nonattainment area. We are also approving the State of Arizona's request to redesignate the Douglas area from nonattainment to attainment for the primary SO_2 NAAQS. We are taking these actions without prior proposal because we believe that the revision and request are not controversial. If we receive adverse comments, however, we will publish a timely withdrawal of the direct final rule and address the comments in subsequent action based on this proposed rule. We do not plan to open a second comment period, so anyone interested in commenting should do so at this time. If we do not receive adverse comments, no further activity is planned. For further information, please see the direct final action.

Dated: December 27, 2005.

Jane Diamond,

Acting Regional Administrator, Region IX.

[FR Doc. 06–1851 Filed 2–27–06; 8:45 am]

BILLING CODE 6560–50–P

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; 90-Day Finding on a Petition To List the Black Hills Mountainsnail as Threatened or Endangered

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of 90-day petition finding.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), announce a 90-day finding on a petition to list the Black Hills mountainsnail (*Oreohelix cooperi*) as threatened or endangered under the Endangered Species Act of 1973, as amended (ESA). We find the petition does not provide substantial scientific information indicating that listing the Black Hills mountainsnail may be warranted. Therefore, we will not be initiating a further status review in response to this petition. We ask the public to submit to us any new information that becomes available concerning the status of the species or threats to it.

DATES: The finding announced in this document was made February 21, 2006. You may submit new information concerning this species for our consideration at any time.

ADDRESSES: The complete file for this finding is available for public inspection, by appointment, during normal business hours at the South Dakota Ecological Services Field Office, U.S. Fish and Wildlife Service, 420 South Garfield Avenue, Suite 400, Pierre, South Dakota 57501. Submit new information, materials, comments, or questions concerning this species to us at the above address.

FOR FURTHER INFORMATION CONTACT: Field Supervisor, South Dakota Ecological Services Field Office (see **ADDRESSES**) (telephone 605–224–8693; facsimile 605–224–9974).

SUPPLEMENTARY INFORMATION:

Background

Section 4(b)(3)(A) of the ESA (16 U.S.C. 1531 *et seq.*), requires that we make a finding on whether a petition to list, delist, or reclassify a species presents substantial scientific or commercial information to indicate that the petitioned action may be warranted. We are to base this finding on scientific information provided in the petition and information readily available in our files. To the maximum extent practicable, we are to make this finding within 90 days of our receipt of the petition, and publish our notice of this finding promptly in the **Federal Register**.

Our standard for substantial scientific information within the Code of Federal Regulations (CFR) with regard to a 90-day petition finding is ''that amount of information that would lead a reasonable person to believe that the measure proposed in the petition may be warranted'' (50 CFR 424.14(b)). If we find that substantial scientific information was presented, we are required to promptly commence a review of the status of the species.

In making this finding, we relied on information provided by the petitioners and readily available in our files, and evaluated that information in accordance with 50 CFR 424.14(b). Our process of coming to a 90-day finding under section 4(b)(3)(A) of the ESA and section 424.14(b) of our regulations is limited to a determination of whether the information in the petition meets the ''substantial scientific information'' threshold.

As explained in further detail below, the petitioners and Frest and Johannes (2002) refer to the *cooperi* taxon as *Oreohelix cooperi* (Black Hills mountainsnail), however the accepted name for this entity in the published literature is *O. strigosa cooperi* (Cooper's Rocky mountainsnail) (Pilsbry 1934, 1939). We added *O. s. cooperi* (Cooper's Rocky mountainsnail) to our list of candidate species on November 21, 1991, as a Category 2 candidate species (56 FR 58804). A Category 2 candidate species was a species for which we had information indicating that a proposal to list it as threatened or endangered under the ESA may be appropriate, but for which additional information was needed to support the preparation of a proposed rule. This snail was listed as a Category 2 species again in the November 15, 1994, list of candidate species (59 FR 58982). In the February 28, 1996, Notice of Review (61 FR 7595), we discontinued the use of multiple candidate categories and considered the former Category 1 candidates as simply ''candidates'' for listing purposes. *O. s. cooperi* was removed from the candidate list at that time. The species currently has no Federal regulatory status.

On September 27, 2003, we received a formal petition dated September 24, 2003, from the Biodiversity Conservation Alliance, Center for Native Ecosystems, Native Ecosystems Council, Prairie Hills Audubon Society, The Xerces Society, and Mr. Jeremy Nichols requesting that the Black Hills mountainsnail found in the Black Hills of South Dakota and Wyoming be listed as threatened or endangered and that critical habitat be designated for the species in accordance with section 4 of the ESA. The petition lists the scientific name of the Black Hills mountainsnail as *Oreohelix cooperi*. This taxonomic classification has not been subject to peer review or publication, and is not currently widely used. However, rather than make a determination on the validity of this new taxonomic classification, a decision that would more properly be made at the 12-month finding stage, we simply accept the petitioners' characterization of this taxon and evaluate the petitioners claims regarding this entity. Thus, for the purposes of this 90-day finding, we refer to the petitioned entity as the Black Hills mountainsnail (*Oreohelix cooperi*). Again, we emphasize that this taxonomy has not yet been fully evaluated or accepted by the scientific community. The uncertainty regarding the taxonomic classification is described in more detail below.

It is unclear whether the petitioned entity is its own species as described by Frest and Johannes (2002) or a portion of the slightly more widespread *O. strigosa cooperi* described by Pilsbry (1934, 1939). The Petitioners identify this land snail as the Black Hills mountainsnail, *Oreohelix cooperi*, submitting that the entity be returned to full species status. The petitioners relied extensively on reports following land snail surveys conducted in 1991, 1992, and 1999 in the Black Hills by Frest and Johannes (1991, 1993, 2002) with 1995 survey contributions by the U.S. Forest Service (USFS) (Frest and Johannes 2002). The argument for elevation of the *cooperi* taxon to full species status by the petitioners and Frest and Johannes (2002) includes morphological distinction of the *cooperi* taxon from other similar species (Pilsbry 1934, 1939; Frest and Johannes 2002), and uncertainty regarding the original collection site of the nominate type species (*O. strigosa strigosa*) on which the taxonomy of *cooperi* is based (Pilsbry 1916, 1934, 1939; Smith 1937; Frest and Johannes 2002).

While only the *cooperi* entity has been petitioned for listing, the petitioners and Frest and Johannes (2002) also propose two new species of *Oreohelix* in the Black Hills called *Oreohelix* new species 1 and *Oreohelix* new species 2. To our knowledge, neither the proposed elevation of the *cooperi* taxon to full species status nor the submittal of *Oreohelix* new species 1 and 2 as a separate species has undergone the peer review and publication process; therefore, these proposals are not formally recognized in scientific literature.

Action on this petition was precluded by court orders and settlement agreements for other listing actions that required nearly all of our listing funds for Fiscal Year 2004. On January 14, 2004, we received a 60-day notice of intent to sue, and on December 7, 2004, an amended complaint was filed regarding our failure to carry out the 90-day and 12-month findings on the status of the Black Hills mountainsnail and other species. On October 4, 2005, we reached an agreement with the plaintiffs to submit to the **Federal Register** a completed 90-day finding by February 21, 2006, and to complete, if applicable, a 12-month finding by November 21, 2006 (*Biodiversity Conservation Alliance et al.* v. *Gale Norton and Steven Williams* (Civ. No. 04–02026(GK)).

A pertinent result of our taxonomic interpretation, as we examine only the status of the larger sized *O. s. cooperi*, submitted as *O. cooperi* by the Petitioners, is that the number of extant colonies available for our threats evaluation is decreased from 108 extant sites to 41 since our evaluation of the Frest and Johannes (2002) report indicates that the smaller form of *O. s. cooperi* occupies 69 surveyed sites (not addressed herein), and 2 sites contain both size morphs.

Species Biology

Anderson (2005) summarized descriptions of the Black Hills mountainsnail (previously provided by Binney 1859; Pilsbry 1939; and Frest and Johannes 2002). Detailed studies on the biology of the Black Hills mountainsnail appear to be lacking. Frest and Johannes (2002) state that ''life history of most Rocky Mountain land snail genera is imperfectly understood, but recent observations in Idaho on the genus *Oreohelix* may be taken as representative.'' It appears that further study of this species is warranted to determine the accuracy of current submissions and extrapolations, and to unveil additional details regarding this species' biology and ecology (Anderson 2005).

The Black Hills mountainsnail is a litter-dwelling mollusk, known to occupy calcareous soils in the Black Hills; calcium is required for the formation and growth of their shells (Solem 1974; Frest and Johannes 2002; Anderson 2005). Snails also are generally subject to desiccation mortality (Frest and Johannes 2002); thus the species is not equally distributed within the Black Hills, as colonies are restricted to specific soil types and moisture regimes. In the Black Hills, areas underlain by limestone appear to be particularly favorable for relative diversity of snail fauna, while regions underlain by granite or with ''exposed gypsum-bearing units'' (Frest and Johannes 2002) tended to be relatively lacking in land snails (Frest and Johannes 2002). Occupied habitat types documented by Frest and Johannes (1991, 1993, 2002), generally confirmed by Anderson (2005), include lowland wooded areas and talus slopes, often with a northern and/or eastern exposure. The majority of extant sites are in forests consisting of the *Pinus ponderosa* community series which dominates much of the Black Hills. Typical habitats include partially closed canopy forests with a deciduous tree and shrub component (*Alnus* [or *Corylus*, see Anderson 2005], *Acer*, and *Betula*) sometimes with locally common *Picea glauca*. Riparian woodlands also are occupied, often in areas with adjacent steep rocky slope bases. The species is able to withstand a relatively

high proportion of spruce or pine needles in the duff, does not prefer the ''most moist'' (Frest and Johannes 2002) areas and may occur at sites with relatively less vegetative cover and thin litter than other Black Hills land snail species (Frest and Johannes 2002; Anderson 2005).

The Black Hills mountainsnail is thought to be herbivorous, feeding on partially decayed deciduous leaves and other degraded herbaceous vegetation and/or associated bacteria or fungi (Brandauer 1988; Frest and Johannes 2002; Anderson 2005). Preferences for leaves of any particular plant species are unknown and feeding habits of juveniles as compared to adults is not available (Anderson 2005). The species potentially matures in 1 to 3 years (Frest and Johannes 2002; Anderson 2005), perhaps surviving in the wild 2 to 6 years, with average life span believed to be less than 2 years (Frest and Johannes 2002). Snails may be active in the winter when conditions allow, as they are apparently resistant to freezing (Frest and Johannes 2002); however, the snails typically aestivate during unfavorable environmental conditions, retreating into their shells behind a mucus seal (epiphragm), where they can apparently survive for relatively long periods of time (Solem 1974; Rees and Hand 1990).

Breeding biology of *Oreohelix cooperi* is not well known and that of *Oreohelix* in general is not well documented (Anderson 2005). Frest and Johannes (2002) state that activity is likely seasonal—April–June and September–November, with breeding occurring in October–November or April–May, and young shed (after hatching internally) in May–June or September–October. Frest and Johannes (2002) also report that reproduction is dependent on environmental conditions, stating that breeding may only occur during spring if fall conditions are dry.

Frest and Johannes (1991, 1993, 2002) have provided the most comprehensive information available to date on the status of *Oreohelix cooperi* in the Black Hills. They surveyed 357 sites in the Black Hills, and found 41 sites occupied by *O. cooperi*. They reported that 15 of the sites where live specimens were found were ''significantly large'' although this is not further defined (Frest and Johannes 2002). Hand collection was the survey method utilized; litter sampling (a more thorough measure of populations) also was done at some locales. Frest and Johannes (2002) categorized each population as rare, uncommon, common, abundant or very abundant; although the researchers mentioned caveats that relegated the population estimates they obtained to the status of ''tentative'' or ''crude'' (Frest and Johannes 2002).

Threats Analysis Presented in the Petition

Pursuant to section (4) of the ESA, we may list a species, subspecies, or distinct population segment of vertebrate taxa on the basis of any of the following five factors: (A) Present or threatened destruction, modification, or curtailment of habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. In making this 90-day finding, the standard is to determine whether the petition and our files contain substantial scientific information indicating that one or more of these five factors, considered singly or in combination, pose a threat to the Black Hills mountainsnail such that listing under the Act may be warranted. Our evaluation of these threats, based on scientific information provided in the petition and available in our files, is presented below.

A. Present or Threatened Destruction, Modification, or Curtailment of the Species' Habitat or Range

Information on Population Status Provided in the Petition

The petitioners assert that the Black Hills mountainsnail is now rare, but was once more widespread and abundant. They observed that 7 of 39 [note the apparent discrepancy between petitioners' assertions of 39 documented sites versus 41 identified in Frest and Johannes (2002)] currently known sites occupied by the Black Hills mountainsnail were found to have only empty (dead) shells. Presuming snails have been extirpated at these sites, the petitioners state that this equates to a 20 percent reduction in overall population, which they claim is a conservative figure as many now-extirpated sites may never have been documented. Additionally, species population estimates at 18 colonies (56 percent of currently documented sites) are described as rare or uncommon, while 9 colonies (28 percent) are described as common or abundant. Surveys were conducted in 1991, 1992, 1995, and 1999, and while the petitioners acknowledge 8 new colonies were discovered after 1993, they assert that 2 colonies were extirpated during that time.

Evaluation of Information in the Petition Regarding Population Status

Our analysis of Frest and Johannes (2002) indicates that dead shells only (no live specimens) were recorded at 7 (17 percent) of the 41 occupied Black Hills mountainsnail sites. In some cases, live specimens were reported on an initial survey, then only dead shells found upon site revisitation, and the reverse also is true for some locales. Thus, while it is possible that the Black Hills mountainsnail may be extirpated at some of these sites, additional surveys are necessary to determine occupation status with accuracy (Anderson 2005). Our analysis indicated that 28 (68 percent) of *Oreohelix cooperi* sites had population estimates of rare or uncommon (n=15, 37 percent) and common or abundant (n=13, 32 percent) according to Frest and Johannes' (2002) defined categories. A single site (n=1, 2 percent) was documented as having very abundant population estimates, and population estimates were undeterminable at several (n=5, 12 percent) of the sites due to discrepancies or lack of information provided within the 2002 Frest and Johannes report. At an additional 7 sites (17 percent) only empty shells were found. Although only 10 sites were revisited during subsequent surveys, fluctuations in population estimates appeared to occur at those sites that were surveyed a second time.

Information on Habitat Threats Provided in the Petition

The petitioners cite the sensitivity of the Black Hills mountainsnail to habitat alterations and the snail's limited motility and specialized habitat requirements as factors contributing to its current status, which they say is imperiled. Petitioners assert: (1) That the taxon has declined in range, habitat, and population size; (2) that there have been declines in riparian habitat and mature, dense, mesic forested habitat and understory in the Black Hills; and (3) that these habitat changes and subsequent declines in Black Hills mountainsnail populations and range reductions are caused by domestic livestock grazing, logging, road construction, edge effects, herbicide and pesticide application, mining, spring development, groundwater extraction, and recreation which are described in further detail below.

Domestic Livestock Grazing

Petitioners state that domestic livestock grazing is generally destructive to the Black Hills mountainsnail, and that grazing impacts are both direct (e.g.,

trampling), and indirect (e.g., increased exposure due to vegetation alterations). Petitioners implicate more than a century of grazing in their assertions regarding extirpations of the Black Hills mountainsnail from upland areas and most of the areas within the Rapid Creek watershed and Grand Canyon. They maintain that grazing pressure has not abated and note that 9 currently-documented sites are impacted by grazing; population estimates at 8 of these are reported to be rare or extirpated. Grazing also is implicated in the presumed loss of the northwesternmost known colony, thereby reducing the known range of the species. The petition cites a single instance of a grazed site, subsequently protected, that showed an increase in snail abundance when revisited. Lack of snails in areas that are heavily grazed, including springs which are often troughed for cattle watering, is provided as an indication of the negative impacts of grazing. Many snail colonies occur within the boundaries of USFS grazing allotments where, the petitioners claim, the Black Hills mountainsnail is not adequately protected from livestock. Fortuitous circumstances, rather than adequate protections, are named as the reason for snail survival in currently grazed areas.

Evaluation of Information in the Petition Regarding Livestock Grazing

The Service recognizes that grazing generally has negative effects on land snail individuals and colonies (Frest and Johannes 2002). Alterations of upland habitat and the tendency of cattle to congregate in, and significantly degrade, riparian areas (sites often occupied by land snails) are documented (Armour *et al.* 1991; Fleischner 1994; Belsky and Blumenthal 1997; Belsky *et al.* 1999). It follows that such impacts would have negative effects on resident land snails. Oliver and Bosworth (1999, 2000) and Ports (1996) also observed that grazing has, or potentially has, negatively impacted several *Oreohelix* species in other States. In addition, the petitioners' assertions of extensive, and at times intensive, grazing pressure within the known range of the Black Hills mountainsnail are correct.

While the petitioners indicate that 9 of 41 known colonies are subjected to grazing, another 32 sites (78 percent) are not subjected to grazing pressures (Frest and Johannes 2002). Of the 9 grazed sites, the petitioners indicate that the species was recorded as rare or extirpated at 8 of them. While it appears population estimates at these sites are relatively low, we cannot conclude that the Black Hills mountainsnail has been extirpated from any of these sites without additional survey information (Anderson 2005; Bishop 1977). As noted by Frest and Johannes (2002) rarely, if ever, are all individuals of a colony found at the surface; the most rigorous sampling method was not applied to most sites, as explained above; and several grazed sites were surveyed only once. While a lack of Black Hills mountainsnails was noted in grazed areas, as well as at some springs developed for livestock watering, the petitioners did not provide evidence that these sites had been previously occupied by the Black Hills mountainsnail.

Most historic records of the snail in the Black Hills are primarily from the Spearfish Creek vicinity. While the snail has recently been documented in areas outside the Spearfish Creek watershed, there is little evidence to suggest the species was widespread either within these areas or other watersheds where they have not yet been located. Habitat requirements (calcareous, moist soils) generally preclude widespread distribution of the species in the Black Hills (Frest and Johannes 2002). While the petitioners pointed out that many colonies occur within USFS grazing allotments, they did not provide substantial scientific information to indicate that those colonies are in areas actually subjected to grazing. Based on our analysis of Frest and Johannes (2002), of 41 extant colonies, 25 (61 percent) are located in the Spearfish Creek and Little Spearfish Creek watersheds, areas that are included, according to petitioners, within USFS grazing allotments. However, the majority of these colonies are in areas not subjected to grazing due to their location within the boundaries of the Spearfish Canyon Scenic Byway (USFS 1996; Cara Staab, USFS, pers. comm. 2005). Livestock grazing is prohibited in the Byway except for occasional use as a management tool (USFS 1996). Other extant colonies outside these areas may include refugia, sites inaccessible or not preferred by cattle where snail colonies can (and do) survive (Baur 1986). Futhermore, USFS management direction prohibits heavy grazing in occupied snail habitat.

On the basis of the above discussion, we conclude that the petitioners have not provided substantial scientific information indicating that listing the Black Hills mountainsnail due to the described effects of livestock grazing may be warranted.

Logging

The petitioners state that logging negatively affects the Black Hills mountainsnail. Potential logging effects generally include direct mortality of individuals (e.g., beneath heavy machinery or burned slash piles) and indirect impacts (e.g., increased exposure) as a result of habitat alterations. Various forms of logging are asserted to have negative, although variable, degrees of effects on the snail; clearcutting is asserted to be more problematic than precommercial thinning. Tree removal also is noted as a factor limiting expansion of colonies and/or dispersal of individuals. Petitioners claim that post-logging alterations in hydrology may limit available Black Hills mountainsnail habitat via increased runoff, decreased groundwater input and reduced output from springs and seeps. They also note the lack of Black Hills mountainsnail colonies in areas that were completely or in some cases only selectively logged to demonstrate logging effects. The petitioners assert that the continuation of logging practices within the known range of the snail is an ongoing threat to extant colonies. Fortuitous circumstances, rather than adequate protections, are cited as the reason for snail survival in logged areas.

Evaluation of Information in the Petition Regarding Logging

As with grazing activities, logging activities carried out in occupied Black Hills mountainsnail habitat may have negative effects on resident snail individuals and colonies (Frest and Johannes 2002). Black Hills mountainsnails are small, slow, litter-dwelling, relatively sessile (do not move much), sensitive to environmental change, and subject to desiccation mortality. Thus it follows that activities such as logging undertaken at extant locations have the potential to crush land snails, compact the soil, and remove litter and existing vegetative cover, thereby negatively impacting the Black Hills mountainsnail (Frest and Johannes 2002; Anderson 2005). Additional potential effects such as altered hydrology and fragmentation of habitat are described in literature (Aber *et al.* 2000).

The petition noted that different types of logging practices may have different levels of effect on the snails, with clearcutting noted as more harmful than other methods. Large clearcuts are not currently implemented on the Black Hills National Forest, although small patch clearcuts of 10 acres (ac) (4 hectares (ha)) or less have been recently

conducted on fractions of the Black Hills National Forest (0.2 percent of the 1.2 million ac [485,623 ha] between 2002 and 2004) to achieve specific management objectives (C. Staab, pers. comm. 2005). As per USFS directives, no small patch clearcuts were implemented in known occupied Black Hills mountainsnail habitats since the Forest revised its Land and Resource Management plan in 1997 (USFS 1997).

The assertion made by the petitioners regarding altered hydrology due to logging activities is not supported by instances of reduced water availability and subsequent impacts to Black Hills mountainsnail colonies. While Black Hills mountainsnail colonies have not been located in some surveyed areas that had been recently logged (Frest and Johannes 2002), no evidence was provided indicating that these areas ever harbored Black Hills mountainsnail colonies. Logging continues in Black Hills mountainsnail range, but the petition provides no evidence to indicate that areas with extant colonies are targeted for logging. The USFS management direction regarding the Black Hills mountainsnail (Standard 3103) includes protection of all identified colonies, including, but not limited to, those located by Frest and Johannes (2002). This is typically implemented by avoidance of these sites by ground-disturbing activities such as logging (C. Staab, pers. comm. 2005). Some areas occupied by the Black Hills mountainsnail are not accessible to logging equipment. In addition, in some cases the species exists in areas where timber extraction is limited by the USFS (e.g., Spearfish Canyon Scenic Byway) and/or in habitats lacking timber species preferred by logging contractors (C. Staab, pers. comm. 2005). Evidence of past logging has been noted at three extant colonies (Frest and Johannes 2002); thus, the species can (and does) exist despite logging activities within its range.

We conclude that the petitioners have not provided substantial scientific information indicating that listing the Black Hills mountainsnail due to the described effects of logging may be warranted.

Roads and Road Construction

Petitioners assert that roads and road construction have generally adverse effects on the Black Hills mountainsnail. Claimed impacts include extirpation within the roadway, potential fragmentation of colonies, and indirect adverse effects associated with road establishment such as increased human access, vegetation alterations, and spraying of herbicides (addressed under discussion of herbicides and pesticides). The Black Hills has an extensive system of roads, both public and user-created, that the petitioners assert have most likely led to the extirpation and/or fragmentation of colonies, and destruction and/or degradation of habitat. Petitioners note that many extant colonies occur near roads, suggesting that this is indicative of past and ongoing impacts. U.S. Highway 14A through Spearfish Canyon is singled out because the taxon occurs most commonly in the Spearfish Creek watershed. The petition claims that effects such as accelerated soil erosion and nutrient loss, dewatering of wetlands, and reduction of organic production and forage yields have affected, and continue to affect, 14 (over 40 percent) extant colonies that are located along or very near Highway 14A. Petitioners also indicate that the USFS is proposing to establish many miles of new roads via timber sales within Black Hills mountainsnail range, although these plans are not finalized; they suggest that these roads would threaten to destroy, modify, and/or curtail extant Black Hills mountainsnail colonies and habitat.

Evaluation of Information in the Petition Regarding Roads and Road Construction

Roads and road construction could generally cause negative effects on land snail individuals and colonies via direct mortality of individuals within roadways and associated loss of habitat (Frest and Johannes 2002; Anderson 2005). Fragmentation of colonies is possible if those colonies are divided by a new road (Baur and Baur 1990; Meadows 2002). Other secondary impacts of roads (e.g., dewatering of wetlands) asserted by the petitioners may or may not occur depending on site-specific conditions.

The petition's claim that ''many'' colonies exist near roads is true; in fact, nearly all of the areas sampled in the 1990s were next to roads (Frest and Johannes 2002). Consequently, there may be a sampling bias that clouds the issue of potential impacts of roads to extant Black Hills mountainsnail colonies. Frest and Johannes (2002) acknowledge that they were unable to survey all potential habitats. It is unknown how many occupied sites may have been located by searching available habitats located away from roadsides. The petitioners maintain that the colonies along U.S. Highway 14A are currently impacted by roadway effects. However, U.S. Highway 14A is not a new roadway and Black Hills mountainsnail colonies continue to exist adjacent to it; at many sites, active live snails occur within only a few feet of the road shoulder (Frest and Johannes 2002). Initial construction of this roadway may have negatively impacted the snail (Frest and Johannes 2002; Anderson 2005), but no evidence was provided by the petitioner to indicate that colonies currently adjacent to it are threatened by ongoing secondary impacts.

As mentioned by the petitioners, the Black Hills already has an extensive road system. The need for significant additional road construction is not apparent. The numerous planned logging operations mentioned by the petitioners will require new roadways; however, plans for these projects are not final and there is no evidence suggesting these actions will occur within occupied Black Hills mountainsnail habitats. The USFS administers logging practices that may require roads on the Black Hills National Forest where the majority of Black Hills mountainsnail colonies occur (Frest and Johannes 2002). Current USFS policy requires protection of all sensitive snail colonies, including extant Black Hills mountainsnail colonies documented by Frest and Johannes (1991, 1993, 2002) (C. Staab, pers. comm. 2005).

Based on the above discussion, we conclude that the petitioners have not provided substantial scientific information indicating that listing the Black Hills mountainsnail due to the described effects of roads and road construction may be warranted.

Edge Effects of Logging and Road Construction

The petitioners state that Black Hills mountainsnail colonies not directly impacted by logging or roads may be indirectly affected by edge effects resulting from these activities. The petition asserts that the edge between cut and uncut forest results in an altered microenvironment 197 to 328 feet (ft) (60 to 100 meters [m]) within the uncut area. Increased light, exposure, air and soil temperatures, and lower soil moisture, with decreased diversity compared to interior/undisturbed forest were cited as factors potentially affecting the Black Hills mountainsnail, particularly since many extant colonies are located within 328 ft (100 m) of roads.

Evaluation of Information in the Petition Regarding Edge Effects of Logging and Road Construction

The petitioners did not describe any specific impacts to the species, either negative or positive. No instances of declines in extant Black Hills mountainsnail colonies have been

linked to edge effects. It is not apparent, based on the current existence of colonies adjacent to open roadways for example, that edge effects are significantly detrimental to this species. The depth-to-edge influence indicated by the petitioners includes a variety of abiotic and biotic factors (Baker and Dillon 2000) that may or may not affect resident mountainsnails. In addition, this depth-to-edge influence also can be reduced over time as the edge ''seals'' with vegetation (Baker and Dillon 2000). While the Petitioners assert that the Black Hills mountainsnail would be adversely impacted by edge effects, they do not demonstrate a causative relationship. Therefore, we conclude that the petitioners did not provide substantial scientific information indicating that listing the Black Hills mountainsnail due to the described effects of edge effects resulting from logging and road construction may be warranted.

Herbicides and Pesticides

Petitioners note that herbicide and pesticides presently used in the Black Hills can negatively affect the Black Hills mountainsnail, as these chemicals are generally toxic to mollusks upon contact or ingestion, and herbicides serve to remove vegetative cover, thereby increasing exposure to any snails beneath. The petitioners cite spraying in the late 1940s through the 1960s and a single extant Black Hills snail colony reported to be impacted by recent herbicide application as evidence of past and present impacts. Additionally, the petitioners note the USFS's recent initiation of a Noxious Weed Management Plan which involves the use of herbicides. According to petitioners, this plan includes a determination by the USFS that the applications may adversely impact individual Black Hills mountainsnails.

Evaluation of Information in the Petition Regarding Herbicides and Pesticides

Spraying of herbicides and pesticides at sites with extant Black Hills mountainsnail colonies could result in negative impacts to land snail individuals via impacts due to direct contact, ingestion and/or vegetation removal resulting from spraying actions (Frest and Johannes 2002; Anderson 2005). Spraying herbicides to control nonnative plants, a potential secondary impact of roads, also has the potential to result in snail mortality if individuals are present within sprayed areas (Schuytema *et al.* 1994). However, research on pesticide ingestion by snails of various chemicals used on National Forest lands indicates that not all chemicals are necessarily lethal to snails (Schuytema *et al.* 1994). Additionally, different species of snails may respond differently to toxic chemicals (Schuytema *et al.* 1994). The Petitioners did not cite any research regarding impacts of herbicide or pesticides on the Black Hills mountainsnail. They cite past, present, and future spraying programs as general evidence of threats to the continued existence of the snail; however, they do not present evidence clarifying whether these activities are known to occur at extant Black Hills mountainsnail colonies. The single incidence of spraying noted during 1990s surveys (Frest and Johannes 2002), is not a clear case of spraying-caused extirpation of snails, as the species had not been previously reported from the sprayed site and it appears the site was surveyed only once. Information regarding frequency, locations, or limits of spraying associated with roadsides or noxious weed/pest sites in relation to Black Hills mountainsnail colonies is not provided in the petition, nor are documented responses of Black Hills mountainsnails to spraying activities. USFS management direction (Standard 3103) allows for control of invasive weeds in snail habitat, but only when snails are not on the surface, and weeds must be treated individually rather than by broadcast application. This standard protects Black Hills mountainsnail colonies from adverse impacts of herbicide application. We conclude that the petitioners did not provide substantial scientific information indicating that listing the Black Hills mountainsnail due to the described effects of herbicides and pesticides may be warranted.

Mining

Adverse impacts to the Black Hills mountainsnail from mining asserted by the petition include direct extirpation of snails at mined sites, exposure of snails to toxic mine wastes and effluvia, long-term sterilization of sites mined due to acidic wastes, and increased exposure of snails from vegetation removal. Mining in the Black Hills is reported to have curtailed the range and habitat of the Black Hills mountainsnail, as no snails have been recently reported from mined sites and a single historic colony near Deadwood (a region subject to past mining) has not been rediscovered. The petitioners state that mining has affected habitats within the Spearfish Creek drainage where the Black Hills mountainsnail is most common, and other riparian areas in the Black Hills also have been impacted. They cite the USFS regarding current mining activity occurring within a 10-mile (mi) (16-kilometer [km]) radius of the city of Lead, and anticipated expansions or new mines generally within that area in the next 10 years as evidence of future mining impacts to 2 extant colonies of the Black Hills mountainsnail.

Evaluation of Information in the Petition Regarding Mining

Mining could cause direct impacts to Black Hills mountainsnails should they occur onsite, and the potential exists for secondary effects to snails resulting from toxic effluents and vegetation removal (Frest and Johannes 2002; Anderson 2005). However, the petitioners did not provide sufficient evidence indicating that mining activities threaten extant colonies of the Black Hills mountainsnail. Although they note that no Black Hills mountainsnails were located in mined areas, they provide no evidence indicating that the snails existed onsite prior to mining. A single historic record of the snail in the vicinity of the City of Deadwood (Pilsbry 1939) and inability of current researchers to relocate that colony is cited as evidence of range reduction due to mining. However, the researchers themselves (Frest and Johannes 2002) indicate that despite lack of rediscovery of the historic colony, the species may still occur in the area. Although negative impacts may have occurred to mountainsnail habitat within the Spearfish Creek watershed, the Black Hills mountainsnail is currently most common in this drainage (Frest and Johannes 2002). Although the petitioners indicate that other riparian areas also have been impacted, evidence of past or present existence of the Black Hills mountainsnail within them and/or impacts to any extant colonies is not provided. The existence of 2 extant colonies within a relatively-large mining focus area near the City of Lead is not sufficient evidence that these colonies will be impacted by future mining activities. The remaining 39 colonies are not located within the mining focus area, thus mining does not appear to be a substantial threat to the majority of extant colonies. Limestone areas in the Black Hills have not been targeted by mining companies seeking gold, silver, and lead. Highly mineralized rock formations containing these elements are generally not found in association with limestone habitats favored by the Black Hills mountainsnail. We conclude that the petition did not provide substantial scientific information indicating that listing the Black Hills mountainsnail due to the described effects of mining may be warranted.

Spring/Water Developments

The petitioners state that spring development (troughing and fencing of natural springs for livestock use) has occurred extensively in the Black Hills, and has extirpated resident mollusks. Factors include drying of the original spring site, disruption of substrates and vegetation, livestock access and trampling, and the deposition of acidic livestock wastes. They state that many extant Black Hills mountainsnail colonies are associated with springs and development of springs has caused extirpation of some colonies with no live individuals noted at developed sites.

Evaluation of Information in the Petition Regarding Spring/Water Developments

Deleterious effects to colonies of Black Hills mountainsnails located onsite could occur upon troughing of springs or by otherwise allowing cattle access to springs (Frest and Johannes 2002). Spring development for livestock watering appears to be common in the Black Hills within the known range of the Black Hills mountainsnail (C. Staab, pers. comm. 2005).

The lack of historic data regarding Black Hills mountainsnail occupation of these sites makes it difficult to determine whether spring development has substantially detrimentally affected the species. While the petitioners state that many Black Hills mountainsnail colonies are associated with springs, our analysis of Frest and Johannes (2002) revealed a report of only 1 extant Black Hills mountainsnail colony at a spring. The site had been developed (troughed and fenced) and negative impacts to the snails resulting from inadequate cattle exclosure were observed (Frest and Johannes 2002). Lack of Black Hills mountainsnail colonies at other developed springs is cited as evidence of the impacts of this activity; however, it is not apparent that these springs were ever occupied by this species, or that the continued persistence of the snail relies on colonies located at springs. In addition, USFS policy (Standard 3104) specifically states that springs or seeps where sensitive species or species of local concern exist will not be developed as water facilities unless development mitigates an existing risk (C. Staab, pers. comm. 2005). We conclude that the petitioners did not provide substantial scientific information indicating that listing the Black Hills mountainsnail due to the described effects of spring/water development may be warranted.

Groundwater Extraction

Groundwater extraction for municipal use occurs in the Black Hills and is asserted by the petitioners to reduce water available for springs and seeps that may support the Black Hills mountainsnail, and by possibly affecting streams by reducing current flow regimes. The petitioners indicate this activity has potentially already affected the snails, and continued human developments in the Black Hills will continue to negatively affect this species in the future.

Evaluation of Information in the Petition Regarding Groundwater Extraction

The petitioners did not provide substantial scientific information that groundwater extraction has reached a level resulting in reduction of available moisture at Black Hills mountainsnail colonies. No information on the current rate of groundwater extraction or rise in human consumption and/or human populations within the Black Hills was provided to indicate aquifer water levels may be significantly impacted. No evidence was provided indicating drying of occupied snail habitats at any of the 41 sites and subsequent loss or declines of extant colonies. We conclude that the petitioners did not provide substantial scientific information indicating that listing the Black Hills mountainsnail due to the described effects of groundwater extraction may be warranted.

Recreational Activities and Developments

Picnic areas, hiking trails, and campgrounds are factors cited by the petitioners as recreational activities and developments that could fragment, extirpate, or generally negatively impact Black Hills mountainsnail colonies by such factors as increased exposure and importation of nonnative plants.

Evaluation of Information in the Petition Regarding Recreational Activities and Developments

Local impacts to occupied Black Hills mountainsnail sites, as described in the petition, could potentially negatively affect individual snails and/or colonies as a result of trampling and/or vegetation removal (Weaver and Dale 1978; Anderson 2005) as well as physical placement of recreation facilities. Development of such sites (*e.g.*, new or expanded picnic areas, campgrounds, or trails) could result in mortality and potential fragmentation of existing colonies if these actions occur in areas occupied by the Black Hills mountainsnail. However, the petitioners did not provide evidence indicating that the presence of recreational facilities and/or activities has resulted in substantial decline or extirpation of any known Black Hills mountainsnail colonies. Our analysis of the Frest and Johannes (2002) report indicates that 5 (12 percent) of 41 known Black Hills mountainsnail sites occur either within campgrounds, picnic areas, or along hiking trails. Of these, population estimates are reported as ''very abundant'' at 1 site, ''common'' or ''abundant'' at 3 sites, and ''rare'' at 1 site. As noted earlier, these population estimates are thought to be conservative (Frest and Johannes 2002). It is not apparent that these sites have experienced severe impacts as a result of these facilities and activities. In addition, no recreational impacts at the remaining 36 sites were noted by Frest and Johannes (2002). Thus, we conclude that the petition does not provide substantial scientific information indicating that listing the Black Hills mountainsnail due to the described effects of recreational activities and developments may be warranted.

Summary of Factor A

While a variety of anthropogenic activities that likely affect the Black Hills mountainsnail and/or its habitat are occurring across the range of the snail, with few exceptions, the petition fails to provide scientific documentation to demonstrate that the areas where habitat loss and degradation are occurring also are areas where Black Hills mountainsnail populations occur. Information provided by the petitioners and the conclusions drawn from it are compromised by the lack of historic data and inherent limitations of the methodologies used for current population estimates (Frest and Johannes 2002), resulting in the inability to determine trends with accuracy. Based on the preceding discussion, we have concluded the petition and other available information do not constitute substantial scientific information indicating that listing the Black Hills mountainsnail may be warranted due to any threat in factor A.

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

Information Provided in the Petition

The petition states that the Black Hills mountainsnail has been collected for scientific and educational purposes, but the petition does not provide any indication that collecting poses any threat to the survival of the species.

Evaluation of Information in the Petition

The Service concurs with the petitioners that overutilization for commercial, recreational, scientific, or educational purposes does not appear to threaten the continued existence of the Black Hills mountainsnail.

C. Disease or Predation

Information Provided in the Petition

The Petitioners assert that predation by rodents, other small mammals, amphibians, reptiles, birds, and insects, as well as parasitism by insect larvae may cause mortality of the Black Hills mountainsnail. No mention of disease affecting the Black Hills mountainsnail is made in the petition.

Evaluation of Information in the Petition

The Service recognizes that the potential sources of natural mortality to the snail described by the petitioners are likely to occur. However, no scientific information is provided indicating that this mortality results in declines of extant mountainsnail colonies. We conclude that the petitioners did not provide substantial scientific information indicating that listing the Black Hills mountainsnail due to the described effects of effects of predation may be warranted.

D. Inadequacy of Existing Regulatory Mechanisms

Information Provided in the Petition

The petitioners assert that existing regulatory mechanisms do not adequately protect the Black Hills mountainsnail or its habitat; many colonies lack any protection. They note the USFS, the Service, the States of South Dakota and Wyoming, and the City of Spearfish fail to protect this species as explained further below.

U.S. Forest Service

Petitioners cite failure of the 1997 Revised Land and Resource Management Plan (1997 RLRMP), a USFS document which serves to guide management activities on the Black Hills National Forest, to ensure viability of the Black Hills mountainsnail. An amendment to the 1997 Plan (Phase I Amendment) included a USFS directive (Standard 3103) stating that colonies identified by Frest and Johannes (1991, 1993, 2002) be protected from adverse management activities. However, the petitioners maintain that Standard 3103 is inadequate because it: (a) Serves only to maintain (not recover) populations that the Petitioners assert are ''most likely not viable;'' (b) fails to protect colonies that may be located in the future; (c) does not provide well-defined and substantive management direction; and (d) fails to protect the species' habitat. Although the USFS has applied 100- to 200-ft (30- to 60-m) buffers from management actions around extant Black Hills mountainsnail colonies, the adequacy of these buffers is questioned by the petitioners. They note that some colonies have been fenced to exclude livestock, but assert that it is not well maintained and many colonies are still not fenced. The application of Standard 3103 is observed to be inconsistent. An additional USFS directive under the Phase I Amendment, Standard 3104, is intended for the protection of wildlife and plants associated with moist soil conditions by stating that no springs or seeps with sensitive species shall be developed. However, the petitioners claim Standard 3104 also is inadequate for many of the same reasons listed as failures of Standard 3103.

The Black Hills mountainsnail is listed as a Sensitive Species by the USFS under the name *Oreohelix strigosa cooperi,* Cooper's rocky mountainsnail. Lack of any additional USFS protective regulations for the Black Hills mountainsnail, despite its Sensitive Species designation, is asserted by the petitioners. They claim that USFS has not fulfilled Sensitive Species objectives by failing to ensure that agency actions do not cause the snail to become threatened or endangered, and that viable, well distributed populations exist. The petitioners also claim the USFS has proposed to remove the snail from their Sensitive Species list.

The USFS has proposed to monitor identified colonies, but the petitioners believe that the monitoring plan is inadequate and potentially ineffective. Only colonies potentially affected by management activities are to be monitored on a 4-year rotating basis. Details regarding which activities may impact snails and timing and method of impact disclosure by the USFS are called into question and the 4-year rotation is suggested as inadequate to detect potential impacts or extirpation of colonies. Analysis of impacts to the snail via the National Environmental Policy Act (NEPA) is not considered by the petitioners to be adequate protection since the USFS may choose alternatives that may impact the snail.

Finally, the Petitioners maintain that additional revisions of the 1997 RLRMP (Phase II Amendments) which were to include management of the Black Hills mountainsnail as a ''species of local concern,'' are inadequate to ensure persistence of the species.

Evaluation of Information in the Petition Regarding the Inadequacy of Existing USFS Regulatory Mechanisms

We recognize that the petitioners' evaluations of USFS Standards 3103 and 3104 within the Phase I Amendment to the 1997 RLRMP have some merit. The lack of specificity, direction, and consistency of application of these Standards might have allowed broad discretion for management actions which may result in negative impacts to the Black Hills mountainsnail depending on USFS management decisions. However, USFS has recently amended its LRMP for the Black Hills National Forest to afford increased protection of the Black Hills mountainsnail. The amended LRMP (Phase II Amendment) was signed in late 2005 and will go into effect in early 2006. In the amended LRMP, Standard 3103 has been revised to protect all snail colonies of species of local concern rather than just protection of extant sites identified by Frest and Johannes (1991, 1993, 2002). The new Standard also provides management direction that will retain sufficient overstory, moisture regimes, ground temperatures, humidity, and ground litter in snail colonies. In addition, the standard calls for avoidance of activities (burning, heavy grazing, off-highway vehicles, heavy equipment use) that would compact soils or alter vegetation composition and ground cover. Revised standard 3103 also provides for protective criteria for prescribed burning and control of invasive weeds if necessary in occupied snail habitat.

The petitioners' assertions that the Black Hills mountainsnail populations are ''most likely not viable'' on USFS lands appears unsubstantiated, with no evidence provided to support this claim. The USFS protects all snail colonies, typically by applying 100- to 200-ft (30- to 60-m) buffer zones around sites occupied by the Black Hills mountainsnail. Current modifications to the 1997 RLRMP include more specific information regarding protection of snail colonies (C. Staab, pers. comm. 2005). The petitioners' assertion that the USFS proposed to remove the snail from their Sensitive Species list appears unsubstantiated, and the snail remains on the list as *Oreohelix strigosa cooperi* (C. Staab, pers. comm. 2005; USFS 2005). By listing this Sensitive Species as *O. s. cooperi,* USFS protections are extended to sites occupied by the smaller form of the *cooperi* entity as well. Thus the USFS recognizes at least 108 colonies (the large and small morphs of *O. s. cooperi*), rather than just

the 41 sites occupied by the large morph (Frest and Johannes 2002) (USFS 2005).

The petitioners did not provide substantial scientific information indicating that listing the Black Hills mountainsnail may be warranted due to inadequate USFS regulatory mechanisms. The Black Hills mountainsnail does not appear to be threatened on USFS lands, thus we cannot find that inadequate regulatory mechanisms of the USFS contribute to the species' asserted declines. The information in the petition concerning protection on USFS lands is now outdated. The management direction contained in the revised LRMP appears protective of the Black Hills mountainsnail and its habitat; the Petitioners did not provide substantial scientific information that additional protection on USFS land is necessary.

U.S. Fish and Wildlife Service

The petitioners cite removal of the Black Hills mountainsnail from the Category 2 Candidate list (61 FR 64481–64485; December 5, 1996) by the Service and our failure to provide funding for surveys for the species in 1999, despite providing funds for surveys in 1991 and 1992, as evidence of lack of ''special attention'' for this species. In addition, 2 extant colonies occur on Service property and the petitioners claim that we are not using our authority to protect those colonies.

Evaluation of Information in the Petition Regarding the Inadequacy of Existing USFWS Regulatory Mechanisms

We did remove the Cooper's Rocky mountainsnail, *Oreohelix strigosa cooperi* from the Category 2 Candidate Species list. However, removal from Category 2 Candidate Species list did not alter the level of protection afforded this species because Category 2 candidate status did not confer a regulatory benefit. Formerly recognized Category 2 species lacked sufficient information to justify issuance of a proposed rule to list as federally threatened or endangered (Service 1996b). The Service discontinued using the Category 2 designation to reduce confusion and clarify that the Service did not regard those species as candidates for listing (Service 1996b). Only former Category 1 Candidate Species, now known simply as Candidate Species, had sufficient evidence to warrant publication of a proposed rule.

Lack of Service funding for Black Hills mountainsnail surveys was indicative of budget constraints rather than lack of Service interest. Extant colonies on Service property at D.C. Booth Historic Fish Hatchery have been avoided since identification (Steve Brimm, Service, pers. comm. 2005).

The Petitioners did not provide substantial scientific information indicating that listing the Black Hills mountainsnail due to the inadequacy of USFWS regulatory mechanisms of the Service may be warranted We cannot find that inadequate regulatory mechanisms of the Service contribute to the species' asserted decline on Service lands because the mountainsnail is being protected on our lands without ESA status.

States of South Dakota and Wyoming

The petitioners indicate that all extant colonies of the Black Hills mountainsnail occur in the State of South Dakota, and no protection of these sites is offered by South Dakota law, which has no mechanism for protecting and recovering invertebrates.

The petitioners claim that no extant Black Hills mountainsnail colonies occur in Wyoming, but that the species historically and recently resided there. They indicate the State of Wyoming has no mechanism for recovering or protecting any imperiled species at all, and the Wyoming Natural Diversity Database does not track invertebrates.

Evaluation of Information in the Petition Regarding the Inadequacy of Existing State Regulatory Mechanisms

Contrary to information in the petition, based on our evaluation of Frest and Johannes (2002) it does not appear that all Black Hills mountainsnail colonies are located in South Dakota; four are found in Wyoming. The remaining 37 sites are found in South Dakota.

The State of South Dakota does not currently provide legal protections for the Black Hills mountainsnail. However, it is not apparent that South Dakota Threatened and Endangered Species Statutes, based on definitions within those statutes, exclude invertebrates from the State list of imperiled species (South Dakota statutes, Endangered and Threatened Species) as the Petitioners state. Thus the Black Hills mountainsnail apparently is not precluded from the State list of threatened or endangered species, although it currently is not on the list. The species is tracked via the State's Natural Heritage Database (South Dakota Department of Game, Fish and Parks [SDGFP] 2005a). Furthermore, the State has recently developed a list of ''Species of Greatest Conservation Need'' as part of their Comprehensive Wildlife Conservation Strategy that includes Cooper's Rocky mountainsnail, *Oreoehelix strigosa cooperi* (SDGFP 2005b). Species of Greatest Conservation Need include State and/or federally listed species for which the State has a mandate for recovery, species for which South Dakota represents a significant portion of the species' overall range, and/or species that are indicative of, or depend upon, a declining or unique habitat in South Dakota (SDGFP 2005b). The Comprehensive Wildlife Conservation Strategy is designed to maintain and conserve the State's biodiversity (SDGFP 2005b). For South Dakota, designation as a Species of Greatest Conservation Need means that the Department is committed to conservation of the species and will use its available resources, including State Wildlife Grants, for necessary research, monitoring, and habitat conservation (Doug Backlund, pers. comm. 2005). Thus, the State currently recognizes the unique value of the snail. We cannot find that inadequate regulatory mechanisms of the State of South Dakota contribute to the species' asserted demise because the species appears to be sustained without special status from the State of South Dakota.

The petitioners did not provide substantial scientific information indicating that listing the Black Hills mountainsnail due to the inadequacy of State regulatory mechanisms of the State of South Dakota may be warranted.

Our analysis of the Frest and Johannes (2002) report indicates that four Black Hills mountainsnail sites were located in Wyoming and the Black Hills mountainsnail is not necessarily extinct from these areas; it appears live specimens were documented there as recently as 1999.

The State of Wyoming has recently developed a list of ''Species of Greatest Conservation Need'' as part of their Comprehensive Wildlife Conservation Strategy that includes Cooper's Rocky mountainsnail, *Oreoehelix strigosa cooperi*. Wyoming's list of Species of Greatest Conservation Need is ''intended to provide a foundation for conserving these species in Wyoming'' (Wyoming Game and Fish Department 2005). Paucity of data on this species is noted by the State (Wyoming Game and Fish Department 2005), and current information indicates that the Black Hills mountainsnail is not widely distributed in Wyoming (Frest and Johannes 2002). Although the species is not afforded regulatory protection by the State of Wyoming, the species does not appear to require regulatory mechanisms by the State to sustain it.

The petitioners did not provide substantial scientific information indicating that listing the Black Hills

mountainsnail due to the inadequacy of State regulatory mechanisms of the State of Wyoming may be warranted.

City of Spearfish, South Dakota

A single extant Black Hills mountainsnail colony exists in the City of Spearfish Campground. The Petitioners assert that the City has no regulations in place to protect or recover the mountainsnail or any other species from ongoing activities or further development.

Evaluation of Information in the Petition Regarding the Inadequacy of Existing Regulatory Mechanisms of the City of Spearfish

The City of Spearfish has not taken steps to protect extant colonies of the Black Hills mountainsnail (City of Spearfish Campground 2005). However, regardless of any potential protections that could be provided by the City, jurisdiction would be limited to the single colony currently located within the City of Spearfish Campground.

The petitioners did not provide substantial scientific information indicating that listing the Black Hills mountainsnail due to the inadequacy of regulatory mechanisms of the City of Spearfish may be warranted.

Summary for Factor D

The petitioners indicated that existing regulatory mechanisms of the USFS, USFWS, the States of South Dakota and Wyoming, and the City of Spearfish are currently inadequate, are not protective of the Black Hills mountainsnail, and contribute to a decline of the species. However, the Service does not find that other potentially regulated activities pose a threat such that listing the Black Hills mountainsnail may be warranted due to any threat in factor D. Thus regulatory mechanisms, where existent and applicable, are not deemed inadequate. The petitioners did not provide evidence that the Black Hills mountainsnail requires additional regulatory mechanisms to be sustained.

E. Other Natural or Manmade Factors Affecting the Continued Existence of the Black Hills Mountainsnail

Vulnerability of Small, Isolated Populations

The petitioners submit that Black Hills mountainsnail populations have been reduced and fragmented from historic levels making the species more vulnerable to stochastic events and extinction. They indicated that population estimates at surveyed sites were ''rare'' or ''uncommon'' at 18 (56 percent) of known colonies, and that large areas of unsuitable habitat exists between colonies. The petitioners cited the snail's small size, vulnerability to desiccation and predation, and limited motility as factors that limit the taxon's ability to rapidly colonize areas, making them unable to respond quickly to environmental change.

Evaluation of Information in the Petition Regarding Vulnerability of Small, Isolated Populations

The life history of the Black Hills mountainsnail makes the taxon inherently susceptible to mortality and/or environmental change, and gives it a limited ability to colonize new areas (Frest and Johannes 2002). We also recognize that some degree of population reduction and fragmentation of colonies may have occurred based on recent survey information and observations (Frest and Johannes 2002).

However, the petitioners' claim regarding reduction and fragmentation of populations of the Black Hills mountainsnail from historic levels is not substantiated due primarily to lack of documentation of any historic levels and/or historic distribution of this species. The petitioners appear to base their claim on the presumption that Black Hills habitat alterations in the past century have caused significant range reduction and a corresponding decline in populations of the snail. However, without additional evidence of historically occupied areas, valid trend data resulting from comparison with currently identified occupied sites is not obtainable. The Black Hills mountainsnail has seldom been reported outside the Spearfish Creek watershed of South Dakota as indicated by published reports (Over 1915, 1942; Pilsbry 1934, 1939; Henderson 1937; Roscoe 1954) and museum collections (Frest and Johannes 2002). Currently, the species' known distribution appears to be broader than what was known historically. Our analysis of current survey data (Frest and Johannes 2002) indicates that 15 (37 percent) of 41 extant colonies were reported as ''rare'' or ''uncommon'' rather than 18 (56 percent) as reported by Petitioners. Additionally, 13 (31 percent) of extant colony population estimates were reported as ''common'' or ''abundant,'' a single site (2 percent) fell under the ''very abundant'' category, while population estimates at 5 sites (12 percent) could not be determined due to discrepancies or missing data (Frest and Johannes 2002). As stated earlier, these values should be viewed as tentative; they potentially underestimate extant populations.

The Petitioners did not provide substantial scientific information indicating that listing the Black Hills mountainsnail due to the described effects of vulnerability of small, isolated populations may be warranted. The life history of the snail is such that it is subject to natural mortality and limited mobility; however, it has adapted with these constraints and does not appear to have reduced in range due to this threat.

Habitat Fragmentation

The Petitioners assert that habitat fragmentation threatens the continued survival of the Black Hills mountainsnail. Lack of connectivity between colonies, slow rates of migration, and large areas of unsuitable habitat between colonies are cited as evidence that the snails may not recover from fragmentation.

Evaluation of Information in the Petition Regarding Habitat Fragmentation

Some habitat fragmentation may have resulted from past human activities in the Black Hills (Frest and Johannes 2002). However, the petitioners' claim regarding fragmentation of Black Hills mountainsnail habitats from historic levels is not substantiated, due primarily to lack of documentation of historic distribution of this species outside of the Spearfish Creek watershed. Spearfish Canyon harbors the majority of extant colonies (Frest and Johannes 2002). Close proximity among these colonies does not support the argument that fragmentation is a threat. Relatively few colonies exist in areas outside Spearfish Creek watershed; however, some degree of fragmentation may be normal for a slow-moving, generally sessile animal that owes long-distance dispersals primarily to passive means such as avalanche, flood, or being carried by birds (Baker 1958; Karlin 1961; Baur 1986). Any resulting new colonies could be naturally separated from the parent colony by unsuitable habitat; this does not necessarily indicate that fragmentation threatens the species. We conclude that the petitioners did not provide substantial scientific information indicating that listing the Black Hills mountainsnail due to the described effects of habitat fragmentation may be warranted.

Forest Fires

Forest fires are submitted by the petitioners as a threat to the Black Hills mountainsnail due mainly to the observed lack of the snails in areas with recent severe forest fires. While the snails may survive low-intensity fires, the petitioners emphasize severe (large-scale, stand-replacing fires) fires in their assertions regarding current and future

declines of the species. The petitioners report that such severe fires occur more frequently in today's managed forest than they had historically. Increases in human-caused ignitions may be a factor.

Evaluation of Information in the Petition Regarding Forest Fires

Forest management practices have likely contributed to alterations of the historic fire regime in the Black Hills, potentially reducing the frequency of burns from historic times (Brown and Sieg 1999), and recent management activities such as fire suppression also may contribute to more severe fires today than in the past (Baker and Ehle 2001). However, historic fire frequencies in some cases may be longer than previously reported (Baker and Ehle 2001) and it appears that large-scale, stand-replacing fires did occur in the Black Hills historically (Shinneman 1996; Shinneman and Baker 1997). The effects of fire on the Black Hills mountainsnail specifically are unknown, although the species apparently evolved with fire (Frest and Johannes 2002; Anderson 2005). In general, snails may be better able to survive low-intensity fires while high-intensity fires that burn the litter and downed woody debris where snails reside would be detrimental (Frest and Johannes 2002; Anderson 2005).

Evidence of past fires has been noted at two extant Black Hills mountainsnail colonies (Frest and Johannes 2002) although information regarding timing or severity of the burns is not provided. Frest and Johannes (2002) note that no land snails were located at five sites within an area that burned in 2000, but Anderson (2005) points out that the unnamed species of *Oreohelix* identified by Frest and Johannes (2002) do occur ''* * * within areas that have been burned in wildfires over the last few years'' (Anderson 2005). Management efforts in the Black Hills to reduce fuels and preclude large-scale, severe fires are ongoing (C. Staab, pers. comm. 2005). The typically low-lying, moist and/or rocky areas the snails prefer may be less susceptible to fire due to higher moisture levels and/or relative lack of fuels. Spearfish Creek watershed, the area most commonly occupied by the snails, contains numerous residences and businesses and is recognized for its scenic value (USFS 1996). While it may be possible for severe wildfires to occur in this area, control and suppression of wildfire occurring within the canyon would likely be aggressive in order to protect lives, property, and scenic values. While not widely distributed throughout the Black Hills, the species does occur in several different drainages (Frest and Johannes 2002). It does not appear likely that fire has or is likely to threaten the Black Hills mountainsnail population. We conclude that the petitioners did not provide substantial scientific information indicating that listing the Black Hills mountainsnail due to the described effects of forest fires may be warranted.

Flooding

The petitioners assert that a single Black Hills mountainsnail colony appeared to have been recently extirpated by a flood event and they describe an historic example of a catastrophic flood event in the Black Hills as evidence that flooding threatens the species.

Evaluation of Information in the Petition Regarding Flooding

Large precipitation events may cause localized flooding, potentially affecting extant Black Hills mountainsnails. However, the petitioners did not provide evidence to suggest this factor would occur frequently, impact a significant number of extant colonies, nor result in catastrophic declines of the species. The petitioners' claims that a single flood event extirpated a colony documented by Frest and Johannes (1993) are complicated by the possibility that, while some snails may have suffered mortality as a result of scouring flows and bedload deposition on the documented site, individuals also may have been transported by the flows and deposited in new areas downstream, potentially resulting in formation of one or more new colonies (Baker 1958; Karlin 1961; Baur 1986). Additionally, Frest and Johannes (2002) indicate that documented snail colonies ''* * * occurred in areas very rarely subject to flooding, such as slope bases or other areas naturally protected from even 20-year floods.'' It is not likely that flooding would threaten the Black Hills mountainsnail population because the sites where Black Hills mountainsnails are found are rarely subject to flooding. We conclude that the petitioners did not provide substantial scientific information indicating that listing the Black Hills mountainsnail due to the described effects of flooding may be warranted.

Environmental Stochasticity

The petitioners claim that environmental stochasticity (the occurrence of random environmental events) poses a threat to the Black Hills mountainsnail as a result of its small, isolated, and fragmented population, reduced habitat and range, and inability to respond quickly to environmental change. They cite several references (e.g., Duthrie 1930; Shinneman and Baker 1997) documenting catastrophic events in the Black Hills.

Evaluation of Information in the Petition Regarding Environmental Stochasticity

Random environmental events can affect local populations if the result is high mortality of the species, habitat loss, or little or no possibility of recolonization. Isolation can be a contributing factor (Pettersson 1985) to local extinctions, although it is not apparent that isolation among Black Hills mountainsnail colonies is a threat to the species. Small populations may exhibit shorter lifetimes with a higher probability of becoming extinct than large populations (Hanski *et al.* 1996), and it appears that the population growth rates and carrying capacity are key contributing factors in the length of time to potential extinction (Lande 1993).

While the petition submits generalities that might occur to Black Hills mountainsnail populations, the type of specific data necessary to determine that environmental stochasticity is posing a threat to the species does not appear to be available. The only demographic information existing for this species is in the form of population estimates at documented sites, and these are described to be inexact due to difficulties in surveying the species (Frest and Johannes 2002). Information related to population growth rates, carrying capacities, and accurate population sizes of Black Hills mountainsnail populations, subpopulations, and metapopulations does not exist, and evidence that environmental stochasticity poses a threat to this species is not supported. We conclude that the petitioners did not provide substantial scientific information indicating that listing the Black Hills mountainsnail due to the described effects of environmental stochasticity may be warranted.

Climate Change

The petitioners assert that human-caused changes in the earth's climate such as increased temperature and lower precipitation, will stress ecosystems and wildlife. Climate change could lead to increases in frequency and intensity of wildfires, decreased range and density of Ponderosa pines in the Black Hills, grasslands and savannah replacement of forests and riparian woodlands, and upward movement of ecological zones, all of which would increase insolation and risk of dessication of the Black Hills

mountainsnail and reduce available habitat.

Evaluation of Information in the Petition Regarding Climate Change

Climate change has been linked to a number of conservation issues and observed changes in animal populations, behavioral phenologies, habitats, and ranges. However, direct evidence that climate change is the cause of these alterations is often lacking (McCarty 2001). To our knowledge, specific analysis regarding potential effects of climate change on the Black Hills mountainsnail has not been conducted. The information provided by the petition is speculative in nature and does not provide concrete evidence of threats to the petitioned entity. We conclude that the petitioners did not provide substantial scientific information indicating that listing the Black Hills mountainsnail due to the described effects of climate change may be warranted.

Summary for Factor E

The petitioners submit that extant Black Hills mountainsnail colonies are isolated making them more vulnerable to extinction; their habitat is fragmented, they are susceptible to fires and floods and random environmental changes as well as long-term climate changes threaten to reduce or eliminate extant colonies and their habitats. While some or all of these factors may affect the Black Hills mountainsnail, the petitioners failed to provide substantial scientific information to indicate that these factors pose a threat such that listing the Black Hills mountainsnail may be warranted due to any threat in factor E. Lack of historic data to demonstrate that the former range and population estimates for this species were substantially greater than the species' current range and population size, lack of demonstration of a population decline, as well as lack of direct causative links of the asserted factors to alleged species decline, preclude determination of these factors as threats to the species.

Finding

We have reviewed the petition and literature cited in the petition, and evaluated that information in relation to other pertinent literature and information available in our files. After this review and evaluation, we find the petition does not present substantial scientific information to indicate that listing the Black Hills mountainsnail may be warranted at this time. Although we will not be commencing a status review in response to this petition, we will continue to monitor the species' population status and trends, potential threats, and ongoing management actions that might be important with regard to the conservation of the Black Hills mountainsnail across its range. We encourage interested parties to continue to gather data that will assist with the conservation of the species. If you wish to provide information regarding the Black Hills mountainsnail, you may submit your information or materials to the Field Supervisor, Ecological Services, South Dakota Field Office (see **ADDRESSES**).

References Cited

A complete list of all references cited herein is available, upon request, from the U.S. Fish and Wildlife Service, Ecological Services, South Dakota Field Office (see **ADDRESSES** section).

Author

The primary author of this finding is the staff of the South Dakota Ecological Services Field Office (see **ADDRESSES**).

Authority

The authority for this action is section 4 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Dated: February 21, 2006.

Marshall P. Jones, Jr.

Acting Director, Fish and Wildlife Service.

[FR Doc. 06–1770 Filed 2–27–06; 8:45 am]

BILLING CODE 4310–55–P

Notices

Federal Register

Vol. 71, No. 39

Tuesday, February 28, 2006

This section of the FEDERAL REGISTER contains documents other than rules or proposed rules that are applicable to the public. Notices of hearings and investigations, committee meetings, agency decisions and rulings, delegations of authority, filing of petitions and applications and agency statements of organization and functions are examples of documents appearing in this section.

DEPARTMENT OF AGRICULTURE

Submission of OMB Review; Comment Request

February 22, 2006.

The Department of Agriculture has submitted the following information collection requirement(s) to OMB for review and clearance under the Paperwork Reduction Act of 1995, Public Law 104–14. Comments regarding (a) Whether the collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility; (b) the accuracy of the agency's estimate of burden including the validity of the methodology and assumptions used; (c) ways to enhance the quality, utility and clarity of the information to be collected; (d) ways to minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, other technological collection techniques or other forms of information technology should be addressed to: Desk Officer for Agriculture, Office of Information and Regulatory Affairs, Office of Management and Budget (OMB), *OIRA_Submission@OMB.EOP.GOV* or fax (202) 395–5806 and to Departmental Clearance Office, USDA, OCIO, Mail Stop 7602, Washington, DC 20250–7602. Comments regarding these information collections are best assured of having their full effect if received within 30 days of this notification. Copies of the submission(s) may be obtained by calling (202) 720–8681.

An agency may not conduct or sponsor a collection of information unless the collection of information displays a currently valid OMB control number and the agency informs potential persons who are to respond to the collection of information that such persons are not required to respond to the collection of information unless it displays a currently valid OMB control number.

Rural Utilities Service

Title: RUS Specification for quality control and Inspection of Timber Products.

OMB Control Number: 0572–0076.

Summary of Collection: The Rural Utilities Service (RUS) is a credit agency of the U.S. Department of Agriculture (USDA). It makes mortgage loans and loan guarantees to finance electronic, telecommunications, and water and waste facilities in rural areas. Loan programs are managed in accordance with the Rural Electrification Act (RE Act) of 1936, 7 U.S.C. 901 et seq., as amended.

Need and Use of the Information: RUS will use the information in verifying acceptability of poles and cross-arms purchased by RUS borrowers. Each year, RUS borrowers are required to submit an *Annual Summary of Purchases* that provides a list of plants from which it obtained poles or cross-arms during the preceding calendar year and Treaters must provide notification that they will treat poles for the upcoming year. Test reports are needed so that the purchaser, the inspectors, and RUS will be able to spot-check the general accuracy of the test.

Description of Respondents: Business or other for-profit; not-for-profit institutions.

Number of Respondents: 700.

Frequency of Responses: Reporting: On occasion.

Total Burden Hours: 40,763.

Charlene Parker,

Departmental Information Collection Clearance Officer.

[FR Doc. 06–1818 Filed 2–27–06; 8:45 am]

BILLING CODE 3410–15–M

DEPARTMENT OF AGRICULTURE

Submission for OMB Review; Comment Request

February 23, 2006.

The Department of Agriculture has submitted the following information collection requirement(s) to OMB for review and clearance under the Paperwork Reduction Act of 1995, Public Law 104–13. Comments regarding (a) Whether the collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility; (b) the accuracy of the agency's estimate of burden including the validity of the methodology and assumptions used; (c) ways to enhance the quality, utility and clarity of the information to be collected; (d) ways to minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology should be addressed to: Desk Officer for Agriculture, Office of Information and Regulatory Affairs, Office of Management and Budget (OMB), *OIRA_Submission@OMB.EOP.GOV* or fax (202) 395–5806 and to Departmental Clearance Office, USDA, OCIO, Mail Stop 7602, Washington, DC 20250–7602. Comments regarding these information collections are best assured of having their full effect if received within 30 days of this notification. Copies of the submission(s) may be obtained by calling (202) 720–8681.

An agency may not conduct or sponsor a collection of information unless the collection of information displays a currently valid OMB control number and the agency informs potential persons who are to respond to the collection of information that such persons are not required to respond to the collection of information unless it displays a currently valid OMB control number.

Farm Service Agency

Title: Debt Settlement Policies and Procedures.

Omb Control Number: 0560–0146.

Summary of Collection: Debt Collection Improvement Act (DCIA) of 1996 and 4 CFR 102, Federal Claim Collection Standard and other applicable regulation require each Federal agency to collect debts owed it, and to employ a cost effective and efficient procedures and methods to identify, report and collect debts. Provisions under the Federal Claims Collection Standards and the DCIA allow the debtor upon receiving a notification letter and unable to pay debt owed to the Federal Government in one lump sum, to forward a written request and financial statement to Farm

Service Administration (FSA) and Commodity Credit Corporation (CCC) for establishing an agreed repayment plan in the promissory note using form CCC–279, Promissory Note.

Need and Use of the Information: FSA will collect information on the debtor's assets, liabilities, income and expenses when a debtor requests to enter into an installment agreement to settle their debt. Based on that information a determination can be made on whether the debtor can pay the debt in one lump sum or an installment is necessary. Without this financial information FSA/CCC would have no method of allowing debtor's to pay their debts in installments while still ensuring that the government's financial interests are protected.

Description of Respondents: Individuals or households; Farms; Federal Government.

Number of Respondents: 100.

Frequency of Responses: Reporting: On occasion.

Total Burden Hours: 200.

Ruth Brown,

Departmental Information Collection Clearance Officer.

[FR Doc. E6–2748 Filed 2–27–06; 8:45 am]

BILLING CODE 3410–05–P

DEPARTMENT OF AGRICULTURE

Submission for OMB Review; Comment Request

February 23, 2006.

The Department of Agriculture has submitted the following information collection requirement(s) to OMB for review and clearance under the Paperwork Reduction Act of 1995, Public Law 104–13. Comments regarding (a) Whether the collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility; (b) the accuracy of the agency's estimate of burden including the validity of the methodology and assumptions used; (c) ways to enhance the quality, utility and clarity of the information to be collected; (d) ways to minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology should be addressed to: Desk Officer for Agriculture, Office of Information and Regulatory Affairs, Office of Management and Budget (OMB), *OIRA_Submission@OMB.EOP.GOV* or fax (202) 395–5806 and to Departmental Clearance Office, USDA, OCIO, Mail Stop 7602, Washington, DC 20250–7602. Comments regarding these information collections are best assured of having their full effect if received within 30 days of this notification. Copies of the submission(s) may be obtained by calling (202) 720–8958.

An agency may not conduct or sponsor a collection of information unless the collection of information displays a currently valid OMB control number and the agency informs potential persons who are to respond to the collection of information that such persons are not required to respond to the collection of information unless it displays a currently valid OMB control number.

National Agriculture Statistics Service

Title: NIOSH Farm Hazard, Injury, and Illness Survey.

OMB Control Number: 0535–0235.

Summary of Collection: Primary function of the National Agricultural Statistics Services (NASS) is to prepare and issue state and national estimates of crop and livestock production under the authority of 7 U.S.C 2204(a). NASS has been asked by the National Institute of Occupational Safety Health (NIOSH) to conduct a national farm hazard, injury, and illness survey. The survey is designed to provide estimates of the frequency of injury and illness hazards on farms; the number of farm operators, workers, and farm youth potentially exposed to these hazards; the association between hazards and the type of farming operation; and the annual occupational nonfatal injury and illness incidence rates for farm operators.

Need and Use of the Information: Data from this survey will provide source of consistent information that NIOSH can use to target funds appropriated by Congress for the prevention of childhood agricultural injuries and adult occupational injuries. In particular, it will provide information on which farm hazards and health outcomes most need to be addressed. No source of data on childhood injuries or adult occupational farm injuries exists that covers all aspects of the agricultural production sector.

Description of Respondents: Farms.

Number of Respondents: 25,500.

Frequency of Responses: Reporting: Other: One-time.

Total Burden Hours: 8,496.

Charlene Parker,

Departmental Information Collection Clearance Officer.

[FR Doc. E6–2747 Filed 2–27–06; 8:45 am]

BILLING CODE 3410–20–P

DEPARTMENT OF AGRICULTURE

Agricultural Marketing Service

[Docket Number FV–05–303]

United States Standards for Grades of Bunched Italian Sprouting Broccoli

AGENCY: Agricultural Marketing Service, USDA.

ACTION: Notice.

SUMMARY: The Agricultural Marketing Service (AMS) is soliciting comments on its proposal to revise the United States Standards for Grades of Bunched Italian Sprouting Broccoli. At a 2003 meeting of the Fruit and Vegetable Industry Advisory Committee, AMS was asked to review all the fresh fruit and vegetable standards for usefulness in serving the industry. The current U.S. grade standards do not have provisions for grading broccoli crowns and florets. The proposed revisions will allow crowns and florets to be certified to a United States grade.

DATES: Comments must be received by May 1, 2006.

ADDRESSES: Interested persons are invited to submit written comments to the Standardization Section, Fresh Products Branch, Fruit and Vegetable Programs, Agricultural Marketing Service, U.S. Department of Agriculture, 1400 Independence Ave. SW., Room 1661 South Building, Stop 0240, Washington, DC 20250–0240; Fax (202) 720–8871, E-mail *FPB.DocketClerk@usda.gov.* Comments should make reference to the dates and page number of this issue of the **Federal Register** and will be made available for public inspection in the above office during regular business hours. The United States Standards for Grades of Bunched Italian Sprouting Broccoli is available either at the above address or by accessing the AMS, Fresh Products Branch Web site at: *http://www.ams.usda.gov/standards/stanfrfv.htm.*

FOR FURTHER INFORMATION CONTACT: Cheri Emery, at the above address or call (202) 720–2185; E-mail *Cheri.Emery@usda.gov.*

SUPPLEMENTARY INFORMATION: Section 203(c) of the Agricultural Marketing Act of 1946 (7 U.S.C. 1621–1627), as

amended, directs and authorizes the Secretary of Agriculture ''To develop and improve standards of quality, condition, quantity, grade and packaging and recommend and demonstrate such standards in order to encourage uniformity and consistency in commercial practices.'' The Agricultural Marketing Service (AMS) is committed to carrying out this authority in a manner that facilitates the marketing of agricultural commodities and makes copies of official standards available upon request. The United States Standards for Grades of Fruits and Vegetables not connected with Federal Marketing Orders or U.S. Import Requirements, no longer appear in the Code of Federal Regulations, but are maintained by USDA/AMS/Fruit and Vegetable Programs.

AMS is proposing to revise the United States Standards for Grades of Bunched Italian Sprouting Broccoli using the procedures that appear in part 36, Title 7 of the Code of Federal Regulations (7 CFR part 36). These standards were last revised in 1943.

Background

On April 21, 2005, AMS published a notice in the **Federal Register** (70 FR 20730) soliciting comments for the possible revision of the United States Standards for Grades of Bunched Italian Sprouting Broccoli. In response to this notice, AMS received three comments on the proposed revision. One from an agricultural trade association, one from a representative of an exporter of broccoli from Mexico, and one from a state agriculture representative. The comments are available by accessing the AMS, Fresh Products Branch Web site at: *http://www.ams.usda.gov/fv/fpbdocketlist.htm.*

The agricultural trade association supported including broccoli crowns and had an interest in ''revisiting the diameter as well as the length under U.S. Fancy and No. 1'' (for bunched broccoli). AMS has included crowns and florets in the proposed standard. However, the commenter provided no specific suggestions for diameters and lengths for the U.S. Fancy and U.S. No. 1 grades of broccoli. Further, AMS believes that the current diameters and lengths for U.S. Fancy and U.S. No. 1 reflect current marketing practices. Therefore, AMS has not proposed a change to the existing requirements in these grades.

The representative for the exporter of broccoli from Mexico noted the various styles of broccoli they market. AMS has taken into consideration the lengths and diameters provided for bunched and has included similar lengths and diameters into the standards for crowns and florets.

The state agricultural representative commented that the U.S. Fancy grade should be eliminated. The continued use of the U.S. Fancy grade for broccoli and other commodities, reflects commodity marketing practices. Therefore, AMS does not believe such a change is warranted. The commenter also stated there should be a separate ''U.S. No. 1 Bunched,'' ''U.S. No. 1 Crowns,'' and ''U.S. No. 1 Florets'' grade and inclusion of a similar U.S. No. 2 grade. AMS believes that separate grades would be redundant and are not necessary and will instead have the existing U.S. grades and other sections revised so the standards specifically cover the broccoli styles of bunched, crowns, and florets. The commenter also proposed for crowns a three inch minimum diameter with no maximum size along with a stem length of maximum two inches. The commenter stated the size for florets as three inches maximum diameter and stem length of one inch. AMS disagrees with the commenter's proposed sizes since they are not consistent with those sizes marketed today. It was further suggested the diameter and stem length should have the option of meeting ''unless otherwise specified.'' However, AMS believes that the commenter's suggestion to add an ''unless otherwise specified'' option for length of the U.S. Fancy and U.S. No. 1 grades for the styles of ''Bunched,'' ''Crowns,'' and ''Florets'' has merit and this change is proposed.

The state agricultural representative also recommended eliminating the reference to ''shoot'' and adding language for the defect under the ''Damage'' definition for overmaturity and discoloration of bud clusters. AMS disagrees and will keep the reference to ''shoot'' because it is used in the reporting of size for bunched broccoli. AMS also believes that the current definition for ''Damage'' is sufficient for determining the extent of overmaturity and discoloration of bud clusters.

AMS is proposing to revise the title of the standards to United States Standards for Grades of Italian Sprouting Broccoli. AMS is also proposing to revise the size specification section to allow percentages to be determined ''by weight'' as well as ''by count'' when fairly uniform, in order to increase the efficiency of inspections. AMS is proposing to add a definition for fairly uniform since it is referenced in the standard but not defined. Additionally, AMS is proposing to add definitions for the terms florets and crowns and revising the definition for diameter to: ''Diameter'' means the measurement across the bud cluster. With the inclusion of crowns and florets in the standards, AMS is also proposing to add same type to the requirements for the grades and define same type as: Lots shall consist of broccoli with similar type characteristics, i.e., bunched can not be mixed with florets.

AMS will eliminate the unclassified category. This section is not a grade and only serves to show than no grade has been applied to the lot. This section will be removed from all fresh fruit and vegetable standards. It is no longer considered necessary.

The official grades of broccoli covered by these standards are determined by the procedures set forth in the Regulations Governing Inspection, Certification, and Standards of Fresh Fruits, Vegetables and Other Products (51.1 to 51.61).

This notice provides for a 60-day comment period for interested parties to comment on changes to the standards.

Authority: 7 U.S.C. 1621–1627.

Dated: February 23, 2006.

Lloyd C. Day,

Administrator, Agricultural Marketing Service.

[FR Doc. E6–2769 Filed 2–27–06; 8:45 am]

BILLING CODE 3410–02–P

DEPARTMENT OF AGRICULTURE

Agricultural Marketing Service

[Docket No: FV–06–331]

United States Standards for Grades of Processed Raisins

AGENCY: Agricultural Marketing Service, USDA.

ACTION: Advance notice of proposed rulemaking.

SUMMARY: The Agricultural Marketing Service (AMS), prior to undertaking research and other work associated with revising official grade standards, is soliciting comments on the petition to change the United States Standards for Grades of Processed Raisins. AMS received a petition from the Raisin Administrative Committee (RAC) requesting that USDA revise the current grade standards to add to and also modify the wording for ''TYPE I—Seedless Raisins. The petitioner believes that revising the standards will provide for common language presently used by the industry.

DATES: Comments must be submitted on or before May 1, 2006.

ADDRESSES: Interested persons are invited to submit written comments

concerning this notice. Comments must be sent to Karen L. Kaufman, Standardization Section, Processed Products Branch, Fruit and Vegetable Programs, Agricultural Marketing Service, U.S. Department of Agriculture, 1400 Independence Avenue SW., Room 0709, South Building; STOP 0247, Washington, DC 20250; telephone (202) 720–4693; fax (202) 690–1527, e-mail *karen.kaufman@usda.gov.* The United States Standards for Grades of Processed Raisins is available either through the address cited above or by accessing the AMS Web site on the Internet at *http://www.ams.usda.gov/fv/ppb.html.* Any comments received regarding the notice will be posted at that site. Comments also will be available for public inspection in the above office during regular business hours.

FOR FURTHER INFORMATION CONTACT: Karen L. Kaufman, Telephone (202) 720–4693.

SUPPLEMENTARY INFORMATION:

Background

AMS received a petition from the Raisin Administrative Committee (RAC), requesting the revision of the United States Standards for Grades of Processed Raisins. These standards are issued under the Agricultural Marketing Act of 1946 (7 U.S.C. 1621—1627)

The petitioner is requesting that USDA revise the grade standards for section 52.1843 Summary of types (varieties) of processed raisins for Type-I Seedless Raisins. The revision would add the processed raisin type, ''Vine-dried (without the application of drying chemicals or materials)'' to the current summary as well as modify the type for ''Dipped, Vine-dried, or similarly processed raisins'' to ''Dipped, Vine-dried, treated with drying chemicals or materials or similarly processed raisins.''

Prior to undertaking detailed work to develop a proposal, AMS is soliciting comments on the petition to revise the U.S. Standards for Grades of Processed Raisins.

This notice provides for a 60-day comment period for interested parties to comment on the petition to develop a proposed revision of the standards. Should AMS conclude that there is a need for changes to the standards, detailed work could be undertaken as soon as possible and the eventual proposed revised standard would be published in the **Federal Register** with a request for comments in accordance with 7 CFR part 36.

Authority: 7 U.S.C. 1621–1627.

Dated: February 23, 2006.

Lloyd C. Day,

Administrator, Agricultural Marketing Service.

[FR Doc. E6–2770 Filed 2–27–06; 8:45 am]

BILLING CODE 3410–02–P

DEPARTMENT OF AGRICULTURE

Farm Service Agency

Request for Approval of a New Information Collection; 2005 Section 32 Hurricane Disaster Programs

AGENCY: Farm Service Agency, USDA.

ACTION: Notice and Request for Comments.

SUMMARY: In accordance with the Paperwork Reduction Act of 1995, this notice announces the intent of the Farm Service Agency (FSA) to request a new information collection to be used in support of the 2005 Section 32 Hurricane Disaster Programs. These programs consist of the Hurricane Indemnity Program (HIP), the Feed Indemnity Program (FIP), the Livestock Indemnity Program (LIP), and the Tree Indemnity Program (TIP).

DATES: Comments on this notice must be receive on or before May 1, 2006 to be assured consideration.

FOR FURTHER INFORMATION CONTACT: Steven J. Peterson, USDA, Farm Service Agency, Production, Emergencies and Compliance Division, Disaster Assistance Branch, 1400 Independence Avenue SW., STOP 0517, Washington, DC 20250–0517; Telephone (202) 720–5172; Electronic mail: *Steve.Peterson@wdc.usda.gov*

SUPPLEMENTARY INFORMATION:

Title: 2005 Section 32 Hurricane Disaster Assistance Programs.

OMB Control Number: 0560-NEW.

Type of Request: Request Approval of a New Information Collection.

Abstract: This information collection will be used to make eligibility determinations on respondent's requests for payments to supplement indemnities or payments received under Federal crop insurance or the Noninsured Crop Disaster Assistance Program (NAP), in addition to requests for payments to compensate for losses of livestock, livestock feed, trees, bushes, and vines, all of which resulted from one or more of five named hurricanes that occurred in 2005 in counties designated as primary under a Presidential disaster declaration or Secretarial designation. Travel time has been included in the Estimated Annual Burden on Respondents.

Estimate of Annual Burden: Public reporting burden for this collection of information is estimated to average 90 minutes per response.

Respondents: Individuals or households, businesses or other for profit and farms.

Estimated Number of Respondents: 34,008.

Estimated Number of Responses per Respondent: 1.

Estimated Total Annual Burden on Respondents: 51,012.

Comments are invited on the following: (a) Whether the collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility; (b) the accuracy of the agency's estimate of burden, including the validity of the methodology and assumptions used; (c) ways to enhance the quality, utility and clarity of the information to be collected; (d) ways to minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology. These comments should be sent to the Desk Officer of Agriculture, Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503, and to Steven J. Peterson, Branch Chief, USDA, Farm Service Agency, Production, Emergencies and Compliance Division, Disaster Assistance Branch, 1400 Independence Avenue SW., STOP 0517, Washington, DC 20250–0517.

Comments will be summarized and included in the request for Office of Management and Budget approval of the information collection. All comments will also become a matter of public record.

Signed in Washington, DC on February 23, 2006.

Teresa C. Lasseter,

Administrator, Farm Service Agency.

[FR Doc. E6–2813 Filed 2–27–06; 8:45 am]

BILLING CODE 3410–05–P

DEPARTMENT OF AGRICULTURE

Food and Nutrition Service

Agency Information Collection Activities: Proposed Collection; Comment Request; Negative QC Review Schedule; Status of Sample Selection and Completion

AGENCY: Food and Nutrition Service, USDA.

ACTION: Notice.

SUMMARY: In accordance with the Paperwork Reduction Act of 1995, this notice invites the general public and other public agencies to comment on the proposed information collections for the FNS–245, Negative Case Action Review Schedule and the FNS–248, Status of Sample Selection and Completion. The two forms are currently used in the Quality Control process for the Food Stamp Program. The proposed collections are revisions of collections currently approved under OMB No. 0584–0034.

DATES: Written comments must be submitted on or before May 1, 2006.

ADDRESSES: Comments are invited on: (a) Whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility; (b) the accuracy of the agency's estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used; (c) ways to enhance the quality, utility, and clarity of the information to be collected; and (d) ways to minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology. Send comments and requests for copies of this information collection to: Daniel Wilusz, Chief, Quality Control Branch, Program Accountability Division, Food and Nutrition Service, U.S. Department of Agriculture, 3101 Park Center Drive, Room 822, Alexandria, VA 22302. You may fax comments on this notice to (703) 305–0928. An electronic version of this notice may be downloaded at *http://www.fns.usda.gov/fsp/rules/Regulations/default.htm*. Comments may be submitted via the Internet at the same address and will receive an electronic confirmation upon receipt.

All responses to this notice will be summarized and included in the request for OMB approval. All comments will also become a matter of public record.

FOR FURTHER INFORMATION CONTACT: Daniel Wilusz, (703) 305–2460.

SUPPLEMENTARY INFORMATION:

Title: Negative QC Review Schedule; Status of Sample Selection and Completion.

OMB Number: 0584–0034.

Form Number: FNS–245 & FNS–248.

Expiration Date: 07/31/06.

Type of Request: Revision of currently approved collections.

Abstract: The FNS–245, Negative Case Action Review Schedule, is designed to collect quality control (QC) data and serve as the data entry form for negative case action QC reviews in the Food Stamp Program. State agencies complete the FNS–245 for each negative case in their QC sample. The reporting and recordkeeping burden associated with the completion of the FNS–245 is being reduced from 123,026 hours to 121,572 hours. The decrease is the result of a reduction of the total case selection from 40,262 cases in FY 2001 to 39,782 cases in FY 2004. The FNS–248, Status of Sample Selection and Completion, tracks a State's progress in sample selection and case completion on a monthly basis. A proposed rule entitled ''Food Stamp Program: Discretionary Quality Control Provisions of Title IV of Public Law 107–171'', was published in the **Federal Register** on September, 23, 2005. The rulemaking proposed to eliminate this form as a means of collecting this information and would allow State agencies to report in a manner as directed by the regional offices. FNS expects to publish a final rule on this subject in October 2006. Until then, FNS–248 will remain in effect. The burden associated with the collection remains unchanged.

Affected Public: Individuals or households; State or local governments.

Estimated Number of Respondents: 53.

Number of Responses Per Respondent: 751.

Total Number of Responses: 39,782.

Estimated Reporting Time Per Response: 3.03 Hours.

Estimated Reporting Annual Burden: 120,618 Hours.

Number of Recordkeepers: 53.

Annual Hours Per Recordkeeper: 18.

Estimated Recordkeeping Annual Burden: 954 Hours.

Total Annual Reporting and Recordkeeping Burden: 121,572 Hours.

Dated: February 21, 2006

Roberto Salazar,

Administrator.

[FR Doc. E6–2811 Filed 2–27–06; 8:45 am]

BILLING CODE 3410–30–P

DEPARTMENT OF AGRICULTURE

Forest Service

Secure Rural Schools Land Sales Initiative

AGENCY: Forest Service, USDA.

ACTION: Notice; request for comments.

SUMMARY: The Forest Service is seeking comments from all interested individuals and organizations on the list of National Forest System land parcels in the FY 2007 President's Budget proposal to be sold for the purpose of funding payments to Secure Rural Schools (SRS), should this program be extended by amendment to the Secure Rural Schools and Community Self-Determination Act of 2000. The sale of these parcels is contingent upon amendment of the SRS as proposed by the President.

DATES: You should submit your comments by March 30, 2006 to be assured of consideration. Comments received after that date will be considered only to the extent practicable.

ADDRESSES: You may submit your comments by e-mail to *SRS_Land_Sales@fs.fed.us,* by facsimile to (202) 205–1604, or by mail to USDA Forest Service, SRS Comments, Lands 4S, 1400 Independence Ave., SW., Mailstop 1124, Washington, DC 20250–0003. *Electronic submission is preferred.* If you submit your comments by e-mail or fax, you do not need to send a paper copy by mail.

Your comments may address the entire list of parcels identified in the President's proposal, or an individual parcel or parcels on that list. If you are commenting about a specific parcel on the list, it would be helpful to provide the parcel's number from the list and all information specifically related to the sale of that parcel.

Document and Comment Availability: In addition to publishing the full text of this document in the **Federal Register**, the Forest Service provides all interested persons an opportunity to view and/or print the contents of this document, the potentially eligible lands listing, and associated maps via the Internet. Information on this proposal and the **Federal Register** Notice can be found at *http://www.fs.fed.us* via the *Secure Rural Schools and Community Self-Determination Act* link to the ''President's FY 2007 Budget Proposal for the Forest Service—Secure Rural Schools and Community Self-Determination Act Extension'' page.

FOR FURTHER INFORMATION CONTACT: Cynthia R. Swanson, Assistant Director of Lands, Washington Office, 202–205–0099. Individuals who use telecommunication devices for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 1–800–877–8339 between 8 a.m. and 8 p.m., Eastern Standard Time, Monday through Friday.

SUPPLEMENTARY INFORMATION: The Secure Rural Schools and Community Self-Determination Act of 2000 (the Act) (Pub. L. 106–393) was enacted to provide transitional assistance to rural counties that had been affected by the

decline in revenue from timber harvests on Federal lands. These counties traditionally relied on a share of receipts from timber harvests to fund their school systems and roads. The Act stabilized payments that are critically important to more than 4,400 rural schools and addressed many severe maintenance backlogs for county roads. Resource Advisory Committees (RACs) established under the Act have developed and proposed forest health improvement projects.

The President's fiscal year 2007 Budget for the Forest Service proposes legislation to amend the Secure Rural Schools Act. The legislation would provide a source of funding for payments under the Secure Rural Schools Act by authorizing the sale of a limited number of National Forest System lands. These parcels generally meet criteria traditionally used by the Forest Service to identify lands suitable for sale or exchange. Many of these parcels are isolated from other contiguous National Forest System lands, and because of their location, size, or configuration are not efficient to manage as a component of the National Forest System.

The Forest Service manages about 193 million acres in 155 national forests and 20 national grasslands located in 43 States across the nation. The limited number of parcels included within this proposal constitutes less than 0.2 of 1% of the National Forest System land base. A total of 304,370 acres and approximately 3,000 individual tracts have been identified on 120 national forests, 10 national grasslands, within 35 States.

The following table provides a summary of the number of acres identified for each State.

State	*Region(s)*	*Acres of potentially eligible lands*
Alabama	8	3,220
Alaska	10	99
Arizona	3	1,030
Arkansas	8	3,612
California	5,6	79,825
Colorado	2,4	21,572
Florida	8	973
Georgia	8	4,522
Idaho	1,4,6	25,464
Illinois	9	191
Indiana	9	869
Kentucky	8	4,518
Louisiana	8	3,895
Michigan	9	5,880
Minnesota	9	2,622
Mississippi	8	7,503
Missouri	9	21,566
Montana	1	13,948
Nebraska	2	866
Nevada	4	2,146
New Mexico	3	7,447
North Carolina	8	9,828
Ohio	9	420
Oklahoma	8	3,572
Oregon	6	10,581
South Carolina	8	4,665
South Dakota	1,2	13,961
Tennessee	8	2,996
Texas	3,8	4,813
Utah	4	5,998
Virginia	8	5,717
Washington	6	7,516
West Virginia	9	4,836
Wisconsin	9	80
Wyoming	2,4	17,619
Total All States	.....	*304,370*

Lands located within the boundaries of any component of the National Wilderness Preservation System, National Wild and Scenic River System, National Trail System, National Recreation Area, National Monument, National Historic Site, National Preserve, or specially designated areas such as Research Natural Areas and experimental forests and ranges are not eligible for conveyance.

Many of the identified parcels have not been inventoried for natural or cultural resources specific to this proposal. However, they generally meet criteria traditionally used by the Forest Service to identify parcels for potential sale or exchange. Examples of primary benefits of disposal will include: (1) Reduction in agency costs associated with encroachments and boundary management; (2) enhancement of local economies through private sector development; and (3) increased opportunities for acquisition by local governmental entities for low income housing, parks, fire stations, water and wastewater systems, and for other community and public purposes.

The proposed sale of these parcels is contingent upon the enactment of legislation by Congress to provide revenue for the authorization of the Secure Rural Schools and Community Self-Determination Act of 2000 (Pub. L.

106–393). The Forest Service does not have general, non-specific, authority to sell National Forest System lands.

Dated: February 22, 2006.

Sally D. Collins,

Associate Chief.

[FR Doc. 06–1862 Filed 2–23–06; 1:34 pm]

BILLING CODE 3410–11–P

DEPARTMENT OF AGRICULTURE

Rural Utilities Service

Information Collection Activity; Comment Request

AGENCY: Rural Utilities Service, USDA.

ACTION: Notice and request for comments.

SUMMARY: In accordance with the Paperwork Reduction Act of 1995 (44 U.S.C. Chapter 35, as amended), the Rural Utilities Service (RUS) invites comments on this information collection for which RUS intends to request approval from the Office of Management and Budget (OMB).

DATES: Comments on this notice must be received by May 1, 2006.

FOR FURTHER INFORMATION CONTACT: Michele Brooks, Deputy Director, Program Development and Regulatory Analysis, Rural Utilities Service, 1400 Independence Ave., SW., STOP 1522, Room 5159 South Building, Washington, DC 20250–1522. Telephone: (202) 690–1078. FAX: (202) 720–8435.

SUPPLEMENTARY INFORMATION: The Office of Management and Budget's (OMB) regulation (5 CFR 1320) implementing provisions of the Paperwork Reduction Act of 1995 (Pub. L. 104–13) requires that interested members of the public and affected agencies have an opportunity to comment on information collection and recordkeeping activities (see 5 CFR 1320.8(d)). This notice identifies an information collection that RUS is submitting to OMB for extension.

Comments are invited on: (a) Whether the proposed collection of information is necessary for the proper performance of the functions of the Agency, including whether the information will have practical utility; (b) the accuracy of the Agency's estimate of the burden of the proposed collection of information including the validity of the methodology and assumptions used; (c) ways to enhance the quality, utility and clarity of the information to be collected; and (d) ways to minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology. Comments may be sent to: Joyce McNeil, Program Development and Regulatory Analysis, Rural Utilities Service, U.S. Department of Agriculture, STOP 1522, 1400 Independence Ave., SW., Washington, DC 20250–1522. FAX: (202) 720–8435.

Title: RUS Form 675, Certification of Authority.

OMB Control Number: 0572–0074.

Type of Request: Extension of a currently approved collection.

Abstract: The Rural Utilities Service (RUS) manages loan programs in accordance with the Rural Electrification Act of 1936, as amended (7 U.S.C. 901 et seq.) (RE Act). A major factor in managing loan programs is controlling the advance of funds. One reason to control funds is so that the actual borrowers get their money. The use of RUS Form 675 allows this control to be achieved by providing a list of authorized signatures against which signatures requesting funds are compared. RUS Form 675 provides an effective control against the unauthorized release of funds by providing a list of authorized signatures. OMB Circular A–123, Management Accountability and Control, states that information should be maintained on a current basis and that cash should be protected from unauthorized use. Form 675 allows borrowers to keep RUS up-to-date of any changes in signature authority and controls the release funds only to authorized borrower representatives.

Estimate of Burden: Public reporting for this collection of information is estimated to average .10 hours per response.

Respondents: Business or other for profit; Not-for-profit institutions; and State, Local, or Tribal government.

Estimated Number of Respondents: 350.

Estimated Number of Responses per Respondent: 1.

Estimated Total Annual Burden on Respondents: 35.0 hours.

Copies of this information collection can be obtained from Joyce McNeil, Program Development and Regulatory Analysis, at (202) 690–1078. FAX: (202) 720–8435.

All responses to this notice will be summarized and included in the request for OMB approval. All comments will also become a matter of public record.

Dated: February 17, 2006.

James M. Andrew,

Administrator, Rural Utilities Service.

[FR Doc. 06–1819 Filed 2–27–06; 8:45 am]

BILLING CODE 3410–15–P

DEPARTMENT OF COMMERCE

International Trade Administration

[A–602–803, A–122–822, A–427–808, A–428–815, A–588–824, A–580–816, C–580–818]

Certain Corrosion-Resistant Carbon Steel Flat Products from Australia, Canada, France, Germany, Japan, and South Korea: Extension of Time Limits for Final Results of Expedited Sunset Reviews

AGENCY: Import Administration, International Trade Administration, Department of Commerce.

EFFECTIVE DATE: February 28, 2006.

FOR FURTHER INFORMATION CONTACT: John Conniff or David Goldberger, AD/CVD Operations, Import Administration, International Trade Administration, U.S. Department of Commerce, 14th Street & Constitution Avenue, NW., Washington, DC 20230; telephone: (202) 482–1009 or (202) 482–4136, respectively.

SUPPLEMENTARY INFORMATION:

Extension of Time Limits

On November 1, 2005, the Department of Commerce (''the Department'') initiated sunset reviews of the antidumping duty (''AD'') orders on certain corrosion-resistant carbon steel flat products (''CORE'') from Australia, Canada, France, Germany, Japan, and South Korea and the countervailing duty order (''CVD'') on CORE from South Korea, pursuant to section 751(c) of the Tariff Act of 1930, as amended (''the Act''). See *Initiation of Five-Year (Sunset) Reviews*, 70 FR 65884 (November 1, 2005). Based on an adequate responses from the domestic interested parties and inadequate responses from respondent interested parties, the Department is conducting expedited sunset reviews to determine whether revocation of the AD orders on CORE from Australia, Canada, France, Germany, Japan, and South Korea would lead to the continuation or recurrence of dumping and whether revocation of the CVD order on CORE from South Korea would lead to continuation or recurrence of a countervailable subsidy. *See* section 19 CFR 351.218(e)(1)(ii)(C) of the Act.

In accordance with section 751(c)(5)(B) of the Act, the Department may extend the period of time for

making its determination in a sunset review by not more than 90 days, if it determines that the review is extraordinarily complicated. As set forth in section 751(c)(5)(C)(v) of the Act, the Department may treat a sunset review as extraordinarily complicated if it is a review of a transition order. The sunset reviews subject to this notice are reviews of transition orders. Therefore, the Department has determined, pursuant to section 751(c)(5)(C)(v) of the Act, that the sunset reviews of the AD orders on CORE from Australia, Canada, France, Germany, Japan, and South Korea and the sunset review of the CVD order on CORE from South Korea are extraordinarily complicated and require additional time for the Department to complete its analysis. Accordingly, the Department will extend the deadlines in these proceedings, and, as a result, intends to issue the final results of the expedited sunset reviews on CORE from Australia, Canada, France, Germany, Japan, and South Korea on or about May 30, 2006, 90 days from the original scheduled date of the expedited final sunset reviews.

This notice is issued and published in accordance with sections 751(c)(5)(B) and (C) of the Act.

Dated: February 21, 2006.

Stephen J. Claeys,

Deputy Assistant Secretaryfor Import Administration.

[FR Doc. E6–2788 Filed 2–27–06; 8:45 am]

Billing Code: 3510–DS–S

DEPARTMENT OF COMMERCE

International Trade Administration

[A–201–830]

Rescission of Antidumping Duty Administrative Review: Carbon and Certain Alloy Steel Wire Rod From Mexico

AGENCY: Import Administration, International Trade Administration, Department of Commerce.

SUMMARY: In response to a request from Hylsa Puebla, S.A. de C.V. (Hylsa Puebla) and Siderurgica Lazaro Cardenas las Truchas S.A. (SICARTSA), the Department of Commerce (the Department) initiated an administrative review of the antidumping duty order on carbon and certain alloy steel wire rod from Mexico. This review covers imports of subject merchandise from Hysla Puebla and SICARTSA, for the period of review (POR) October 1, 2004, through September 30, 2005. On December 27, 2005, Hysla Puebla withdrew its request for an administrative review and on January 24, 2006, SICARTSA withdrew its request for an administrative review. No other parties requested a review. The Department is now rescinding this administrative review.

EFFECTIVE DATE: February 28, 2006.

FOR FURTHER INFORMATION CONTACT: Tipten Troidl, AD/CVD Operations, Office 3, Import Administration, International Trade Administration, U.S. Department of Commerce, 14th Street and Constitution Avenue, NW., Washington, DC 20230; telephone: 202–482–1767.

SUPPLEMENTARY INFORMATION:

Background

The Department published an antidumping duty order on carbon and certain alloy steel wire rod from Mexico on October 29, 2002. *See Notice of Antidumping Duty Orders: Carbon and Certain Alloy Steel Wire Rod from Brazil, Indonesia, Mexico, Moldova, Trinidad and Tobago, and Ukraine*, 67 FR 65945. On October 28, 2005 and October 31, 2005, SICARTSA and Hysla Puebla, producers of the subject merchandise, requested an administrative review of the antidumping order referenced above. On December 1, 2005, and December 22, 2005, the Department published notices of initiation of antidumping and countervailing duty administrative reviews. *See Initiation of Antidumping and Countervailing Duty Administrative Reviews and Deferral of Administrative Reviews*, 70 FR 72107 (December 1, 2005), and *Initiation of Antidumping and Countervailing Duty Administrative Reviews and Request for Revocation in Part*, 70 FR 76024 (December 22, 2005).

Scope of Order

The merchandise subject to this order is certain hot–rolled products of carbon steel and alloy steel, in coils, of approximately round cross section, 5.00 mm or more, but less than 19.00 mm, in solid cross-sectional diameter.

Specifically excluded are steel products possessing the above-noted physical characteristics and meeting the Harmonized Tariff Schedule of the United States (HTSUS) definitions for (a) Stainless steel; (b) tool steel; (c) high nickel steel; (d) ball bearing steel; and (e) concrete reinforcing bars and rods. Also excluded are (f) free machining steel products (*i.e.*, products that contain by weight one or more of the following elements: 0.03 percent or more of lead, 0.05 percent or more of bismuth, 0.08 percent or more of sulfur, more than 0.04 percent of phosphorus, more than 0.05 percent of selenium, or more than 0.01 percent of tellurium).

Also excluded from the scope are 1080 grade tire cord quality wire rod and 1080 grade tire bead quality wire rod. This grade 1080 tire cord quality rod is defined as: (i) Grade 1080 tire cord quality wire rod measuring 5.0 mm or more but not more than 6.0 mm in cross-sectional diameter; (ii) with an average partial decarburization of no more than 70 microns in depth (maximum individual 200 microns); (iii) having no non-deformable inclusions greater than 20 microns and no deformable inclusions greater than 35 microns; (iv) having a carbon segregation per heat average of 3.0 or better using European Method NFA 04–114; (v) having a surface quality with no surface defects of a length greater than 0.15 mm; (vi) capable of being drawn to a diameter of 0.30 mm or less with 3 or fewer breaks per ton; and (vii) containing by weight the following elements in the proportions shown: (1) 0.78 percent or more of carbon, (2) less than 0.01 percent of aluminum, (3) 0.040 percent or less, in the aggregate, of phosphorus and sulfur, (4) 0.006 percent or less of nitrogen, and (5) not more than 0.15 percent, in the aggregate, of copper, nickel and chromium.

This grade 1080 tire bead quality rod is defined as: (i) Grade 1080 tire bead quality wire rod measuring 5.5 mm or more but not more than 7.0 mm in cross-sectional diameter; (ii) with an average partial decarburization of no more than 70 microns in depth (maximum individual 200 microns); (iii) having no non-deformable inclusions greater than 20 microns and no deformable inclusions greater than 35 microns; (iv) having a carbon segregation per heat average of 3.0 or better using European Method NFA 04–114; (v) having a surface quality with no surface defects of a length greater than 0.2 mm; (vi) capable of being drawn to a diameter of 0.78 mm or larger with 0.5 or fewer breaks per ton; and (vii) containing by weight the following elements in the proportions shown: (1) 0.78 percent or more of carbon, (2) less than 0.01 percent of soluble aluminum, (3) 0.040 percent or less, in the aggregate, of phosphorus and sulfur, (4) 0.008 percent or less of nitrogen, and (5) either not more than 0.15 percent, in the aggregate, of copper, nickel and chromium (if chromium is not specified), or not more than 0.10 percent in the aggregate of copper and nickel and a chromium content of 0.24 to 0.30 percent (if chromium is specified).

For purposes of the grade 1080 tire cord quality wire rod and the grade 1080 tire bead quality wire rod, an

inclusion will be considered to be deformable if its ratio of length (measured along the axis—that is, the direction of rolling of the rod) over thickness (measured on the same inclusion in a direction perpendicular to the axis of the rod) is equal to or greater than three. The size of an inclusion for purposes of the 20 microns and 35 microns limitations is the measurement of the largest dimension observed on a longitudinal section measured in a direction perpendicular to the axis of the rod. This measurement methodology applies only to inclusions on certain grade 1080 tire cord quality wire rod and certain grade 1080 tire bead quality wire rod that are entered, or withdrawn from warehouse, for consumption on or after July 24, 2003.

The designation of the products as ''tire cord quality'' or ''tire bead quality'' indicates the acceptability of the product for use in the production of tire cord, tire bead, or wire for use in other rubber reinforcement applications such as hose wire. These quality designations are presumed to indicate that these products are being used in tire cord, tire bead, and other rubber reinforcement applications, and such merchandise intended for the tire cord, tire bead, or other rubber reinforcement applications is not included in the scope. However, should the petitioners or other interested parties provide a reasonable basis to believe or suspect that there exists a pattern of importation of such products for other than those applications, end-use certification for the importation of such products may be required. Under such circumstances, only the importers of record would normally be required to certify the end use of the imported merchandise.

All products meeting the physical description of subject merchandise that are not specifically excluded are included in this scope. The products subject to this order are currently classifiable under subheadings 7213.91.3011, 7213.91.3015, 7213.91.3092, 7213.91.4500, 7213.91.6000, 7213.99.0030, 7213.99.0090, 7227.20.0000, 7227.90.6010, and 7227.90.6080 of the HTSUS. Although the HTSUS subheadings are provided for convenience and customs purposes, the written description of the scope of this proceeding is dispositive.[1]

[1] Effective January 1, 2006, U.S. Customs and Border Protection (CBP) reclassified certain HTSUS numbers related to the subject merchandise. *See http://hotdocs.usitc.gov/tariff_chapters_current/toc.html.*

Rescission of Review

A party that requests an administrative review may withdraw the request within 90 days after the date of publication of the notice of initiation of the requested administrative review. *See* 19 CFR 351.213(d)(1). On December 27, 2005, and January 24, 2006, Hysla Puebla and SICARTSA, respectively, withdrew their requests for an administrative review. Accordingly, the requests for withdrawal were submitted within 90 days of the initiation notice, and are therefore timely, pursuant to 19 CFR 351.213(d)(1).

Therefore, the Department is rescinding the administrative review of the antidumping duty order on carbon and certain alloy steel wire rod from Mexico covering the period October 1, 2004, through September 30, 2005. The Department will issue appropriate assessment instructions directly to U.S. Customs and Border Protection.

This notice serves as a reminder to parties subject to administrative protective order (APO) of their responsibility concerning the disposition of proprietary information disclosed under APO in accordance with section 351.305(a)(3) of the Department's regulations. Timely written notification of the return/destruction of APO materials or conversion to judicial protective order is hereby requested. Failure to comply with the regulations and the terms of an APO is a sanctionable violation.

This notice is issued and published in accordance with section 777(i)(1) of the Tariff Act of 1930, as amended, and 19 CFR 351.213(d)(4).

Dated: February 21, 2006.

Stephen J. Claeys,

Deputy Assistant Secretary for Import Administration.

[FR Doc. E6–2782 Filed 2–27–06; 8:45 am]

BILLING CODE 3510–DS–S

DEPARTMENT OF COMMERCE

International Trade Administration

[A–570–868]

Folding Metal Tables and Chairs From the People's Republic of China: Notice of Extension of Time Limit for the Preliminary Results of the Antidumping Duty Administrative Review

AGENCY: Import Administration, International Trade Administration, Department of Commerce.

EFFECTIVE DATE: February 28, 2006.

FOR FURTHER INFORMATION CONTACT: Charles Riggle at (202) 482–0650 or Marin Weaver at (202) 482–2336, AD/CVD Operations, Office 8, Import Administration, International Trade Administration, U.S. Department of Commerce, 14th Street and Constitution Avenue, NW., Washington, DC 20230.

SUPPLEMENTARY INFORMATION:

Background

On July 21, 2005, the Department of Commerce (''the Department'') published the initiation of the administrative review of the antidumping duty order on folding metal tables and chairs from the People's Republic of China (''PRC''). *See Initiation of Antidumping and Countervailing Duty Administrative Reviews and Request for Revocation in Part*, 70 FR 42028 (July 21, 2005). This review covers the period June 1, 2004, through May 31, 2005. The preliminary results of review are currently due no later than March 2, 2006.

Extension of Time Limit for Preliminary Results of Review

Pursuant to section 751(a)(3)(A) of the Tariff Act of 1930, as amended (''the Act''), the Department shall make a preliminary determination in an administrative review of an antidumping duty order within 245 days after the last day of the anniversary month of the date of publication of the order. The Act further provides, however, that the Department may extend that 245-day period to 365 days if it determines it is not practicable to complete the review within the foregoing time period.

The Department finds that it is not practicable to complete the preliminary results of the administrative review of folding metal tables and chairs from the PRC within this time limit. Specifically, due to complex issues related to the proper treatment of zero-priced transactions, we find that additional time is needed to complete these preliminary results. Therefore, in accordance with section 751(a)(3)(A) of the Act, the Department is extending the time period for completion of the preliminary results of this review by 120 days until June 30, 2006.

This notice is published in accordance with sections 751(a)(3)(A) and 777(i) of the Act.

Dated: February 22, 2006.

Stephen J. Claeys,

Deputy Assistant Secretary for Import Administration.

[FR Doc. E6–2786 Filed 2–27–06; 8:45 am]

BILLING CODE 3510–DS–S

DEPARTMENT OF COMMERCE

International Trade Administration

[A–570–803]

Notice of Amended Final Results of Antidumping Duty Administrative Reviews: Heavy Forged Hand Tools, Finished or Unfinished, With or Without Handles, From the People's Republic of China

AGENCY: Import Administration, International Trade Administration, Department of Commerce.

SUMMARY: On October 11, 2005, the United States Court of Appeals for the Federal Circuit (''CAFC'') affirmed the ruling of the United States Court of International Trade (''CIT''), sustaining the final results of administrative reviews issued by the Department of Commerce (the Department) on September 12, 2002, and the Department's February 6, 2003 remand redetermination. Because all litigation in this matter has concluded, we are correcting certain ministerial errors identified during a court remand redetermination. The period of review (''POR'') for these administrative reviews is February 1, 2000, through January 31, 2001.

EFFECTIVE DATE: February 28, 2006.

FOR FURTHER INFORMATION CONTACT: Thomas Martin or Mark Manning, AD/CVD Operations, Office 4, Import Administration, International Trade Administration, U.S. Department of Commerce, 14th Street and Constitution Avenue, NW., Washington, DC 20230; telephone: (202) 482–3936 or (202) 482–5253, respectively.

SUPPLEMENTARY INFORMATION:

Background

On September 12, 2002, the Department published the final results for the tenth review of the antidumping duty orders on heavy forged hand tools (''HFHTs'') from the People's Republic of China (PRC). *See Heavy Forged Hand Tools From the People's Republic of China: Final Results and Partial Rescission of Antidumping Duty Administrative Review and Determination Not To Revoke in Part*, 67 FR 57789 (September 12, 2002) (''*Final Results*''). On September 16, 2002, the petitioner Ames True Temper, and the respondents, Shandong Machinery Import & Export Corporation (''SMC''), Tianjin Machinery Import & Export Corporation (''TMC''), Liaoning Machinery Import & Export Corporation (''LMC''), and Shandong Huarong General Group Corporation (''Huarong''), timely filed allegations that the Department made several ministerial errors in its final results. On September 23, 2002, the petitioner and respondents filed rebuttal comments. Before the Department could issue its ruling on the ministerial error allegations, TMC, LMC, Huarong, and SMC jointly filed a summons and complaint with the CIT to contest the Department's decision as to the bars/wedges and picks/mattocks orders on September 30, 2002. On October 8, 2002, the respondents amended their complaint to include the Department's decision with respect to all four classes or kinds of merchandise. The respondents filed a second amended complaint on November 8, 2002, whereby SMC and LMC were removed as party–plaintiffs. The second amended complaint also removed TMC's claims with respect to the final results of the review of the bars/wedges order, thus limiting TMC's litigation to decisions regarding the axes/adzes, hammers/sledges, and picks/mattocks orders. Huarong's claims were limited to the final results of the review of the bars/wedges order in the original complaint.

After analyzing the ministerial error allegations, the Department issued amended final results with respect to all products sold by SMC and LMC, and TMC's bars/wedges, which were not subject to litigation. *See Notice of Amended Final Antidumping Duty Administrative Reviews: Heavy Forged Hand Tools From the People's Republic of China*, 68 FR 7347 (February 13, 2003); *Notice of Amended Final Results of Antidumping Duty Administrative Reviews: Heavy Forged Hand Tools From the People's Republic of China (Hammers/Sledges)*, 68 FR 14943 (March 27, 2003).

For the remaining merchandise under review, TMC's axes/adzes, hammers/sledges and picks/mattocks orders, and Huarong's bars/wedges, the Department issued a remand redetermination pursuant to the CIT's remand instructions to address the ministerial error allegations previously submitted by the parties. *See* Final Results of Redetermination Pursuant to Court Remand, Tianjin Machinery Import and Export Corporation and Shandong Huarong General Group Corp., v. United States, Court No. 02–00637, dated February 6, 2003 (''Remand Redetermination''). While correcting the errors identified by the parties, we identified several additional ministerial errors for TMC's three classes or kinds of subject merchandise, and Huarong's bars/wedges. However, as the CIT directed the Department to address only the errors identified by the parties, we did not take into account these additional errors in the calculations submitted to the CIT in the Remand Redetermination. *See* Remand Redetermination.

On October 4, 2004, the CIT sustained the *Final Results* and Remand Redetermination. *See Tianjin Mach. Imp. & Exp. Corp. v. United States*, 353 F. Supp. 2d 1294 (CIT 2004). On November 15, 2004, TMC and Huarong appealed the decision of the CIT to the CAFC. On October 11, 2005, the CAFC affirmed the ruling of the CIT. *See Tianjin Mach. Imp. & Exp. Corp. v. United States*, 146 Fed. Appx. 493 (Fed. Cir. 2005).

The litigation in these administrative reviews is now final. Since jurisdiction of this case has returned to the Department, we are now issuing corrected antidumping duty margins that reflect corrections for the errors identified by the parties and the additional errors found by the Department during litigation.

Amended Final Results of Review

After analyzing all interested parties' comments, we have determined, in accordance with 19 CFR 351.224(e), that ministerial errors existed in the calculations for the *Final Results*, with respect to TMC and Huarong. A ministerial error is defined in section 751(h) of the Tariff Act of 1930, as amended (''the Act''), and further clarified in 19 CFR 351.224(f) as ''an error in addition, subtraction, or other arithmetic function, clerical error resulting from inaccurate copying, duplication, or the like, and any other similar type of unintentional error which the Secretary considers ministerial.'' For a detailed discussion of the ministerial errors in TMC and Huarong's calculations, as well as the Department's analysis, *see* Memorandum from Thomas E. Martin to The File, ''Correction of Ministerial Errors Pursuant to the Amended Final Results of the Tenth Administrative Reviews of Heavy Forged Hand Tools, Finished or Unfinished, With or Without Handles (''HFHTS''), from the People's Republic of China (''PRC'') Covering the Period of Review (''POR'') February 1, 2000, through January 31, 2001; Tianjin Machinery Import & Export Corporation (''TMC''),'' dated February 21, 2006; and *see* Memorandum from Thomas E. Martin to The File, ''Correction of Ministerial Errors Pursuant to the Amended Final Results of the Tenth Administrative Reviews of Heavy Forged Hand Tools, Finished or Unfinished, with or Without Handles (''HFHTS''), from the People's Republic of China (''PRC'') Covering the Period of Review (''POR'') February 1,

2000, through January 31, 2001; Shandong Huarong General Group Corporation (''Huarong''),'' dated February 21, 2006, on file in the Central Records Unit, room B–099 in the main Department building.

Therefore, in accordance with section 751(h) of the Act and 19 CFR 351.224(e), we are amending the *Final Results* of the administrative reviews of the antidumping duty orders on HFHTs from PRC for TMC and Huarong. The revised weighted–average dumping margins are detailed in the chart below.

Manufacturer/exporter	Time Period	Margin (percent)
Tianjin Machinery Import & Export Corporation.		
Axes/Adzes	2/1/00–1/31/01	5.46
Hammers/Sledges	2/1/00–1/31/01	22.91
Picks/Mattocks	2/1/00–1/31/01	13.57
Shandong Huarong General Group Corporation.		
Bars/Wedges	2/1/00–1/31/01	18.99

Assessment Rates

The Department will determine, and U.S. Customs and Border Protection (''CBP'') shall assess, antidumping duties on all appropriate entries. In accordance with 19 CFR 351.212(b)(1), for the respondents receiving calculated dumping margins, we calculated importer–specific per–unit duty assessment rates based on the ratio of the total amount of the dumping duties calculated for the examined sales to the total quantity of those same sales. These importer–specific per–unit rates will be assessed uniformly on all entries of each importer that were made during the POR. In accordance with 19 CFR 351.106(c)(2), we will instruct CBP to liquidate without regard to antidumping duties any entries for which the importer–specific assessment rate is *de minimis (i.e.*, less than 0.5 percent *ad valorem*). In testing whether any importer–specific assessment rate is *de minimis*, we divided each importer's total amount of dumping duties by the total value of each importer's U.S. sales, which we calculated using net U.S. prices. The Department will issue liquidation instructions directly to CBP within fifteen days of the publication of the amended final results of these administrative reviews.

These amended final results of administrative reviews are issued and published in accordance with section 751(h) of the Act and 19 CFR 351.224(e).

Dated: February 21, 2006.

David M. Spooner,

Assistant Secretary for Import Administration.

[FR Doc. E6–2793 Filed 2–27–06; 8:45 am]

BILLING CODE 3510–DS–S

DEPARTMENT OF COMMERCE

International Trade Administration

[A–570–601]

Tapered Roller Bearings and Parts Thereof, Finished or Unfinished, From the People's Republic of China: Extension of Time Limit for the Preliminary Results of Antidumping Duty Administrative Review

AGENCY: Import Administration, International Trade Administration, Department of Commerce.

EFFECTIVE DATE: February 28, 2006.

FOR FURTHER INFORMATION CONTACT: Eugene Degnan or Robert Bolling, AD/CVD Operations, Office 8, Import Administration, International Trade Administration, U.S. Department of Commerce, 14th Street and Constitution Avenue, NW., Washington, DC 20230; telephone (202) 482–0414 or (202) 482–3434, respectively.

SUPPLEMENTARY INFORMATION:

Background

On July 21, 2005, the Department of Commerce (''the Department'') published in the **Federal Register** a notice of initiation of the antidumping duty administrative review of tapered roller bearings and parts thereof, finished or unfinished, from the People's Republic of China for the period June 1, 2004, through May 31, 2005. *See Initiation of Antidumping and Countervailing Duty Administrative Reviews and Request for Revocation in Part*, 70 FR 42028 (July 21, 2005). The preliminary results of review are currently due no later than March 2, 2006.

Extension of Time Limit for Preliminary Results

Section 751(a)(3)(A) of the Tariff Act of 1930, as amended (''the Act''), requires the Department to issue preliminary results within 245 days after the last day of the anniversary month of an order. However, if it is not practicable to complete the review within this time period, section 751(a)(3)(A) of the Act allows the Department to extend the time period to a maximum of 365 days. Completion of the preliminary results of this review within the 245-day period is not practicable because the Department needs additional time to analyze information pertaining to the respondent's sales practices, factors of production, and corporate relationships, to evaluate certain issues raised by the petitioners, and to issue and review responses to supplemental questionnaires.

Because it is not practicable to complete this review within the time specified under the Act, we are extending the time period for issuing the preliminary results of review by 60 days until May 1, 2006, in accordance with section 751(a)(3)(A) of the Act. The final results continue to be due 120 days after the publication of the preliminary results of review.

Dated: February 21, 2006.

Stephen J. Claeys,

Deputy Assistant Secretary for Import Administration.

[FR Doc. E6–2784 Filed 2–27–06; 8:45 am]

BILLING CODE 3510–DS–S

DEPARTMENT OF COMMERCE

International Trade Administration

[A–570–890]

Wooden Bedroom Furniture From the People's Republic of China: Extension of Time Limit for the Preliminary Results of Antidumping Duty New Shipper Reviews

AGENCY: Import Administration, International Trade Administration, Department of Commerce.

EFFECTIVE DATE: February 28, 2006.

FOR FURTHER INFORMATION CONTACT: Eugene Degnan or Robert Bolling, AD/CVD Operations, Office 8, Import Administration, International Trade

Administration, U.S. Department of Commerce, 14th Street and Constitution Avenue, NW., Washington, DC 20230; telephone (202) 482–0414 or (202) 482–3434, respectively.

SUPPLEMENTARY INFORMATION:

Background

On September 8, 2005, the Department of Commerce (''the Department'') published in the **Federal Register** a notice of initiation of antidumping duty new shipper reviews of wooden bedroom furniture from the People's Republic of China for the period June 24, 2004, through June 30, 2005. *See Wooden Bedroom Furniture from the People's Republic of China; Initiation of New Shipper Reviews*, 70 FR 53344 (September 8, 2005). The preliminary results of the new shipper reviews are currently due no later than February 26, 2006.

Extension of Time Limit for Preliminary Results

Section 751(a)(2)(B)(iv) of the Tariff Act of 1930, as amended (''the Act''), requires the Department to issue preliminary results within 180 days after the date on which the new shipper reviews were initiated. However, if the Department concludes that the case is extraordinarily complicated, section 751(a)(2)(B)(iv) of the Act allows the Department to extend the 180-day period to a maximum of 300 days.

The Department finds that the complicated nature of this review necessitates an extension of time beyond the 180-day period to complete the preliminary results. There are four distinct new shipper reviews underway for the following entities: Shenyang Kunyu Wood Industry Co., Ltd. (''Kunyu''); Dongguan Landmark Furniture Products Ltd.; Meikangchi (Nantong) Furniture Company Ltd. (''Meikangchi''); and WBE Industries (Hui–Yang) Co., Ltd. Two of the respondents, Kunyu and Meikangchi, are participating pro se, and may require additional assistance pursuant to section 782(c)(2) of the Act. Further, there are significant and complicated issues surrounding the Department's normal value calculation for wooden bedroom furniture, particularly with respect to the valuation of the many factors of production associated with wooden bedroom furniture production. Accordingly, the Department requires additional time to properly analyze the respondents' questionnaire responses, issue multiple supplemental questionnaires, and conduct any appropriate verifications in these new shipper reviews. Therefore, in accordance with section 751(a)(2)(B)(iv) of the Act, the Department is extending the time limit for the preliminary results to these reviews by 120 days, until no later than June 26, 2006.

Dated: February 21, 2006.

Stephen J. Claeys,

Deputy Assistant Secretary for Import Administration.

[FR Doc. E6–2791 Filed 2–27–06; 8:45 am]

(Billing Code: 3510–DS–S)

DEPARTMENT OF COMMERCE

International Trade Administration

[C–427–810]

Certain Corrosion-Resistant Carbon Steel Flat Products From France: Extension of Time Limits for Preliminary Results and Final Results of Full Sunset Review

AGENCY: Import Administration, International Trade Administration, Department of Commerce.

EFFECTIVE DATE: February 28, 2006.

FOR FURTHER INFORMATION CONTACT: Stephanie Moore or David Goldberger, AD/CVD Operations, Import Administration, International Trade Administration, U.S. Department of Commerce, 14th Street & Constitution Avenue, NW., Washington, DC 20230; telephone: (202) 482–3692 or (202) 482–4136, respectively.

SUPPLEMENTARY INFORMATION:

Extension of Time Limits:

On November 1, 2005, the Department of Commerce (''the Department'') initiated sunset reviews of the countervailing duty (''CVD'') order on certain corrosion–resistant carbon steel flat products (''CORE'') from France, pursuant to section 751(c) of the Tariff Act of 1930, as amended (''the Act''). *See Initiation of Five-Year (Sunset) Reviews*, 70 FR 65884 (November 1, 2005). Based on adequate responses from the domestic and respondent interested parties, the Department is conducting a full sunset review to determine whether revocation of the CVD order on CORE from France would lead to the continuation or recurrence of a countervailable subsidy. *See* section 19 CFR 351.218(e)(2)(i) of the Act.

In accordance with section 751(c)(5)(B) of the Act, the Department may extend the period of time for making its determination in a sunset review by not more than 90 days, if it determines that the review is extraordinarily complicated. As set forth in section 751(c)(5)(C)(v) of the Act, the Department may treat a sunset review as extraordinarily complicated if it is a review of a transition order. The sunset review subject to this notice is a review of a transition order. Therefore, the Department has determined, pursuant to section 751(c)(5)(C)(v) of the Act, that the sunset review of the CVD order on CORE from France is extraordinarily complicated and requires additional time for the Department to complete its analysis. Accordingly, the Department will extend the deadline in this proceeding, and, as a result, intends to issue the preliminary results of the sunset review of the CVD order on CORE from France on or about May 23, 2006, and the final results of that review on September 27, 2006. These dates are 90 days from the original scheduled dates of the preliminary and final results of this sunset review.

This notice is issued and published in accordance with sections 751(c)(5)(B) and (C) of the Act.

Dated: February 21, 2006.

Stephen J. Claeys,

Deputy Assistant Secretary for Import Administration.

[FR Doc. E6–2789 Filed 2–27–06; 8:45 am]

Billing Code: 3510–DS–S

DEPARTMENT OF COMMERCE

International Trade Administration

[C–201–810]

Cut-to-Length Carbon Steel Plate From Mexico: Extension of Time Limits for Final Results of Expedited Sunset Review

AGENCY: Import Administration, International Trade Administration, Department of Commerce.

EFFECTIVE DATE: February 28, 2006.

FOR FURTHER INFORMATION CONTACT: Stephanie Moore or David Goldberger, AD/CVD Operations, Import Administration, International Trade Administration, U.S. Department of Commerce, 14th Street & Constitution Avenue, NW., Washington, DC 20230; telephone: (202) 482–3692 or (202) 482–4136, respectively.

SUPPLEMENTARY INFORMATION:

Extension of Time Limits:

On November 1, 2005, the Department of Commerce (''the Department'') initiated a sunset review of the countervailing duty (''CVD'') order on cut-to-length carbon steel plate (''CTL plate'') from Mexico, pursuant to section 751(c) of the Tariff Act of 1930, as amended (''the Act''). *See Initiation of Five-Year (Sunset) Reviews*, 70 FR 65884 (November 1, 2005). Based on an adequate response from the domestic

interested parties and an inadequate response (in this case no response) from respondent interested parties, the Department is conducting an expedited sunset review to determine whether revocation of the CVD order on CTL plate from Mexico would lead to the continuation or recurrence of a countervailable subsidy. See section 19 CFR 351.218(e)(1)(ii)(C) of the Act.

In accordance with section 751(c)(5)(B) of the Act, the Department may extend the period of time for making its determination in a sunset review by not more than 90 days, if it determines that the review is extraordinarily complicated. As set forth in section 751(c)(5)(C)(v) of the Act, the Department may treat a sunset review as extraordinarily complicated if it is a review of a transition order. The sunset review subject to this notice is a review of a transition order. Therefore, the Department has determined, pursuant to section 751(c)(5)(C)(v) of the Act, that the sunset review of the CVD order on CTL plate from Mexico is extraordinarily complicated and requires additional time for the Department to complete its analysis. Accordingly, the Department will extend the deadline in this proceeding, and, as a result, intends to issue the final results of the expedited sunset review of the CVD order on CTL plate from Mexico on or about May 30, 2006, 90 days from the original scheduled date of the expedited final sunset review.

This notice is issued and published in accordance with sections 751(c)(5)(B) and (C) of the Act.

Dated: February 21, 2006.

Stephen J. Claeys,

Deputy Assistant Secretary for Import Administration.

[FR Doc. E6–2790 Filed 2–27–06; 8:45 am]

BILLING CODE 3510–DS–S

DEPARTMENT OF COMMERCE

National Institute of Standards and Technology

Announcement of Residential Fire Suppression Research Needs Workshop

AGENCY: National Institute of Standards and Technology, Department of Commerce.

ACTION: Notice of Workshop.

SUMMARY: The National Institute of Standards and Technology (NIST) invites interested parties to attend a one-day Residential Fire Suppression Research Needs Workshop. The Workshop will provide a forum to discuss test methods, technologies, and R&D that can significantly improve residential fire protection through the development of science-based methods that test the performance of fire suppression technology with emphasis on residential kitchen applications. The Workshop program will include experts from the standards, hardware manufacturer, testing and fire service communities, and those doing research on fire suppression, speaking on today's fire safety challenges. The workshop will be held April 11, 2006 from 8 a.m. to 5 p.m.

The goal of the workshop is to identify barriers that impede advances in the application of localized suppression systems in residences. In this regard, the Workshop will explore:

- Residential Fire Trends
- Developments in Suppression System Technologies
- Characterization of the Performance of Suppression Systems
- The Role of Federal Agencies and Standards Committees
- Opportunities for Collaboration

We expect this workshop to provide a strong foundation for follow-on efforts among government agencies, industry, and academia to

- Identify/define research needs on Residential Fire Suppression
- Develop performance standards
- Demonstrate performance metrics

Due to space limitations, attendance will be limited to 45 registered participants. Participants will be registered on a first come first serve basis. Attendees must pre-register; there will be no same-day registrations.

DATES: The Residential Fire Suppression Research Needs Workshop will be held April 11, 2006. The workshop will be held from 8 a.m. to 5 p.m.

ADDRESSES: The workshop will be held at the National Institute of Standards and Technology (NIST), 100 Bureau Drive, Bldg 224, Rm B–245, Gaithersburg, MD 20899.

FOR FURTHER INFORMATION CONTACT: To register for the conference, contact: Yalasha Redd at (301) 975–6864, or via e-mail *yalasha.redd@nist.gov.* Please pre-register by no later than March 24, 2006. For technical information, contact: Anthony Hamins at 301–975–6598, *anthony.hamins@nist.gov*, or Daniel Madrzykowski at 301–975–6677, *daniel.madrzykowski@nist.gov.*

SUPPLEMENTARY INFORMATION: Of the 400,000 residential fires reported in 2001, approximately 30% involved cooking equipment in the kitchen, resulting in approximately 370 fatalities and 4,300 injuries. Sixty-eight percent of these cooking fires involved the stovetop. To address this life-safety issue on a timely basis, retrofit fire suppression systems must be considered as part of the solution. A number of range top fire suppression systems have been developed, however, market acceptance has been limited. Broad acceptance of effective fire suppression systems will require the development and industry acceptance of a standard test method. Existing standard suppression test methods designed for residential sprinklers (UL 1626) and commercial systems (UL 300) are not optimized for devices developed specifically for residential stovetop fires. There is currently no widely accepted standard test method for residential kitchen fire hazards, although there is an outline for fire test methods for self-contained units, UL300A, ''Outline of Investigation for Extinguishing System Units for Residential Range Top Cooking Surfaces''. For more information on the workshop agenda refer to *http://www.bfrl.nist.gov/info/workshop/resfire/.*

Dated: February 17, 2006.

William Jeffrey,

Director.

[FR Doc. E6–2776 Filed 2–27–06; 8:45 am]

BILLING CODE 3510–13–P

DEPARTMENT OF COMMERCE

National Institute of Standards and Technology

[Docket No. 060119011–6011–01]

Notice of Intent To Establish the NIST Nucleic Acid Sequence Library

AGENCY: National Institute of Standards and Technology, Commerce.

ACTION: Notice.

SUMMARY: The National Institute of Standards and Technology (NIST) is collecting nucleic acid sequences, which have been dedicated to the public domain, in order to form a library of sequences suitable for the preparation of RNA reference materials. These reference materials are intended to act as external RNA controls in gene expression assays. It is expected that there will be commercial products based upon this sequence library.

Development of these reference materials is being done in conjunction with the External RNA Control Consortium (ERCC), an ad hoc international consortium of approximately 70 organizations from the public, private, and academic sectors.

DATES: The initial sequence library will be compiled on March 17, 2006. Contributions received later than this date will be considered for inclusion in the library, but may not be included in the first round of testing.

FOR FURTHER INFORMATION CONTACT: Marc Salit, Advanced Chemical Science Laboratory, Stop 8310, National Institute of Standards and Technology (NIST), Gaithersburg, MD 20899–8310. Telephone: (301) 975–3646; FAX: 301 975–5449; or by e-mail: *salit@nist.gov.*

SUPPLEMENTARY INFORMATION: NIST is collecting nucleic acid sequences to form a library of sequences suitable for the preparation of RNA reference materials. These reference materials are intended to act as external RNA controls in gene expression assays.

Development of these reference materials is being done in conjunction with the External RNA Control Consortium, an ad hoc international consortium of approximately 70 organizations from the public, private, and academic sectors. This group has described the materials to be developed (see *http://www.cstl.nist.gov/biotech/Cell&TissueMeasurements/GeneExpression/ERCC.htm*) has published a plan to qualify the performance of the candidate sequence library (see Consortium, E.R.C., Proposed methods for testing and selecting the ERCC external RNA controls. BMC Genomics, 2005. 6(1): p. 150) and is developing guidance for using external RNA controls to validate a gene expression assay (see *http://www.clsi.org* description of provisional guidance MM–16).

The External RNA Reference Material sequences are intended to mimic endogenous mRNA transcripts, in particular for mammalian species. These sequences should:

1. Be from 500 to 2000 nucleotides in length;

2. Have not more than marginal expected cross reactivity with assay probes for popular research organisms (including H. sapiens, M. muscularis, S. cereviciae, A. thaliana, E. coli, C. elegans, D. melanogoster, D. rerio). Marginal cross reactivity will be defined as having no more than 20 contiguous bases of identity and overall homology less than 70% with any section of the genomes of interest; and,

3. Have GC content of 40–60% and be void of significant repetitive elements, palindromes or regions of low complexity (Human, mouse and rat genomes are an average of 40–42% GC).

To be included in the library, RNA sequences must:

1. Be entered in the National Center for Biotechnology Information's GenBank database (*http://www.ncbi.nlm.nih.gov/Genbank/index.html*).

2. Be dedicated to the Public Domain for broad dissemination and unrestricted use by any interested party.

Sequences provided to NIST for inclusion in the library must be physically embodied in a suitable vector, in a suitable organism, and should be provided as such to NIST.

Dated: February 11, 2006.

William Jeffrey,

Director.

[FR Doc. E6–2775 Filed 2–27–06; 8:45 am]

BILLING CODE 3510–13–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

Notice of Public Meeting

SUMMARY: The Advisory Committee on Commercial Remote Sensing (ACCRES) will meet March 10, 2006.

DATE AND TIME: The meeting is scheduled as follows: March 10, 2006, 9 a.m.–4 p.m. The first part of this meeting will be closed to the public. The public portion of the meeting will begin at 1 p.m.

ADDRESSES: The meeting will be held in the Horizon room of the Ronald Reagan Building and International Trade Center Washington, DC. The Reagan Building is located at 1300 Pennsylvania Avenue, NW., Washington, DC 20004. While open to the public, seating capacity may be limited.

SUPPLEMENTARY INFORMATION: As required by section 10(a) (2)of the Federal Advisory Committee Act, 5 U.S.C. App. (1982), notice is hereby given of the meeting of ACCRES. ACCRES was established by the Secretary of Commerce (Secretary) on May 21, 2002, to advise the Secretary through the Under Secretary of Commerce for Oceans and Atmosphere on long- and short-range strategies for the licensing of commercial remote sensing satellite systems.

Matters To Be Considered

The first part of the meeting will be closed to the public pursuant to Section 10(d) of the Federal Advisory Committee Act, 5 U.S.C. App. 2, as amended by section 5(c) of the Government in Sunshine Act, P.L. 94–409 and in accordance with section 552b(c)(1) of Title 5, United States Code. Accordingly, portions of this meeting which involve the ongoing review and implementation of the April 2003 U.S. Commercial Remote Sensing Space Policy and related national security and foreign policy considerations for NOAA's licensing decisions may be closed to the public. These briefings are likely to disclose matters that are specifically authorized under criteria established by Executive Order 12958 to be kept secret in the interest of national defense or foreign policy and are in fact properly classified pursuant to such Executive Order.

All other portions of the meeting will be open to the public. During the open portion of the meeting, the Committee will have updates of the Landsat Mission, data archive issues, and new licensed remote sensing space systems, The committee will also receive public comments on its activities.

Special Accommodations

These meetings are physically accessible to people with disabilities. Requests for special accommodations may be directed to ACCRES, NOAA/NESDIS International and Interagency Affairs Office, 1335 East-West Highway, Room 7311, Silver Spring, Maryland 20910.

Additional Information and Public Comments

Any member of the public wishing further information concerning the meeting or who wishes to submit oral or written comments should contact Kay Weston, Designated Federal Officer for ACCRES, NOAA/NESDIS International and Interagency Affairs Office, 1335 East-West Highway, Room 7311, Silver Spring, Maryland 20910. Copies of the draft meeting agenda can be obtained from Tahara Moreno at (301) 713–2024 ext. 202, fax (301) 713–2032, or e-mail *Tahara.Moreno@noaa.gov.*

The ACCRES expects that public statements presented at its meetings will not be repetitive of previously-submitted oral or written statements. In general, each individual or group making an oral presentation may be limited to a total time of five minutes. Written comments (please provide at least 13 copies) received in the NOAA/NESDIS International and Interagency Affairs Office on or before march 6, 2006, will be provided to Committee members in advance of the meeting. Comments received too close to the meeting date will normally be provided to Committee members at the meeting.

FOR FURTHER INFORMATION CONTACT: Kay Weston, NOAA/NESDIS International and Interagency Affairs, 1335 East West Highway, Room 7313, Silver Spring, Maryland 20910; telephone (301) 713–2024 x205, fax (301) 713–2032, e-mail *Kay.Weston@noaa.gov,* or Tahara

Moreno at telephone (301) 713–2024 x202, e-mail *Tahara.Moreno@noaa.gov.*

Gregory W. Withee,

Assistant Administrator for Satellite and Information Services.

[FR Doc. E6–2760 Filed 2–27–06; 8:45 am]

BILLING CODE 3510–HR–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[I.D. 022206A]

Gulf of Mexico Fishery Management Council; Public Meeting

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice of a public meeting.

SUMMARY: The Gulf of Mexico Fishery Management Council (Council) will convene its Law Enforcement Advisory Panel (LEAP).

DATES: The meeting will be held on Monday, March 13, 2006, from 1 p.m. to 5 p.m.

ADDRESSES: The meeting will be held at the Holiday Inn Downtown/Market Square, 318 W. Durango Boulevard, San Antonio, TX.

Council address: Gulf of Mexico Fishery Management Council, 2203 North Lois Avenue, Suite 1100, Tampa, FL 33607.

FOR FURTHER INFORMATION CONTACT: Dr. Richard Leard, Deputy Executive Director, Gulf of Mexico Fishery Management Council; telephone: (813) 348–1630.

SUPPLEMENTARY INFORMATION: The Council will convene the LEAP to review an Options Paper for Joint Amendment 27 to the Reef Fish Fishery Management Plan (FMP)/Amendment 14 to the Shrimp FMP. This amendment contains alternatives to regulate the harvest and bycatch of red snapper by both the directed commercial and recreational fisheries and the shrimp fishery in the Gulf of Mexico. The need for this amendment arose from the Southeast Data, Assessment and Review (SEDAR) process through which a recent stock assessment showed that the red snapper stock in the Gulf was overfished and overfishing was continuing.

In addition, the LEAP will discuss the Automated Identification System that will soon be required of many fishing vessels in the Gulf. The LEAP will review a discussion paper that may ultimately be used as the basis for developing Individual Fishing Quota (IFQ) programs for the grouper and potentially other commercial reef fish fishing operations in the Gulf. Finally, the LEAP will review the status of various FMP amendments and other regulatory actions and report on the various activities of participating organizations.

The LEAP consists of principal law enforcement officers in each of the Gulf States, as well as the NMFS, U.S. Fish and Wildlife Service (FWS), the U.S. Coast Guard, and the NOAA General Counsel. A copy of the agenda and related materials can be obtained by calling the Council office at (813) 348–1630.

Although other non-emergency issues not on the agendas may come before the LEAP for discussion, in accordance with the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), those issues may not be the subject of formal action during this meeting. Actions of the LEAP will be restricted to those issues specifically identified in the agendas and any issues arising after publication of this notice that require emergency action under Section 305(c) of the Magnuson-Stevens Act, provided the public has been notified of the Council's intent to take action to address the emergency.

Special Accommodations

This meeting is physically accessible to people with disabilities. Requests for sign language interpretation or other auxiliary aids should be directed to Dawn Aring at the Council (see **ADDRESSES**) at least 5 working days prior to the meeting.

Dated: February 22, 2006.

Helen Troupos,

Acting Director, Office of Sustainable Fisheries, National Marine Fisheries Service.

[FR Doc. E6–2778 Filed 2–27–06; 8:45 am]

BILLING CODE 3510–22–S

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[I.D. 021706D]

Mid-Atlantic Fishery Management Council; Public Meetings

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice of a public meeting.

SUMMARY: The Mid-Atlantic Fishery Management Council (Council), its Ecosystems Committee, Surfclam/Ocean Quahog/Tilefish Committee, its Squid, Mackerel, Butterfish Committee, and its Executive Committee will hold public meetings.

DATES: The meeting will be held on Tuesday, March 14, 2006 through Thursday, March 16, 2006. See **SUPPLEMENTARY INFORMATION** for meeting agenda.

ADDRESSES: The meeting will be held at Congress Hall Hotel, 251 Beach Avenue, Cape May, NJ; telephone: (608) 884–8421

Council address: Mid-Atlantic Fishery Management Council, 300 S. New Street, Dover, DE 19904, telephone: (302) 674–2331.

FOR FURTHER INFORMATION CONTACT: Daniel T. Furlong, Executive Director, Mid-Atlantic Fishery Management Council; telephone: (302) 674–2331, ext. 19.

SUPPLEMENTARY INFORMATION:

Tuesday, March 14, 2006

The Ecosystems Committee will meet from 10 a.m. – 12 noon. The Committee will review final draft of Mid-Atlantic Fishery Management Council's Ecosystem Report regarding ecosystem based fishery management and address strategy regarding introduction of circle hooks as the hook of choice in recreational sector.

The Surfclam/Ocean Quahog/Tilefish Committee will meet from 1 p.m.–1:30 p.m. The Committee will review 2006 Vessel Monitoring System (VMS) reimbursement program / conditions, and address timing of tilefish specifications adjustments.

The Squid, Mackerel, Butterfish Committee will meet from 1:30 p.m.–4 p.m. This Committee will review status of Amendment 10 and discuss and adopt rebuilding schedules developed by Fishery Management Action Team (FMAT) for the butterfish stock.

The Executive Committee will meet from 4 p.m.–4:30 p.m. The Committee will review status of 2006 and 2007 budgets, and review criteria for Ricks E Savage Award.

Wednesday, March 15, 2006

The Council will convene at 9 a.m. The Council will conduct its regular business session from 9 a.m. to 11:30 a.m., to approve December and January Council meeting minutes, approve actions from January meeting and receive various reports. From 12:30 p.m.–5:30 p.m., the Council will discuss Amendment 9 to Squid, Mackerel, Butterfish Fishery Management Plan (FMP), review and adopt the public hearing document (PHD) for Amendment 9 and associated draft environmental impact statement (DEIS).

Thursday, March 16, 2006

The Council will convene at 8:15 a.m. and travel to the U.S. Coast Guard's Cape May Station for a tour of that facility and receive a presentation on fisheries enforcement from the Commander, U.S. Coast Guard District 5. From 10:30 a.m.–11:30 a.m., a presentation will be given by U.S. Navy officials on Undersea Warfare Training. From 11:30 a.m.–noon, the Council will likely approve and adopt Framework 6 to the Summer Flounder, Scup and Black Sea Bass FMP. Beginning at 1 p.m., the Council will receive Committee reports and address any continuing or new business.

Although non-emergency issues not contained in this agenda may come before the Council for discussion, these issues may not be the subject of formal Council action during this meeting. Council action will be restricted to those issues specifically listed in this notice and any issues arising after publication of this notice that require emergency action under section 305(c) of the Magnuson-Stevens Act, provided the public has been notified of the Council's intent to take final actions to address such emergencies.

Special Accommodations

This meeting is physically accessible to people with disabilities. Requests for sign language interpretation or other auxiliary aids should be directed to M. Jan Saunders, (302) 674–2331 ext: 18., at least 5 days prior to the meeting date.

Dated: February 22, 2006

Helen Troupos,

Acting Director, Office of Sustainable Fisheries, National Marine Fisheries Service.

[FR Doc. E6–2779 Filed 2–27–06; 8:45 am]

BILLING CODE 3510–22–S

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

National Sea Grant Review Panel

AGENCY: National Oceanic and Atmospheric Administration Office of Oceanic and Atmospheric Research (OAR) National Sea Grant Review Panel.

ACTION: Notice of public meeting.

SUMMARY: This notice sets forth the proposed agenda of a forthcoming meeting of the Sea Grant Review Panel. The meeting will have several purposes. Panel members will discuss and provide advice on the National Sea Grant College Program in the areas of program evaluation, strategic planning, education and extension, science and technology programs, and other matters as described below:

DATES: The announced meeting is scheduled during two days: Monday, March 6, 8:45 a.m. to 5 p.m.; Tuesday, March 7, 8:30 a.m. to 12:30 p.m.

ADDRESSES: U.S. Department of Commerce, Herbert C. Hoover Building, 1401 Constitution Avenue, Northwest, Conference Room #6057, Washington, DC 20230.

FOR FURTHER INFORMATION CONTACT: Dr. Leon M. Cammen, Designated Federal Official, National Sea Grant College Program, National Oceanic and Atmospheric Administration, 1315 East-West Highway, Room 11841, Silver Spring, Maryland 20910, (301) 713–2435. The Review Panel Web page address is *http://www.nsgo.seagrant.org/leadership/review_panel.html.*

SUPPLEMENTARY INFORMATION: The Panel, which consists of a balanced representation from academia, industry, state government and citizens groups, was established in 1976 by Section 209 of the Sea Grant Improvement Act (Public Law 94–461, 33 U.S.C. 1128). The Panel advises the Secretary of Commerce and the Director of the National Sea Grant College Program with respect to operations under the Act, and such other matters as the Secretary refers to them for review and advice. The agenda for this meeting can be found at *http://www.seagrant.noaa.gov/leadership/review_panel.html.* This meeting will be open to the public.

Dated: February 16, 2006.

Mark E. Brown,

Chief Financial Officer, Office of Oceanic and Atmospheric Research.

[FR Doc. 06–1855 Filed 2–27–06; 8:45 am]

BILLING CODE 3510–KA–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[I.D. 022206B]

Pacific Fishery Management Council; Public Meeting

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice of public meeting.

SUMMARY: The Pacific Fishery Management Council's (Council) Ad Hoc Groundfish Trawl Individual Quota Independent Experts Panel (IEP) will hold a working meeting which is open to the public.

DATES: The IEP working meeting will begin Thursday, March 16, 2006, at 8:30 a.m. and continue until business for the day is complete.

ADDRESSES: The meeting will be held in the Directors Conference Room of Building 1 at 7600 Sandpoint Way NE., Seattle WA 98115; telephone: (206) 526–4741. There will also be a video link at the Captain Barry Fishery Building, Room 101, 2032 SE OSU Drive, Newport, OR 97365; telephone: (541) 867–0100.

Council address: Pacific Fishery Management Council, 7700 NE Ambassador Place, Suite 200, Portland, OR 97220–1384.

FOR FURTHER INFORMATION CONTACT: Mr. Jim Seger, Staff Officer (Economist); telephone: (503) 820–2280.

SUPPLEMENTARY INFORMATION: The purpose of the IEP working meeting is to review and comment on a preliminary internal draft document that Northern Economic Incorporated is developing under contract for a public workshop to be held April 18–20, 2006 on the approach for analysis of the trawl individual quota alternatives.

Although non-emergency issues not contained in the IEP meeting agenda may come before the IEP for discussion, those issues may not be the subject of formal IEP action during these meetings. IEP action will be restricted to those issues specifically listed in this notice and to any issues arising after publication of this notice requiring emergency action under Section 305(c) of the Magnuson-Stevens Fishery Conservation and Management Act, provided the public has been notified of the IEP's intent to take final action to address the emergency.

Special Accommodations

The meeting is physically accessible to people with disabilities. Requests for sign language interpretation or other auxiliary aids should be directed to Ms. Carolyn Porter at (503) 820–2280 at least 5 days prior to the meeting date.

Dated: February 22, 2006.

Helen Troupos,

Acting Director, Office of Sustainable Fisheries, National Marine Fisheries Service.

[FR Doc. E6–2777 Filed 2–27–06; 8:45 am]

BILLING CODE 3510–22–S

DEPARTMENT OF EDUCATION

Submission for OMB Review; Comment Request

AGENCY: Department of Education.

SUMMARY: The IC Clearance Official, Regulatory Information Management Services, Office of the Chief Information Officer invites comments on the submission for OMB review as required by the Paperwork Reduction Act of 1995.

DATES: Interested persons are invited to submit comments on or before March 30, 2006.

ADDRESSES: Written comments should be addressed to the Office of Information and Regulatory Affairs, Attention: Rachel Potter, Desk Officer, Department of Education, Office of Management and Budget, 725 17th Street, NW., Room 10222, New Executive Office Building, Washington, DC 20503 or faxed to (202) 395–6974.

SUPPLEMENTARY INFORMATION: Section 3506 of the Paperwork Reduction Act of 1995 (44 U.S.C. Chapter 35) requires that the Office of Management and Budget (OMB) provide interested Federal agencies and the public an early opportunity to comment on information collection requests. OMB may amend or waive the requirement for public consultation to the extent that public participation in the approval process would defeat the purpose of the information collection, violate State or Federal law, or substantially interfere with any agency's ability to perform its statutory obligations. The IC Clearance Official, Regulatory Information Management Services, Office of the Chief Information Officer, publishes that notice containing proposed information collection requests prior to submission of these requests to OMB. Each proposed information collection, grouped by office, contains the following: (1) Type of review requested, *e.g.* new, revision, extension, existing or reinstatement; (2) Title; (3) Summary of the collection; (4) Description of the need for, and proposed use of, the information; (5) Respondents and frequency of collection; and (6) Reporting and/or Recordkeeping burden. OMB invites public comment.

Dated: February 22, 2006.

Angela C. Arrington,

IC Clearance Official, Regulatory Information Management Services, Office of the Chief Information Officer.

Federal Student Aid

Type of Review: Extension.

Title: Regulations for Equity in Athletics Disclosure Act (EADA).

Frequency: Annually.

Affected Public: Not-for-profit institutions.

Reporting and Recordkeeping Hour Burden:

Responses: 1,800.

Burden Hours: 9,900.

Abstract: The EADA amended the Higher Education Act of 1965, as amended (HEA), to require coeducational institutions of higher education that participate in any program under Title IV of the HEA and have an intercollegiate athletic program, annually to make available upon request a report on institutional financing and student and staff participation in men's and women's intercollegiate athletics. The Higher Education Amendments of 1998 amended the EADA to require additional disclosures, to require that an institution submit its report to the Department of Education, and to require the Department to report to Congress on gender equity in intercollegiate athletics and to make its report and institutions' EADA reports publicly available.

Requests for copies of the information collection submission for OMB review may be accessed from *http://edicsweb.ed.gov*, by selecting the ''Browse Pending Collections'' link and by clicking on link number 2958. When you access the information collection, click on ''Download Attachments '' to view. Written requests for information should be addressed to U.S. Department of Education, 400 Maryland Avenue, SW., Potomac Center, 9th Floor, Washington, DC 20202–4700. Requests may also be electronically mailed to *IC DocketMgr@ed.gov* or faxed to 202–245–6623. Please specify the complete title of the information collection when making your request.

Comments regarding burden and/or the collection activity requirements should be electronically mailed to the e-mail address *IC DocketMgr@ed.gov*. Individuals who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 1–800–877–8339.

[FR Doc. E6–2794 Filed 2–27–06; 8:45 am]

BILLING CODE 4000–01–P

DEPARTMENT OF EDUCATION

Submission for OMB Review; Comment Request

AGENCY: Department of Education.

SUMMARY: The IC Clearance Official, Regulatory Information Management Services, Office of the Chief Information Officer invites comments on the submission for OMB review as required by the Paperwork Reduction Act of 1995.

DATES: Interested persons are invited to submit comments on or before March 30, 2006.

ADDRESSES: Written comments should be addressed to the Office of Information and Regulatory Affairs, Attention: Rachel Potter, Desk Officer, Department of Education, Office of Management and Budget, 725 17th Street, NW., Room 10222, New Executive Office Building, Washington, DC 20503 or faxed to (202) 395–6974.

SUPPLEMENTARY INFORMATION: Section 3506 of the Paperwork Reduction Act of 1995 (44 U.S.C. Chapter 35) requires that the Office of Management and Budget (OMB) provide interested Federal agencies and the public an early opportunity to comment on information collection requests. OMB may amend or waive the requirement for public consultation to the extent that public participation in the approval process would defeat the purpose of the information collection, violate State or Federal law, or substantially interfere with any agency's ability to perform its statutory obligations. The IC Clearance Official, Regulatory Information Management Services, Office of the Chief Information Officer, publishes that notice containing proposed information collection requests prior to submission of these requests to OMB. Each proposed information collection, grouped by office, contains the following: (1) Type of review requested, *e.g.* new, revision, extension, existing or reinstatement; (2) Title; (3) Summary of the collection; (4) Description of the need for, and proposed use of, the information; (5) Respondents and frequency of collection; and (6) Reporting and/or Recordkeeping burden. OMB invites public comment.

Dated: February 22, 2006.

Angela C. Arrington,

IC Clearance Official, Regulatory Information Management Services, Office of the Chief Information Officer.

Office of Postsecondary Education

Type of Review: Revision.

Title: FIPSE Comprehensive Program Grant Application.

Frequency: Annually.

Affected Public: Not-for-profit institutions.

Reporting and Recordkeeping Hour Burden: Responses—875. *Burden Hours*—21,875.

Abstract: The Comprehensive program is a discretionary grant award program of the Fund for the Improvement of Postsecondary Education (FIPSE). The program supports innovative reform projects that hold promise as models for the resolution of important issues and problems in postsecondary education. Grants made under this program are

expected to contribute new information in educational practice that can be shared with others.

This information collection is being submitted under the Streamlined Clearance Process for Discretionary Grant Information Collections (1890–0001). Therefore, the 30-day public comment period notice will be the only public comment notice published for this information collection.

Requests for copies of the information collection submission for OMB review may be accessed from *http://edicsweb.ed.gov*, by selecting the ''Browse Pending Collections'' link and by clicking on link number 2996. When you access the information collection, click on ''Download Attachments '' to view. Written requests for information should be addressed to U.S. Department of Education, 400 Maryland Avenue, SW., Potomac Center, 9th Floor, Washington, DC 20202–4700. Requests may also be electronically mailed to IC *DocketMgr@ed.gov* or faxed to 202–245–6623. Please specify the complete title of the information collection when making your request.

Comments regarding burden and/or the collection activity requirements should be electronically mailed to the e-mail address IC *DocketMgr@ed.gov*. Individuals who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 1–800–877–8339.

[FR Doc. E6–2795 Filed 2–27–06; 8:45 am]

BILLING CODE 4000–01–P

DEPARTMENT OF EDUCATION

Office of Elementary and Secondary Education; Overview Information; High School Equivalency Program (HEP); Notice Inviting Applications for New Awards for Fiscal Year (FY) 2006

Catalog of Federal Domestic Assistance (CFDA) Number: 84.141A.

Dates:

Applications Available: February 28, 2006.

Deadline for Transmittal of Applications: April 14, 2006.

Deadline for Intergovernmental Review: June 13, 2006.

Eligible Applicants: Institutions of Higher Education (IHEs) or private non-profit organizations (including faith-based organizations) that plan their projects in cooperation with an IHE and prepare to operate some aspects of the project with the facilities of the IHE.

Estimated Available Funds: $3,600,000.

Estimated Range of Awards: $150,000–$475,000.

Estimated Average Size of Awards: $360,000.

Estimated Number of Awards: 10.

Maximum Award: We will reject any application that proposes a budget exceeding $475,000 for a single budget period of 12 months. The Assistant Secretary for Elementary and Secondary Education may change the maximum amount through a notice published in the **Federal Register**.

Note: The Department is not bound by any estimates in this notice.

Project Period: Up to 60 months.

Full Text of Announcement

I. Funding Opportunity Description

Purpose of Program: The purpose of HEP is to help migrant and seasonal farmworkers and their children obtain a general education diploma (GED) that meets the guidelines for high school equivalency established by the State in which the HEP project is conducted, and to gain employment or be placed in an IHE or other postsecondary education or training.

Priorities: This notice contains two competitive preference priorities. In accordance with 34 CFR 75.105(b)(2)(ii) the competitive preference priority for ''novice applicant'' is from the Education Department General Administrative Regulations (EDGAR) (34 CFR 75.225(a)). In accordance with 34 CFR 75.105(b)(2)(iv) of EDGAR, the competitive preference priority for ''prior experience of service delivery'' is from section 418A(e) of the Higher Education Act of 1965, as amended (HEA) (20 U.S.C. 1070d–2).

Competitive Preference Priorities: For FY 2006 these priorities are competitive preference priorities. Under 34 CFR 75.105(c)(2)(i) we award an additional five points to an application meeting the ''novice applicant'' competitive preference priority, and up to a maximum of 15 additional points to an application meeting the ''prior experience of service delivery'' competitive preference priority.

These priorities are:

Novice Applicant

The applicant must be a ''novice applicant'' as defined in 34 CFR 75.225(a), which refers to an applicant that has never received a grant under this program, has never been a member of a group application that was funded under this program, and has never had an active discretionary grant from the Federal Government in the five years before the submission due date of this current competition.

Prior Experience of Service Delivery

In accordance with section 418A(e) of the HEA, expiring HEP projects are eligible to receive up to 15 maximum points for prior experience. The Secretary will consider the applicant's prior experience in implementing its expiring HEP project based on information contained in documents previously provided to the Department, such as annual performance reports, project evaluation reports, site visit reports, and the previously approved HEP application.

Program Authority: 20 U.S.C. 1070d–2.

Applicable Regulations: (a) EDGAR in 34 CFR parts 74, 75, 77, 79, 82, 84, 85, 86, 97, 98, and 99. (b) 34 CFR part 206. (c) The definition of a migratory agricultural worker in 34 CFR 200.81. (d) 20 CFR 669.110 and 669.320.

Note: The regulations in 34 CFR part 86 apply to IHEs only.

II. Award Information

Type of Award: Discretionary grants.

Estimated Available Funds: $3,600,000.

Estimated Range of Awards: $150,000–$475,000.

Estimated Average Size of Awards: $360,000.

Estimated Number of Awards: 10.

Maximum Award: We will reject any application that proposes a budget exceeding $475,000 for a single budget period of 12 months. The Assistant Secretary for Elementary and Secondary Education may change the maximum amount through a notice published in the **Federal Register**.

Note: The Department is not bound by any estimates in this notice.

Project Period: Up to 60 months.

III. Eligibility Information

1. *Eligible Applicants:* IHEs or private non-profit organizations (including faith-based organizations) that plan their projects in cooperation with an IHE and prepare to operate some aspects of the project with the facilities of the IHE.

2. *Cost Sharing or Matching:* This competition does not involve cost sharing or matching.

IV. Application and Submission Information

1. *Address to Request Application Package:* David De Soto, U.S. Department of Education, Office of Migrant Education, 400 Maryland Avenue, SW., room 3E225, Washington, DC 20202–6135. Telephone: (202) 260–8103 or by e-mail: *david.de.soto@ed.gov*.

The application package also can be obtained electronically at the following address: *http://www.ed.gov/programs/hep/applicant.html*.

If you use a telecommunications device for the deaf (TDD), you may call the Federal Relay Service (FRS) at 1–800–877–8339.

Individuals with disabilities may obtain a copy of the application package in an alternative format (*e.g.*, Braille, large print, audiotape, or computer diskette) by contacting the program contact person listed in this section.

2. *Content and Form of Application Submission:* Requirements concerning the content of an application, together with the forms you must submit, are in the application package for this competition.

Page Limit: The application narrative (Part III of the application) is where you, the applicant, address the selection criteria that reviewers use to evaluate your application. You must limit Part III to the equivalent of no more than 25 pages, using the following standards:

- A ''page'' is 8.5″ x 11″, on one side only, with 1″ margins at the top, bottom, and both sides.
- Double space (no more than three lines per vertical inch) all text in the application narrative (Part III), including titles, headings, footnotes, quotations, references, and captions. However, you may single space all text in charts, tables, figures, and graphs. Charts, tables, figures, and graphs presented in the application narrative count toward the page limit.
- Use a font that is either 12 point or larger or no smaller than 10 pitch (characters per inch).
- Appendices must be limited to 15 pages and may include the following: resumes, job descriptions, letters of support, bibliography.

The page limit does not apply to Part I, the cover sheet; Part II, the budget section, including the narrative budget justification; Part IV, the assurances and certifications; or the one-page abstract. However, you must include all of the application narrative in Part III.

Our reviewers will not read any pages of your application that:

- Exceed the page limit if you apply these standards; or
- Exceed the equivalent of the page limit if you apply other standards.

3. *Submission Dates and Times:*

Applications Available: February 28, 2006.

Deadline for Transmittal of Applications: April 14, 2006.

We do not consider an application that does not comply with the deadline requirements.

Deadline for Intergovernmental Review: June 13, 2006.

4. *Intergovernmental Review:* This competition is subject to Executive Order 12372 and the regulations in 34 part 79. Information about Intergovernmental Review of Federal Programs under Executive Order 12372 is in the application package for this competition.

5. *Funding Restrictions:* We reference regulations outlining funding restrictions in the *Applicable Regulations* section of this notice.

6. *Other Submission Requirements:* Applications for grants under this competition may be submitted electronically or in paper format by mail or hand delivery.

a. *Electronic Submission of Applications.*

We have been accepting applications electronically through the Department's e-Application system since FY 2000. In order to expand on those efforts and comply with the President's Management Agenda, we are continuing to participate as a partner in the new governmentwide Grants.gov Apply site in FY 2006. The HEP–CFDA Number 84.141A is one of the programs included in this project. We request your participation in Grants.gov.

If you choose to submit your application electronically, you must use the Grants.gov Apply site at *http://www.Grants.gov*. Through this site, you will be able to download a copy of the application package, complete it offline, and then upload and submit your application. You may not e-mail an electronic copy of a grant application to us.

You may access the electronic grant application for the HEP at: *http://www.grants.gov*. You must search for the downloadable application package for this program by the CFDA number. Do not include the CFDA number's alpha suffix in your search.

Please note the following:

- Your participation in Grants.gov is voluntary.
- When you enter the Grants.gov site, you will find information about submitting an application electronically through the site, as well as the hours of operation.
- Applications received by Grants.gov are time and date stamped. Your application must be fully uploaded and submitted, and must be date/time stamped by the Grants.gov system no later than 4:30 p.m., Washington, DC time, on the application deadline date. Except as otherwise noted in this section, we will not consider your application if it is date/time stamped by the Grants.gov system later than 4:30 p.m., Washington, DC time, on the application deadline date. When we retrieve your application from Grants.gov, we will notify you if we are rejecting your application because it was date/time stamped by the Grants.gov system after 4:30 p.m., Washington, DC time, on the application deadline date.
- The amount of time it can take to upload an application will vary depending on a variety of factors including the size of the application and the speed of your Internet connection. Therefore, we strongly recommend that you do not wait until the application deadline date to begin the application process through Grants.gov.
- You should review and follow the Education Submission Procedures for submitting an application through Grants.gov that are included in the application package for this competition to ensure that you submit your application in a timely manner to the Grants.gov system. You can also find the Education Submission Procedures pertaining to Grants.gov at *http://e-Grants.ed.gov/help/GrantsgovSubmissionProcedures.pdf*.
- To submit your application via Grants.gov, you must complete all of the steps in the Grants.gov registration process (see *http://www.Grants.gov/GetStarted*). These steps include (1) registering your organization, (2) registering yourself as an Authorized Organization Representative (AOR), and (3) getting authorized as an AOR by your organization. Details on these steps are outlined in the new Grants.gov 3-Step Registration Guide (see *http://www.grants.gov/assets/GrantsgovCoBrandBrochure8X11.pdf*). You must also provide on your application the same D–U–N–S Number used with this registration. Please note that the registration process may take five or more business days to complete, and you must have completed all registration steps to allow you to successfully submit an application via Grants.gov.
- You will not receive additional point value because you submit your application in electronic format, nor will we penalize you if you submit your application in paper format.
- You may submit all documents electronically, including all information typically included on the Application for Federal Education Assistance (ED 424), Budget Information–Non-Construction Programs (ED 524), and all necessary assurances and certifications. If you choose to submit your application electronically, you must attach any narrative sections of your application as files in a .DOC (document), .RTF (rich text), or .PDF (Portable Document) format. If you upload a file type other

than the three file types specified above or submit a password protected file, we will not review that material.

• Your electronic application must comply with any page limit requirements described in this notice.

• After you electronically submit your application, you will receive an automatic acknowledgement from Grants.gov that contains a Grants.gov tracking number. The Department will retrieve your application from Grants.gov and send you a second confirmation by e-mail that will include a PR/Award number (an ED-specified identifying number unique to your application).

• We may request that you provide us original signatures on forms at a later date.

Application Deadline Date Extension in Case of System Unavailability

If you are prevented from electronically submitting your application on the application deadline date because of technical problems with the Grants.gov system, we will grant you an extension until 4:30 p.m., Washington, DC time, the following business day to enable you to transmit your application electronically, or by hand delivery. You also may mail your application by following the mailing instructions as described elsewhere in this notice. If you submit an application after 4:30 p.m., Washington, DC time, on the deadline date, please contact the person listed elsewhere in this notice under **FOR FURTHER INFORMATION CONTACT**, and provide an explanation of the technical problem you experienced with Grants.gov, along with the Grants.gov Support Desk Case Number (if available). We will accept your application if we can confirm that a technical problem occurred with the Grants.gov system and that that problem affected your ability to submit your application by 4:30 p.m., Washington, DC time, on the application deadline date. The Department will contact you after a determination is made on whether your application will be accepted.

Note: Extensions referred to in this section apply only to the unavailability of or technical problems with the Grants.gov system. We will not grant you an extension if you failed to fully register to submit your application to Grants.gov before the deadline date and time or if the technical problem you experienced is unrelated to the Grants.gov system.

b. *Submission of Paper Applications by Mail.*

If you submit your application in paper format by mail (through the U.S. Postal Service or a commercial carrier), you must mail the original and two copies of your application, on or before the application deadline date, to the Department at the applicable following address:

By mail through the U.S. Postal Service:

U.S. Department of Education,
Application Control Center,
Attention: (CFDA Number 84.141A),
400 Maryland Avenue, SW.,
Washington, DC 20202–4260; or

By mail through a commercial carrier:

U.S. Department of Education,
Application Control Center—Stop 4260, Attention: (CFDA Number 84.141A), 7100 Old Landover Road,
Landover, MD 20785–1506.

Regardless of which address you use, you must show proof of mailing consisting of one of the following:

(1) A legibly dated U.S. Postal Service postmark,

(2) A legible mail receipt with the date of mailing stamped by the U.S. Postal Service,

(3) A dated shipping label, invoice, or receipt from a commercial carrier, or

(4) Any other proof of mailing acceptable to the Secretary of the U.S. Department of Education.

If you mail your application through the U.S. Postal Service, we do not accept either of the following as proof of mailing:

(1) A private metered postmark, or

(2) A mail receipt that is not dated by the U.S. Postal Service.

If your application is postmarked after the application deadline date, we will not consider your application.

Note: The U.S. Postal Service does not uniformly provide a dated postmark. Before relying on this method, you should check with your local post office.

c. *Submission of Paper Applications by Hand Delivery.*

If you submit your application in paper format by hand delivery, you (or a courier service) must deliver the original and two copies of your application by hand, on or before the application deadline date, to the Department at the following address:

U.S. Department of Education,
Application Control Center,
Attention: (CFDA Number 84.141A),
550 12th Street, SW., Room 7041,
Potomac Center Plaza, Washington,
DC 20202–4260.

The Application Control Center accepts hand deliveries daily between 8 a.m. and 4:30 p.m., Washington, DC time, except Saturdays, Sundays, and Federal holidays.

Note for Mail or Hand Delivery of Paper Applications: If you mail or hand deliver your application to the Department:

(1) You must indicate on the envelope and—if not provided by the Department—in Item 4 of the Application for Federal Education Assistance (ED 424) the CFDA number—and suffix letter, if any—of the competition under which you are submitting your application.

(2) The Application Control Center will mail a grant application receipt acknowledgment to you. If you do not receive the grant application receipt acknowledgment within 15 business days from the application deadline date, you should call the U.S. Department of Education Application Control Center at (202) 245–6288.

V. Application Review Information

Selection Criteria: The selection criteria for this competition are from 34 CFR 75.20 of EDGAR and are listed in the application package.

VI. Award Administration Information

1. *Award Notices:* If your application is successful, we notify your U.S. Representative and U.S. Senators and send you a Grant Award Notice (GAN). We may also notify you informally.

If your application is not evaluated or not selected for funding, we notify you.

2. *Administrative and National Policy Requirements:* We identify administrative and national policy requirements in the application package and reference these and other requirements in the *Applicable Regulations* section of this notice.

We reference the regulations outlining the terms and conditions of an award in the *Applicable Regulations* section of this notice and include these and other specific conditions in the GAN. The GAN also incorporates your approved application as part of your binding commitments under the grant.

3. *Reporting:* At the end of your project period, you must submit a final performance report, including financial information, as directed by the Secretary. If you receive a multi-year award, you must submit an annual performance report that provides the most current performance and financial expenditure information as specified by the Secretary in 34 CFR 75.118.

4. *Performance Measures:* Under the Government Performance and Results Act (GPRA), the Department developed the following performance measures to evaluate the overall effectiveness of HEP: (1) The number and percent of HEP participants who complete the course of study and receive a GED, and (2) the number and percent of HEP participants with a GED who enter

postsecondary education programs, career positions, or the military.

All grantees will be required to submit an annual performance report documenting their success in addressing these performance measures.

VII. Agency Contact

FOR FURTHER INFORMATION CONTACT: David De Soto, U.S. Department of Education, Office of Migrant Education, 400 Maryland Avenue, SW., room 3E225, Washington, DC 20202–6135. Telephone Number: (202) 260–8103, or by e-mail: *david.de.soto@ed.gov*.

If you use a telecommunications device for the deaf (TDD) you may call the Federal Relay Service (FRS) at 1–800–877–8339.

Individuals with disabilities may obtain this document in an alternative format (*e.g.*, Braille, large print, audiotape, or computer diskette) on request to the contact person listed in this section.

VIII. Other Information

Electronic Access to This Document: You may view this document, as well as all other documents of this Department published in the **Federal Register**, in text or Adobe Portable Document Format (PDF) on the Internet at the following site: *http://www.ed.gov/news/fedregister*.

To use PDF you must have Adobe Acrobat Reader, which is available free at this site. If you have questions about using PDF, call the U.S. Government Printing Office (GPO) toll free at 1–888–293–6498; or in the Washington, DC area at (202) 512–1530.

Note: The official version of this document is the document published in the **Federal Register**. Free Internet access to the official edition of the **Federal Register** and the Code of Federal Regulations is available on GPO Access at: *http://www.gpoaccess.gov/nara/index.html*.

Dated: February 22, 2006.

Henry L. Johnson,

Assistant Secretary for Elementary and Secondary Education.

[FR Doc. E6–2804 Filed 2–27–06; 8:45 am]

BILLING CODE 4000–01–P

DEPARTMENT OF EDUCATION

Office of Elementary and Secondary Education; Overview Information; College Assistance Migrant Program (CAMP); Notice Inviting Applications for New Awards for Fiscal Year (FY) 2006

Catalog of Federal Domestic Assistance (CFDA) Number: 84.149A.

Dates:

Applications Available: February 28, 2006.

Deadline for Transmittal of Applications: April 14, 2006.

Deadline for Intergovernmental Review: June 13, 2006.

Eligible Applicants: Institutions of higher education (IHEs) or private non-profit organizations (including faith-based organizations) that plan their projects in cooperation with an IHE and prepare to operate some aspects of the project with the facilities of the IHE.

Estimated Available Funds: $2,300,000.

Estimated Range of Awards: $150,000–$425,000.

Estimated Average Size of Awards: $330,000.

Estimated Number of Awards: 7.

Maximum Award: We will reject any application that proposes a budget exceeding $425,000 for a single budget period of 12 months. The Assistant Secretary for Elementary and Secondary Education may change the maximum amount through a notice published in the **Federal Register**.

Note: The Department is not bound by any estimates in this notice.

Project Period: Up to 60 months.

Full Text of Announcement

I. Funding Opportunity Description

Purpose of Program: The purpose of CAMP is to provide the academic and financial support necessary to help migrant and seasonal farmworkers and their children successfully complete their first year of college.

Priorities: This notice contains two competitive preference priorities. In accordance with 34 CFR 75.105(b)(2)(ii), the competitive preference priority for ''novice applicant'' is from the Education Department General Administrative Regulations (EDGAR) (34 CFR 75.225(a)). In accordance with 34 CFR 75.105(b)(2)(iv) of EDGAR, the competitive preference priority for ''prior experience of service delivery'' is from section 418A(e) of the Higher Education Act of 1965, as amended (HEA) (20 U.S.C. 1070d–2).

Competitive Preference Priorities: For FY 2006 these priorities are competitive preference priorities. Under 34 CFR 75.105(c)(2)(i) we award an additional five points to an application meeting the ''novice applicant'' competitive preference priority, and up to an additional 15 points to an application meeting the ''prior experience of service delivery'' competitive preference priority.

These priorities are: *Novice Applicant.*

The applicant must be a ''novice applicant'' as defined in 34 CFR 75.225(a), which refers to an applicant that has never received a grant under this program, has never been a member of a group application that was funded under this program, and has never had an active discretionary grant from the Federal Government in the five years before the submission due date of this current competition.

Prior Experience of Service Delivery

In accordance with section 418A(e) of the HEA, expiring CAMP projects are eligible to receive up to 15 maximum points for prior experience in delivering CAMP services. The Secretary will consider the applicant's prior experience in implementing its expiring CAMP project based on information contained in documents previously provided to the Department, such as annual performance reports, project evaluation reports, site visit reports, and the previously approved CAMP application.

Program Authority: 20 U.S.C. 1070d–2.

Applicable Regulations: (a) EDGAR in 34 CFR parts 74, 75, 77, 79, 82, 84, 85, 86, 97, 98, and 99. (b) 34 CFR part 206. (c) The definition of a migratory agricultural worker in 34 CFR 200.81. (d) 20 CFR 669.110 and 669.320.

Note: The regulations in 34 CFR part 86 apply to IHEs only.

II. Award Information

Type of Award: Discretionary grants.

Estimated Available Funds: $2,300,000.

Estimated Range of Awards: $150,000—$425,000.

Estimated Average Size of Awards: $330,000.

Estimated Number of Awards: 7.

Maximum Award: We will reject any application that proposes a budget exceeding $425,000 for a single budget period of 12 months. The Assistant Secretary for Elementary and Secondary Education may change the maximum amount through a notice published in the **Federal Register**.

Note: The Department is not bound by any estimates in this notice.

Project Period: Up to 60 months.

III. Eligibility Information

1. *Eligible Applicants:* IHEs or private non-profit organizations (including faith-based organizations) that plan their projects in cooperation with an IHE and prepare to operate some aspects of the project with the facilities of the IHE.

2. *Cost Sharing or Matching:* This competition does not involve cost sharing or matching.

IV. Application and Submission Information

1. *Address to Request Application Package:* David De Soto, U.S. Department of Education, Office of Migrant Education, 400 Maryland Avenue, SW., room 3E225, Washington, DC 20202–6135. Telephone: (202) 260–8103 or by e-mail: *david.de.soto@ed.gov.*

The application package also can be obtained electronically at the following address: *http://www.ed.gov/programs/camp/applicant.html.*

If you use a telecommunications device for the deaf (TDD), you may call the Federal Relay Service (FRS) at 1–800–877–8339.

Individuals with disabilities may obtain a copy of the application package in an alternative format (*e.g.*, Braille, large print, audiotape, or computer diskette) by contacting the program contact person listed in this section.

2. *Content and Form of Application Submission:* Requirements concerning the content of an application, together with the forms you must submit, are in the application package for this competition. Page Limit: The application narrative (Part III of the application) is where you, the applicant, address the selection criteria that reviewers use to evaluate your application. You must limit Part III to the equivalent of no more than 25 pages, using the following standards:

- A ''page'' is 8.5″ × 11″, on one side only, with 1″ margins at the top, bottom, and both sides.
- Double space (no more than three lines per vertical inch) all text in the application narrative (Part III), including titles, headings, footnotes, quotations, references, and captions. However, you may single space all text in charts, tables, figures, and graphs. Charts, tables, figures, and graphs presented in the application narrative count toward the page limit.
- Use a font that is either 12 point or larger or no smaller than 10 pitch (characters per inch).
- Appendices must be limited to 15 pages and may include the following: Resumes, job descriptions, letters of support, and bibliography.

The page limit does not apply to the following sections of the application: Part I, the cover sheet; Part II, the budget section, including the narrative budget justification; Part IV, the assurances and certifications; or the one-page abstract. However, you must include all of the application narrative in Part III.

Our reviewers will not read any pages of your application that:

- Exceed the page limit if you apply these standards; or
- Exceed the equivalent of the page limit if you apply other standards.

3. *Submission Dates and Times:*

Applications Available: February 28, 2006.

Deadline for Transmittal of Applications: April 14, 2006.

Applications for grants under this competition may be submitted electronically using the Grants.gov Apply site (Grants.gov), or in paper format by mail or hand delivery. For information (including dates and times) about how to submit your application electronically, or by mail or hand delivery, please refer to section IV. 6. *Other Submission Requirements* in this notice.

We do not consider an application that does not comply with the deadline requirements.

Deadline for Intergovernmental Review: June 13, 2006.

4. *Intergovernmental Review:* This competition is subject to Executive Order 12372 and the regulations in 34 part 79. Information about Intergovernmental Review of Federal Programs under Executive Order 12372 is in the application package for this competition.

5. *Funding Restrictions:* We reference regulations outlining funding restrictions in the *Applicable Regulations* section of this notice.

6. *Other Submission Requirements:* Applications for grants under this competition may be submitted electronically or in paper format by mail or hand delivery.

a. Electronic Submission of Applications

We have been accepting applications electronically through the Department's e-Application system since FY 2000. In order to expand on those efforts and comply with the President's Management Agenda, we are continuing to participate as a partner in the new government wide Grants.gov Apply site in FY 2006. The CAMP–CFDA Number 84.149A is one of the programs included in this project. We request your participation in Grants.gov.

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You may access the electronic grant application for the College Assistance Migrant Program at: *http://www.grants.gov.* You must search for the downloadable application package for this program by the CFDA number. Do not include the CFDA number's alpha suffix in your search.

Please note the following:

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- Applications received by Grants.gov are time and date stamped. Your application must be fully uploaded and submitted, and must be date/time stamped by the Grants.gov system no later than 4:30 p.m., Washington, DC time, on the application deadline date. Except as otherwise noted in this section, we will not consider your application if it is date/time stamped by the Grants.gov system later than 4:30 p.m., Washington, DC time, on the application deadline date. When we retrieve your application from Grants.gov, we will notify you if we are rejecting your application because it was date/time stamped by the Grants.gov system after 4:30 p.m., Washington, DC time, on the application deadline date.
- The amount of time it can take to upload an application will vary depending on a variety of factors including the size of the application and the speed of your Internet connection. Therefore, we strongly recommend that you do not wait until the application deadline date to begin the application process through Grants.gov.
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- To submit your application via Grants.gov, you must complete all of the steps in the Grants.gov registration process (see *http://www.Grants.gov/GetStarted*). These steps include (1) registering your organization, (2) registering yourself as an Authorized Organization Representative (AOR), and (3) getting authorized as an AOR by your organization. Details on these steps are outlined in the new Grants.gov 3-Step Registration Guide (see *http://*

www.grants.gov/assets/GrantsgovCoBrandBrochure8X11.pdf). You must also provide on your application the same D–U–N–S Number used with this registration. Please note that the registration process may take five or more business days to complete, and you must have completed all registration steps to allow you to submit successfully an application via Grants.gov.

- You will not receive additional point value because you submit your application in electronic format, nor will we penalize you if you submit your application in paper format.
- You may submit all documents electronically, including all information typically included on the Application for Federal Education Assistance (ED 424), Budget Information—Non-Construction Programs (ED 524), and all necessary assurances and certifications. If you choose to submit your application electronically, you must attach any narrative sections of your application as files in a .DOC (document), .RTF (rich text), or .PDF (Portable Document) format. If you upload a file type other than the three file types specified above or submit a password protected file, we will not review that material.
- Your electronic application must comply with any page limit requirements described in this notice.
- After you electronically submit your application, you will receive an automatic acknowledgement from Grants.gov that contains a Grants.gov tracking number. The Department will retrieve your application from Grants.gov and send you a second confirmation by e-mail that will include a PR/Award number (an ED-specified identifying number unique to your application).
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b. Submission of Paper Applications by Mail

If you submit your application in paper format by mail (through the U.S. Postal Service or a commercial carrier), you must mail the original and two copies of your application, on or before the application deadline date, to the Department at the applicable following address:

By mail through the U.S. Postal Service: U.S. Department of Education, Application Control Center, Attention: (CFDA Number 84.149A), 400 Maryland Avenue, SW., Washington, DC 20202–4260, or

By mail through a commercial carrier: U.S. Department of Education, Application Control Center—Stop 4260, Attention: (CFDA Number 84.149A), 7100 Old Landover Road, Landover, MD 20785–1506.

Regardless of which address you use, you must show proof of mailing consisting of one of the following:

(1) A legibly dated U.S. Postal Service postmark,

(2) A legible mail receipt with the date of mailing stamped by the U.S. Postal Service,

(3) A dated shipping label, invoice, or receipt from a commercial carrier, or

(4) Any other proof of mailing acceptable to the Secretary of the U.S. Department of Education.

If you mail your application through the U.S. Postal Service, we do not accept either of the following as proof of mailing:

(1) A private metered postmark, or

(2) A mail receipt that is not dated by the U.S. Postal Service.

If your application is postmarked after the application deadline date, we will not consider your application.

Note: The U.S. Postal Service does not uniformly provide a dated postmark. Before relying on this method, you should check with your local post office.

c. Submission of Paper Applications by Hand Delivery.

If you submit your application in paper format by hand delivery, you (or a courier service) must deliver the original and two copies of your application by hand, on or before the application deadline date, to the Department at the following address: U.S. Department of Education, Application Control Center, Attention: (CFDA Number 84.149A), 550 12th Street, SW., Room 7041, Potomac Center Plaza, Washington, DC 20202–4260.

The Application Control Center accepts hand deliveries daily between 8 a.m. and 4:30 p.m., Washington, DC time, except Saturdays, Sundays, and Federal holidays.

Note for Mail or Hand Delivery of Paper Applications: If you mail or hand deliver your application to the Department:

(1) You must indicate on the envelope and—if not provided by the Department—in Item 4 of the Application for Federal Education Assistance (ED 424) the CFDA number—and suffix letter, if any—of the competition under which you are submitting your application.

(2) The Application Control Center will mail a grant application receipt acknowledgment to you. If you do not receive the grant application receipt acknowledgment within 15 business days from the application deadline date, you should call the U.S. Department of Education Application Control Center at (202) 245–6288.

V. Application Review Information

Selection Criteria: The selection criteria for this competition are from 34 CFR 75.210 of EDGAR and are listed in the application package.

VI. Award Administration Information

1. *Award Notices:* If your application is successful, we notify your U.S. Representative and U.S. Senators and send you a Grant Award Notice (GAN). We may also notify you informally.

If your application is not evaluated or not selected for funding, we notify you.

2. *Administrative and National Policy Requirements:* We identify administrative and national policy requirements in the application package and reference these and other requirements in the *Applicable Regulations* section of this notice.

We reference the regulations outlining the terms and conditions of an award in

the *Applicable Regulations* section of this notice and include these and other specific conditions in the GAN. The GAN also incorporates your approved application as part of your binding commitments under the grant.

3. *Reporting:* At the end of your project period, you must submit a final performance report, including financial information, as directed by the Secretary. If you receive a multi-year award, you must submit an annual performance report that provides the most current performance and financial expenditure information as specified by the Secretary in 34 CFR 75.118.

4. *Performance Measures:* Under the Government Performance and Results Act (GPRA), the Department developed the following performance measures to evaluate the overall effectiveness of CAMP: (1) The number and percent of CAMP students who successfully complete the first year of college, and (2) the number and percent of CAMP students who continue to be enrolled in postsecondary education after completing their first year of college.

All grantees will be required to submit an annual performance report documenting their success in addressing these performance measures.

VII. Agency Contact

For Further Information Contact: David De Soto, U.S. Department of Education, Office of Migrant Education, 400 Maryland Avenue, SW., room 3E225, Washington, DC 20202–6135. Telephone Number: (202) 260–8103, or by e-mail: *david.de.soto@ed.gov.*

If you use a telecommunications device for the deaf (TDD) you may call the Federal Relay Service (FRS) at 1–800–877–8339.

Individuals with disabilities may obtain this document in an alternative format (*e.g.,* Braille, large print, audiotape, or computer diskette) on request to the contact person listed in this section.

VIII. Other Information

Electronic Access to This Document: You may view this document, as well as all other documents of this Department published in the **Federal Register,** in text or Adobe Portable Document Format (PDF) on the Internet at the following site: *http://www.ed.gov/news/fedregister.*

To use PDF you must have Adobe Acrobat Reader, which is available free at this site. If you have questions about using PDF, call the U.S. Government Printing Office (GPO) toll free at 1–888–293–6498; or in the Washington, DC area at (202) 512–1530.

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Dated: February 22, 2006.

Henry L. Johnson,

Assistant Secretary for Elementary and Secondary Education.

[FR Doc. E6–2805 Filed 2–27–06; 8:45 am]

BILLING CODE 4000–01–P

DEPARTMENT OF EDUCATION

Foreign Language Assistance Program—Local Educational Agencies

AGENCY: Office of English Language Acquisition, Language Enhancement, and Academic Achievement for Limited English Proficient Students, Department of Education.

ACTION: Notice of proposed priority.

SUMMARY: The Assistant Deputy Secretary and Director for English Language Acquisition, Language Enhancement, and Academic Achievement for Limited English Proficient Students, proposes a priority under the Foreign Language Assistance program. We may use this priority for competitions in fiscal year (FY) 2006 and later years. We take this action to focus Federal financial assistance on an identified national need for programs in critical foreign languages within kindergarten through grade twelve during the traditional school day. We intend this priority to increase the number of local educational agency programs implementing elementary and secondary school projects teaching languages of major economic and political importance.

DATES: We must receive your comments on or before March 30, 2006.

ADDRESSES: Address all comments about this proposed priority to Rebecca Richey, U.S. Department of Education, 400 Maryland Avenue, SW., room 10080, PCP, Washington, DC 20202–6510. If you prefer to send your comments through the Internet, use the following address: *comments@ed.gov.*

You must include the term ''FLAP LEA Comments'' in the subject line of your electronic message.

FOR FURTHER INFORMATION CONTACT: Rebecca Richey. Telephone: (202) 245–7133 or via Internet: *rebecca.richey@ed.gov.*

If you use a telecommunications device for the deaf (TDD), you may call the Federal Relay Service (FRS) at 1–800–877–8339.

Individuals with disabilities may obtain this document in an alternative format (*e.g.*, Braille, large print, audiotape, or computer diskette) on request to the contact person listed under **FOR FURTHER INFORMATION CONTACT.**

SUPPLEMENTARY INFORMATION:

Invitation To Comment

We invite you to submit comments regarding this proposed priority.

We invite you to assist us in complying with the specific requirements of Executive Order 12866 and its overall requirement of reducing regulatory burden that might result from this proposed priority. Please let us know of any further opportunities we should take to reduce potential costs or increase potential benefits while preserving the effective and efficient administration of the program.

During and after the comment period, you may inspect all public comments about this proposed priority in room 10080, 550 12th Street, SW., Washington, DC, between the hours of 8:30 a.m. and 4 p.m., Eastern time, Monday through Friday of each week except Federal holidays.

Assistance to Individuals With Disabilities in Reviewing the Rulemaking Record

On request, we will supply an appropriate aid, such as a reader or print magnifier, to an individual with a disability who needs assistance to review the comments or other documents in the public rulemaking record for this proposed priority. If you want to schedule an appointment for this type of aid, please contact the person listed under **FOR FURTHER INFORMATION CONTACT.**

Background

In order to address the disparity between the need for and the limited number of programs teaching critical languages, we are proposing a priority that would provide Federal financial assistance to local educational agencies implementing elementary and secondary school projects that provide instruction in languages of major economic and political importance, such as Arabic, Chinese, Korean, Japanese, Russian, and languages in the Indic, Iranian, and Turkic language families.

In addition, the proposed priority provides that the projects it supports must establish, improve, or expand foreign language learning that occurs primarily during the traditional school day. Because these languages are not only less commonly taught, but also

more difficult to learn, it is especially critical, if proficiency is to be obtained, that the rigorous and structured instruction be primarily carried out during the traditional school day. A project that provides instruction only on weekends or after school is significantly less likely to result in student proficiency.

We will announce the final priority in a notice in the **Federal Register**. We will determine the final priority after considering responses to this notice and other information available to the Department. This notice does not preclude us from proposing or funding additional priorities, subject to meeting applicable rulemaking requirements.

Note: This notice does *not* solicit applications. In any year in which we choose to use this proposed priority, we invite applications through a notice in the **Federal Register**. When inviting applications we designate the priority as absolute, competitive preference, or invitational. The effect of each type of priority follows:

Absolute priority: Under an absolute priority we consider only applications that meet the priority (34 CFR 75.105(c)(3)).

Competitive preference priority: Under a competitive preference priority we give competitive preference to an application by either (1) awarding additional points, depending on how well or the extent to which the application meets the competitive priority (34 CFR 75.105(c)(2)(i)); or (2) selecting an application that meets the competitive priority over an application of comparable merit that does not meet the priority (34 CFR 75.105(c)(2)(ii)).

Invitational priority: Under an invitational priority we are particularly interested in applications that meet the invitational priority. However, we do not give an application that meets the invitational priority a competitive or absolute preference over other applications (34 CFR 75.105(c)(1)).

Priority

Critical Need Languages

This priority supports projects that establish, improve or expand foreign language learning primarily during the traditional school day, within grade kindergarten through grade 12 that exclusively teach one or more of the following less commonly taught languages: Arabic, Chinese, Korean, Japanese, Russian, and languages in the Indic, Iranian, and Turkic language families.

Executive Order 12866

This notice of proposed priority has been reviewed in accordance with Executive Order 12866. Under the terms of the order, we have assessed the potential costs and benefits of this regulatory action.

The potential costs associated with the notice of proposed priority are those resulting from statutory requirements and those we have determined are necessary for administering this program effectively and efficiently.

In assessing the potential costs and benefits—both quantitative and qualitative—of this notice of proposed priority, we have determined that the benefits of the proposed priority justify the costs.

We have also determined that this regulatory action does not unduly interfere with State, local, and tribal governments in the exercise of their governmental functions.

Intergovernmental Review

This program is subject to Executive Order 12372 and the regulations in 34 CFR part 79. One of the objectives of the Executive order is to foster an intergovernmental partnership and a strengthened federalism. The Executive order relies on processes developed by State and local governments for coordination and review of proposed Federal financial assistance.

This document provides early notification of our specific plans and actions for this program.

Electronic Access to This Document

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(Catalog of Federal Domestic Assistance Number 84.293B Foreign Language Assistance Program)

Program Authority: 20 U.S.C. 7259–7259b.

Dated: February 23, 2006.

Kathleen Leos,

Assistant Deputy Secretary and Director for English Language Acquisition, Language Enhancement, and Academic_Achievement for Limited English_Proficient Students.

[FR Doc. E6–2806 Filed 2–27–06; 8:45 am]

BILLING CODE 4000–01–P

DEPARTMENT OF EDUCATION

Foreign Language Assistance Program—State Educational Agencies

AGENCY: Office of English Language Acquisition, Language Enhancement, and Academic Achievement for Limited English Proficient Students, Department of Education.

ACTION: Notice of proposed priority.

SUMMARY: The Assistant Deputy Secretary and Director for English Language Acquisition, Language Enhancement, and Academic Achievement for Limited English Proficient Students proposes a priority under the Foreign Language Assistance program. We may use this priority for competitions in fiscal year (FY) 2006 and later years. We take this action to focus Federal financial assistance on an identified national need for programs in critical foreign languages in kindergarten through twelfth grade during the traditional school day. We intend this priority to increase the number of State educational agency programs implementing elementary and secondary school projects teaching languages of major economic and political importance.

DATES: We must receive your comments on or before March 30, 2006.

ADDRESSES: Address all comments about this proposed priority to Rebecca Richey, U.S. Department of Education, 400 Maryland Avenue, SW., room 10080, PCP, Washington, DC 20202–6510. If you prefer to send your comments through the Internet, use the following address: *comments@ed.gov.*

You must include the term ''FLAP SEA Comments'' in the subject line of your electronic message.

FOR FURTHER INFORMATION CONTACT: Rebecca Richey. Telephone: (202) 245–7133 or via Internet: *rebecca.richey@ed.gov.*

If you use a telecommunications device for the deaf (TDD), you may call the Federal Relay Service (FRS) at 1–800–877–8339.

Individuals with disabilities may obtain this document in an alternative format (*e.g.*, Braille, large print, audiotape, or computer diskette) on request to the contact person listed under **FOR FURTHER INFORMATION CONTACT**.

SUPPLEMENTARY INFORMATION:

Invitation To Comment

We invite you to submit comments regarding this proposed priority.

We invite you to assist us in complying with the specific

requirements of Executive Order 12866 and its overall requirement of reducing regulatory burden that might result from this proposed priority. Please let us know of any further opportunities we should take to reduce potential costs or increase potential benefits while preserving the effective and efficient administration of the program.

During and after the comment period, you may inspect all public comments about this proposed priority in room 10080, 550 12th Street, SW., Washington, DC, between the hours of 8:30 a.m. and 4 p.m., Eastern time, Monday through Friday of each week except Federal holidays.

Assistance to Individuals With Disabilities in Reviewing the Rulemaking Record

On request, we will supply an appropriate aid, such as a reader or print magnifier, to an individual with a disability who needs assistance to review the comments or other documents in the public rulemaking record for this proposed priority. If you want to schedule an appointment for this type of aid, please contact the person listed under **FOR FURTHER INFORMATION CONTACT**.

Background

In order to address the disparity between the need for and the limited number of programs teaching critical languages, we are proposing a priority that would provide Federal financial assistance to State educational agencies implementing elementary and secondary school projects that provide instruction in languages of major economic and political importance, such as Arabic, Chinese, Korean, Japanese, Russian, and languages in the Indic, Iranian, and Turkic language families.

In addition, the proposed priority provides that the projects it supports must establish, improve, or expand foreign language learning that occurs primarily during the traditional school day. Because these languages are not only less commonly taught, but also more difficult to learn, it is especially critical, if proficiency is to be obtained, that the rigorous and structured instruction be primarily carried out during the traditional school day. A project that provides instruction only on weekends or after school is significantly less likely to result in student proficiency.

We will announce the final priority in a notice in the **Federal Register**. We will determine the final priority after considering responses to this notice and other information available to the Department. This notice does not preclude us from proposing or funding additional priorities, subject to meeting applicable rulemaking requirements.

Note: This notice does *not* solicit applications. In any year in which we choose to use this proposed priority, we invite applications through a notice in the **Federal Register**. When inviting applications we designate the priority as absolute, competitive preference, or invitational. The effect of each type of priority follows:

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Invitational priority: Under an invitational priority we are particularly interested in applications that meet the invitational priority. However, we do not give an application that meets the invitational priority a competitive or absolute preference over other applications (34 CFR 75.105(c)(1)).

Priority

Critical Need Languages

This priority supports projects that establish, improve or expand foreign language learning primarily during the traditional school day, within grade kindergarten through grade 12 that exclusively teach one or more of the following less commonly taught languages: Arabic, Chinese, Korean, Japanese, Russian, and languages in the Indic, Iranian, and Turkic language families.

Executive Order 12866

This notice of proposed priority has been reviewed in accordance with Executive Order 12866. Under the terms of the order, we have assessed the potential costs and benefits of this regulatory action.

The potential costs associated with the notice of proposed priority are those resulting from statutory requirements and those we have determined are necessary for administering this program effectively and efficiently.

In assessing the potential costs and benefits-both quantitative and qualitative-of this notice of proposed priority, we have determined that the benefits of the proposed priority justify the costs.

We have also determined that this regulatory action does not unduly interfere with State, local, and tribal governments in the exercise of their governmental functions.

Intergovernmental Review

This program is subject to Executive Order 12372 and the regulations in 34 CFR part 79. One of the objectives of the Executive order is to foster an intergovernmental partnership and a strengthened federalism. The Executive order relies on processes developed by State and local governments for coordination and review of proposed Federal financial assistance.

This document provides early notification of our specific plans and actions for this program.

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(Catalog of Federal Domestic Assistance Number 84.293C Foreign Language Assistance Program)

Program Authority: 20 U.S.C. 7259–7259b.

Dated: February 23, 2006.

Kathleen Leos,

Assistant Deputy Secretary and Director for English Language Acquisition, Language Enhancement, and Academic_Achievement for Limited English_Proficient Students.

[FR Doc. E6–2808 Filed 2–27–06; 8:45 am]

BILLING CODE 4000–01–P

DEPARTMENT OF EDUCATION

[CFDA 84.060A]

Office of Elementary and Secondary Education, Department of Education; Indian Education Formula Grants to Local Education Agencies—Notice Inviting Applications for Fiscal Year (FY) 2006

Supplementary Information

Purpose of Program: The Indian Education Formula Grant program provides grants to support local educational agencies (LEAs) and other eligible entities described in this notice in their efforts to reform and improve elementary and secondary school programs that serve Indian students. The Department will fund programs designed to assist Indian students to meet the same challenging State academic content and student academic achievement standards used for all students. In addition, under section 7116 of the Elementary and Secondary Education Act of 1965, as amended (ESEA), the Secretary will, upon receipt of an acceptable plan for the integration of education and related services, authorize the entity receiving the funds under this program to consolidate, in accordance with the entity's plan, the funds for any Federal program exclusively serving Indian children, or the funds reserved under any Federal program to exclusively serve Indian children, that are awarded under a statutory or administrative formula to the entity, for the purposes of providing education and related services to Indian students. Instructions for submitting an integration of education and related services plan are included in the application package.

Eligible Applicants: LEAs, certain schools funded by the Bureau of Indian Affairs and Indian tribes under certain conditions, as prescribed by section 7112(c) of the ESEA.

Dates:

Applications Available: February 28, 2006.

Deadline for Transmittal of Applications: March 30, 2006.

Applications not meeting the deadline will not be considered for funding in the initial allocation of awards. However, if funds become available after the initial allocation of funds, applications not meeting the deadline *may* be considered for funding if the Secretary determines, under section 7118(d) of the ESEA, that reallocation of those funds to applicants filing after the deadline would best assist in advancing the purposes of the program. However, the amount and length of an individual award, if any, may be less than the applicant would have received had the application been submitted on time.

Deadline for Intergovernmental Review: May 30, 2006.

Available Funds: $95,331,060.

Estimated Range of Awards: $4,000 to $2,215,000.

Estimated Average Size of Awards: $79,642.

Estimated Number of Awards: 1,197.

Note: The Department is not bound by any estimates in this notice.

Project Period: 12 months.

Applicable Regulations: The Education Department General Administrative Regulations (EDGAR) in 34 CFR Parts 75, 77, 79, 80, 81, 82, 84, 85, 86, 97, 98, and 99.

Note: The regulations in 34 CFR part 79 apply to all applicants except federally recognized Indian tribes.

Performance Measures: The Secretary has established the following key performance measures for assessing the effectiveness of the Formula Grants to Local Educational Agency program: (1) The percentage of American Indian and Alaska Native students in grades 4 and 8 who are at or above the basic level in reading on the National Assessment of Educational Progress (NAEP); and (2) the percentage of American Indian and Alaska Native students in grades 4 and 8 who are at or above the basic level in mathematics on NAEP.

For Applications or Further Information Contact: Lana Shaughnessy, U.S. Department of Education, 400 Maryland Avenue, SW., room 5C152, Washington, DC 20202–6335. Telephone: (202) 260–3774. An electronic version of the application is available at: *http://www.ed.gov/about/offices/list/oese/oie/index.html.*

Individuals who use a telecommunications device for the deaf (TDD) may call the Federal Relay Service (FRS) at 1–800–877–8339.

Individuals with disabilities may obtain a copy of the application package or a copy of this document in an alternative format (*e.g.,* Braille, large print, audiotape, or computer diskette) on request to the person listed in this section.

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Program Authority: 20 U.S.C. 7421 *et seq.*

Dated: February 23, 2006.

Henry L. Johnson,

Assistant Secretary for Elementary and Secondary Education.

[FR Doc. 06–1865 Filed 2–27–06; 8:45 am]

BILLING CODE 4000–01–P

DEPARTMENT OF ENERGY

Office of Fossil Energy

Order Vacating Authorizations

AGENCY: Office of Fossil Energy (FE), Department of Energy (DOE).

ACTION: Notice of Vacating Orders.

SUMMARY: DOE is vacating unused natural gas import and export authorizations.

FOR FURTHER INFORMATION CONTACT: Beverly Howard, Larine A. Moore, Office of Natural Gas Regulatory Activities, Office of Oil and Gas Global Security and Supply, P.O. Box 44375, Washington, DC 20026–4375. (202) 586–9387. (202) 586–9478.

SUPPLEMENTARY INFORMATION: The Office of Fossil Energy (FE) of the Department of Energy is delegated the authority to regulate natural gas import and export under section 3 of the Natural Gas Act of 1938, 15 U.S.C. 717b. Persons seeking to import or export natural gas are required to file with FE an application containing basic information about the scope and nature of a proposed import or export. Most applications are approved automatically and the orders granting approval require those authorized to report import and export activity on a periodic basis. The data collected is used to monitor the North American natural gas trade and facilitate market analysis.

Over the years many two-year, blanket authorizations have been issued with no start date and terms to be triggered by reporting activity. Although required by the authorization, many of these license holders have not submitted activity reports. In addition, FE attempts to contact non-compliant authorization holders have been unsuccessful. FE is

vacating these authorizations in order to remove unused authorizations from the FE database and improve information collection and trade monitoring.

Order

In accordance with DOE policy and pursuant to section 3 of the Natural Gas Act, it is ordered that the authorizations listed in the attached Appendix are vacated effective the date of the issuance of this notice.

Issued in Washington, DC, January 31, 2006

R.F. Corbin,

Manager, Natural Gas Regulatory Activities, Office of Oil and Gas Global Security and Supply, Office of Fossil Energy.

Appendix

Docket No.	Order No.	Importer/exporter	Application received	Date order issued
89–28–NG	325	Western Energy, Inc	06–Apr–88	14–Aug–89.
89–37–NG	337	Vesgas Company	24–Feb–89	27–Sep–89.
89–40–NG	355	Norbac International Corporation	07–Jul–89	06–Dec–89.
89–42–NG	341	Panhandle Trading Company	08–Jun–89	24–Oct–89.
89–51–NG	340	Harbert Energy Corporation	31–Jul–89	13–Oct–89.
89–81–NG	391	Yuma Gas Corporation	15–Nov–89	10–Apr–90.
90–21–NG	412	Brooklyn Interstate Natural Gas Corporation	30–Mar–90	30–Jul–90.
90–26–NG	405	Cherhill Resources Inc	11–Apr–90	26–Jun–90.
90–54–NG	421	Trans Marketing Houston, Inc	06–Jun–90	20–Sep–90.
90–57–NG	432	Tejas Power Corporation	26–Jun–90	09–Oct–90.
90–58–NG	433	Transco Energy Marketing Company	26–Jun–90	09–Oct–90.
90–83–NG	497	Chippewa Gas Corporation	24–Sep–90	24–Apr–91.
90–86–NG	464	Neste Trading (USA), Inc	28–Sep–90	20–Dec–90.
90–86–NG	464A	Neste Trading (USA), Inc	28–Jan–91	20–Feb–91.
90–91–NG	476	Fuel Services Group, Inc	23–Oct–90	06–Feb–91.
91–18–NG	525	Transok Gas Company	28–Feb–91	30–Jul–91.
91–18–NG	525A	Transok Gas Company	08–Apr–92	07–Apr–92.
91–23–NG	520	Puget Sound Power & Light Company	26–Mar–91	22–Jul–91.
91–27–NG	519	Venro Petroleum Corporation	10–Apr–91	22–Jul–91.
91–28–NG	530	KCS Energy Marketing, Inc	08–Apr–91	09–Sep–91.
91–28–NG	530A	KCS Energy Marketing, Inc	29–Aug–95	09–Sep–91.
91–41–NG	547	Tennessee Gas Pipeline Company	24–Jun–91	18–Nov–91.
91–43–NG	557	American Natural Gas Corporation	26–Jun–91	10–Dec–91.
91–52–NG	540	Texaco Natural Gas Inc	22–Jul–91	25–Oct–91.
91–52–NG	1032	Texaco Natural Gas Inc	22–Jul–91	14–Mar–95.
91–55–NG	553	Hadson Gas Systems, Inc	26–Jul–91	02–Dec–91.
91–60–NG	548	Tranam Energy Inc	06–Aug–91	18–Nov–91.
91–65–NG	546	Delhi Gas Pipeline Corporation	16–Aug–91	15–Nov–91.
91–67–NG	549	Kimball/Trippe Energy Associates	06–Aug–91	18–Nov–91.
91–72–NG	566	Sun Operating Limited Partnership	06–Sep–91	27–Dec–91.
91–79–NG	554	Enmark Gas Corporation	27–Sep–91	02–Dec–91.
91–82–NG	560	The Maple Gas Corporation	08–Oct–91	18–Dec–91.
91–85–LNG	570	Texaco Natural Gas Inc	15–Oct–91	31–Dec–91.
91–85–LNG	1032	Texaco Natural Gas Inc	15–Oct–91	14–Mar–95.
91–89–NG	577	Aectra Refining and Marketing, Inc	28–Oct–91	24–Jan–92.
91–99–NG	580	Petro Source Corporation	18–Nov–91	24–Feb–92.
91–104–NG	634	Global Petroleum Corporation	04–Dec–91	12–Jun–92.
91–113–NG	608	Tangram Transmission Corporation	23–Dec–91	24–Apr–92.
91–117–NG	593	Rio Energy International, Inc	24–Dec–91	18–Mar–92.
92–2–NG	618	Bray Terminals, Inc	15–Jan–92	18–May–92.
92–6–NG	604	Sergeant Oil & Gas Company, Inc	27–Jan–92	17–Apr–92.
92–7–NG	624	Ledco, Inc	06–Mar–90	29–May–92.
92–8–NG	601	National Gas Resources Ltd. Partnership	03–Feb–92	14–Apr–92.
92–9–NG	629	Alcorn Trading Company, Inc	03–Feb–92	12–Jun–92.
92–11–NG	617	Highland Energy Company	05–Feb–92	18–May–92.
92–15–NG	636	Iroquois Gas Transmission System, L.P	07–Feb–92	12–Jun–92.
92–15–NG	636A	Iroquois Gas Transmission System, L.P	13–Jul–92	06–Aug–92.
92–17–NG	621	Mountain Gas Resources, Inc	10–Feb–92	21–May–92.
92–21–NG	612	Exxon Corporation	20–Feb–92	30–Apr–92.
92–28–NG	626	Signal Fuels Trading Corporation	02–Mar–92	03–Jun–92.
92–40–NG	632	Enmark Gas Corporation	23–Mar–92	12–Jun–92.
92–42–NG	645	Kimball Energy Corporation	24–Mar–92	28–Jul–92.
92–45–NG	649	Cornerstone Gas Resources, Inc	02–Apr–92	29–Jul–92.
92–45–NG	649A	Cornerstone Gas Resources, Inc	25–Jul–94	01–Aug–94.
92–56–NG	657	Unocal Canada Limited	27–Apr–92	06–Aug–92.
92–58–NG	685	Fulton Cogeneration Associates	29–Apr–92	19–Oct–92.
92–62–NG	660	SDS Petroleum Products, Inc	19–May–92	24–Aug–92.
92–65–NG	654	Saratoga Natural Gas Inc	26–May–92	05–Aug–92.
92–67–NG	673	Columbus Energy Corporation	04–Jun–92	24–Sep–92.
92–74–NG	667	J. Aron & Company	02–Mar–92	11–Sep–92.
92–77–NG	669	Louis Dreyfus Natural Gas Corporation	22–Jun–92	17–Sep–92.
92–79–NG	686	Czar Gas Corporation Inc	23–Jun–92	21–Oct–92.
92–80–NG	661	EMC Gas Transmission Company	23–Jun–92	24–Aug–92.
92–83–NG	688	Graham Energy Marketing Corporation	25–Jun–92	22–Oct–92.

Docket No.	Order No.	Importer/exporter	Application received	Date order issued
92–84–NG	687	Allegheny Energy Marketing Company	30–Jun–92	21–Oct–92.
92–87–NG	695	Pacwest Resources, Inc	07–Jul–92	23–Oct–92.
92–88–NG	663	Nicholson & Associates, Inc	07–Jul–92	04–Sep–92.
92–89–NG	679	BP Gas Inc	07–Jul–92	07–Oct–92.
92–99–NG	703	Neste Trading (USA), Inc	30–Jul–92	09–Nov–92.
92–107–NG	684	GPM Gas Corporation	18–Aug–92	19–Oct–92.
92–110–NG	708	Wascana Energy Marketing (U.S.) Inc	24–Aug–92	13–Nov–92.
92–110–NG	708A	Wascana Energy Marketing (U.S.) Inc	04–Jan–94	13–Jan–94.
92–113–NG	740	International Resource Management Corporation	27–Aug–92	30–Nov–92.
92–114–NG	700	Libra Marketing Company	02–Sep–92	06–Nov–92.
92–119–NG	733	Multi Energies Inc	7–Sep–92	20–Nov–92.
92–124–NG	728	Santana Resources Limited	28–Sep–92	20–Nov–92.
92–136–NG	752	Canton-Potsdam Hospital	02–Nov–92	16–Dec–92.
92–137–NG	738	Wal/ox	04–Nov–92	25–Nov–92.
92–141–NG	712	City of Holyoke Gas & Electric Department	09–Nov–92	13–Nov–92.
92–144–NG	715	Valley Gas Company	09–Nov–92	13–Nov–92.
92–145–NG	716	Fitchburg Gas and Electric Light Company	09–Nov–92	13–Nov–92.
92–146–NG	761	AGE Refining, Inc	12–Nov–92	21–Jan–93.
92–146–NG	761A	AGE Refining, Inc	03–May–93	15–Jun–93.
92–152–NG	750	Texpar Energy, Inc	25–Nov–92	15–Dec–92.
93–2–NG	764	Western Natural Gas & Transmission Corp	06–Jan–93	22–Jan–93.
93–5–NG	767	Lenape Resources Corporation	26–Jan–93	16–Feb–93.
93–16–NG	772	TM Star Fuel Company	04–Feb–93	16–Feb–93.
93–19–NG	596A	Tenneco Gas Marketing Company	15–Feb–94	25–Feb–94.
93–20–NG	796	Meridian Marketing & Transmission Corporation	02–Mar–93	30–Apr–93.
93–26–NG	814	Western Gas Resources, Inc	02–Mar–93	25–Jun–93.
93–29–NG	802	Mexus Trading Company	05–Mar–93	10–May–93.
93–35–NG	811	Meridian Marketing & Transmission Corporation	25–Mar–93	24–Jun–93.
93–51–NG	807	Husky Gas Marketing Inc	11–May–93	02–Jun–93.
93–56–NG	828	Texas International Gas & Oil Company	03–Jun–93	30–Jul–93.
93–59–NG	839	Bonus Gas Processors, Inc	21–Jun–93	31–Aug–93.
93–65–NG	819	Northridge Gas Marketing U.S., Inc	30–Jun–93	13–Jul–93.
93–65–NG	1021	Northridge Gas Marketing U.S., Inc	30–Jun–93	19–Jan–95.
93–66–NG	848	Northridge Gas Marketing U.S., Inc	30–Jun–93	30–Sep–93.
93–66–NG	1021	Northridge Gas Marketing U.S., Inc	30–Jun–93	19–Jan–95.
93–69–NG	843	Mobil Natural Gas Inc	02–Jul–93	24–Sep–93.
93–80–NG	831	Utility—2000 Energy Corporation	02–Aug–93	09–Aug–93.
93–88–NG	889	Consumers' Gas Company Ltd	02–Sep–93	09–Dec–93.
93–103–NG	863	Cabot Oil & Gas Production Corporation	27–Sep–93	18–Oct–93.
93–103–NG	863A	Cabot Oil & Gas Production Corporation	24–Jun–94	05–Jul–94.
93–104–NG	884	ANR Gas Supply Company	16–Sep–93	30–Nov–93.
93–106–NG	870	Granite State Gas Transmission, Inc	01–Oct–93	28–Oct–93.
93–109–NG	875	Midwest Gas, a Division of Midwest Power Systems Inc	12–Oct–93	12–Nov–93.
93–125–NG	907	Transtexas Gas Corporation	15–Nov–93	03–Jan–94.
93–133–NG	890	Salmon Resources Ltd & Cogen Energy Technology	07–Oct–91	13–Dec–93.
93–138–NG	886	Saskenergy Incorporated	02–Dec–93	08–Dec–93.
93–146–NG	906	Great West Energy Inc	09–Sep–91	03–Jan–94.
93–150–NG	905	Catex Vitol Gas, Inc	11–Dec–90	03–Jan–94.
94–23–NG	935	Global Energy Services, LLC	23–Mar–94	29–Apr–94.
94–23–NG	935A	Global Energy Services, LLC	13–Jan–97	13–Mar–97.
94–26–NG	937	Transok Gas Company	25–Mar–94	02–May–94.
94–33–NG	948	American Gas & Technology, Inc	14–Apr–94	16–May–94.
94–34–NG	944	SDS Petroleum Products, Inc	06–Apr–94	03–May–94.
94–38–NG	953	Phibro Division of Salomon Inc	07–Sep–93	01–Jun–94.
94–42–NG	961	Pennzoil Gas Marketing Company	07–Sep–93	27–Jun–94.
94–57–NG	970	Anadarko Trading Company	12–Aug–94	31–Aug–94.
94–62–NG	973	Greenfield Fuel Oil Company, Inc	01–Sep–94	12–Sep–94.
94–72–NG	1003	Sunalta Energy Marketing Inc	18–May–90	04–Nov–94.
94–83–NG	988	MGI Supply Ltd	07–Oct–94	14–Oct–94.
94–92–NG	1004	Bring Gas Services Corporation	03–Nov–94	08–Nov–94.
94–104–NG	1016	The Clean Air Fuels Corporation	21–Dec–94	30–Dec–94.
00–74–LNG	1640	Enron LNG Marketing LLC	18–Oct–00	03–Nov–00.
01–18–NG	1682	Aquila Canada Capital and Trade Corporation	04–May–01	21–May–01.
01–19–NG	1681	Aquila Capital and Trade Ltd	04–May–01	21–May–01.
01–20–NG	1680	Aquila Canada Capital and Trade Corporation	04–May–01	17–May–01.
01–21–LNG	1685	Tractebel Energy Marketing, Inc	15–May–01	24–May–01.
01–23–LNG	1684	Conoco Inc	21–May–01	23–May–01.
01–54–LNG	1718	Small Ventures U.S.A., L.L.C	05–Oct–01	16–Oct–01.
01–61–NG	1728	Nova Scotia Power Inc	16–Oct–01	30–Oct–01.
01–64–NG	1729	CEG Energy Options Inc	30–Oct–01	30–Oct–01.

[FR Doc. E6–2771 Filed 2–27–06; 8:45 am]

BILLING CODE 6450–01–P

DEPARTMENT OF ENERGY

Federal Energy Regulatory Commission

Combined Notice of Filings #1

February 17, 2006.

Take notice that the Commission received the following electric rate filings.

Docket Number: ER00–2187–001.
Applicants: CMS Distributed Power, L.L.C.
Description: CMS Distributed Power LLC submits the Revised Triennial Generation Market Power Analysis filed in response to the Letter Order dated 1/12/05.
Filed Date: 2/10/2006.
Accession Number: 20060214–0235.
Comment Date: 5 p.m. Eastern Time on Friday, March 3, 2006.

Docket Number: ER02–2366–002.
Applicants: Louis Dreyfus Energy LLC.
Description: Louis Dreyfus Energy, LLC submits an amendment to its 9/9/05 updated market power analysis filing.
Filed Date: 2/10/2006.
Accession Number: 20060214–0229.
Comment Date: 5 p.m. eastern time on Friday, March 3, 2006.

Docket Number: ER03–534–001.
Applicants: Ingenco Wholesale Power, L.L.C.
Description: Ingenco Wholesale Power LLC submits amended, additional tariff sheets to the market-based rate tariff to comply with FERC's Market Behavior Rules.
Filed Date: 2/9/2006.
Accession Number: 20060213–0013.
Comment Date: 5 p.m. eastern time on Thursday, March 2, 2006.

Docket Number: ER05–111–003.
Applicants: TransCanada Hydro Northeast Inc.
Description: TransCanada Hydro Northeast, Inc submits an amendment to Original Sheet 1, FERC Electric Tariff 1, Original Volume No. 1.
Filed Date: 2/9/2006.
Accession Number: 20060213–0012.
Comment Date: 5 p.m. eastern time on Thursday, March 2, 2006.

Docket Numbers: ER05–652–005; RT04–1–019; ER05–109–004; ER04–48–019.
Applicants: Southwest Power Pool, Inc.
Description: Southwest Power Pool, Inc submits a compliance filing providing revisions its OATT pursuant to FERC's 1/11/06 Order.
Filed Date: 2/10/2006.
Accession Number: 20060216–0023.
Comment Date: 5 p.m. eastern time on Friday, March 3, 2006.

Docket Number: ER06–28–002.
Applicants: PJM Interconnection, L.L.C.
Description: PJM Interconnection, LLC submits revised tariff language in compliance with FERC's 1/26/06 letter order.
Filed Date: 2/10/2006.
Accession Number: 20060216–0022.
Comment Date: 5 p.m. eastern time on Friday, March 3, 2006.

Docket Number: ER06–268–002.
Applicants: Los Esteros Critical Energy Facility, LLC.
Description: Los Esteros Critical Energy Facility, LLC submits corrections to Rate Schedule No. 131 of its Reliability Must-Run Agreement with the California ISO.
Filed Date: 2/10/2006.
Accession Number: 20060216–0034.
Comment Date: 5 p.m. eastern time on Friday, March 3, 2006.

Docket Number: ER06–616–000.
Applicants: Duke Energy Corporation.
Description: Duke Energy Corp submits proposed changes to its interconnection agreement with North Carolina Electric Membership Corp.
Filed Date: 2/9/2006.
Accession Number: 20060213–0010.
Comment Date: 5 p.m. eastern time on Thursday, March 2, 2006.

Docket Number: ER06–618–000.
Applicants: Pacific Gas and Electric Company.
Description: Pacific Gas & Electric Co submits notices of termination for the Atlantic Substation Upgrade Special Facilities Agreement et al with Sierra Pacific Power Co.
Filed Date: 2/9/2006.
Accession Number: 20060214–0232.
Comment Date: 5 p.m. eastern time on Thursday, March 2, 2006.

Docket Number: ER06–620–000.
Applicants: ISO New England Inc.
Description: ISO New England Inc submits non-conforming market participant service agreements with EnergyConnect, Inc et al.
Filed Date: 2/10/2006.
Accession Number: 20060216–0016.
Comment Date: 5 p.m. eastern time on Friday, March 3, 2006.

Docket Number: ER06–621–000.
Applicants: Starlight Energy.
Description: Starlight Energy, LP submits a Notice of Cancellation of Rate Schedule No. 1, effective 3/30/06.
Filed Date: 2/9/2006.
Accession Number: 20060216–0017.
Comment Date: 5 p.m. eastern time on Thursday, March 2, 2006.

Docket Number: ER06–622–000.
Applicants: UGI Development Company.
Description: UGI Development Co submits a rate schedule specifying the revenue requirement for providing cost-based Reactive Support & Voltage Control from Generation Sources Service etc.
Filed Date: 2/10/2006.
Accession Number: 20060216–0018.
Comment Date: 5 p.m. eastern time on Friday, March 3, 2006.

Docket Number: ER06–623–000.
Applicants: New England Power Company.
Description: New England Power Co dba National Grid submits its Cost Allocation Agreement for Line 448–518 Upgrades with Boston Edison Co.
Filed Date: 2/10/2006.
Accession Number: 20060216–0019.
Comment Date: 5 p.m. eastern time on Friday, March 3, 2006.

Docket Number: ER06–624–000.
Applicants: Idaho Power Company.
Description: Idaho Power Co submits revised tariff sheets to its OATT, FERC Electric Tariff, First Revised Volume No. 5.
Filed Date: 2/10/2006.
Accession Number: 20060216–0020.
Comment Date: 5 p.m. eastern time on Friday, March 3, 2006.

Docket Number: ER06–625–000.
Applicants: American Electric Power Service Company.
Description: American Electric Power Service Corp, on behalf of the American Electric Power System, submits proposed amendments to two jurisdictional agreements etc with Central Power and Light Co.
Filed Date: 2/10/2006.
Accession Number: 20060216–0021.
Comment Date: 5 p.m. eastern time on Friday, March 3, 2006.

Docket Number: ER06–626–000.
Applicants: Allegheny Energy Service Corporation.
Description: Allegheny Energy Inc submits Revisions to the Reactive Power Rate Schedule of Hunlock Creek Energy Ventures.
Filed Date: 2/10/2006.
Accession Number: 20060216–0040.
Comment Date: 5 p.m. eastern time on Friday, March 3, 2006.

Docket Number: ER06–627–000.
Applicants: American Electric Power Service Corp.
Description: American Electric Power Service Corp submits the Station Agreement, dated 1/1/68 as amended among Ohio Power Co, Buckeye Power Inc et al.
Filed Date: 2/10/2006.
Accession Number: 20060216–0041.

Comment Date: 5 p.m. eastern time on Friday, March 3, 2006.

Docket Number: ER06–628–000.

Applicants: Tacoma Energy Recovery Company.

Description: Tacoma Energy Recovery Co's submits notice of cancellation of its FERC Electric Rate Schedule No. 1.

Filed Date: 2/10/2006.

Accession Number: 20060216–0039.

Comment Date: 5 p.m. eastern time on Friday, March 3, 2006.

Docket Number: ER06–629–000.

Applicants: California Independent System Operator Corporation

Description: California Independent System Operator submits its Standard Small Generator Interconnection Procedures for FERC's approval and inclusion in the ISO Tariff pursuant to Order 2006.

Filed Date: 2/10/2006.

Accession Number: 20060216–0037.

Comment Date: 5 p.m. eastern time on Friday, March 3, 2006.

Docket Number: ER06–630–000.

Applicants: Southern California Edison Company.

Description: Joint filing of a small generator interconnection agreement of the California Independent System Operator Corp pursuant to Order 2006.

Filed Date: 2/10/2006.

Accession Number: 20060216–0038.

Comment Date: 5 p.m. eastern time on Friday, March 3, 2006.

Docket Number: ER95–692–000.

Applicants: TransCanada Energy, Ltd.

Description: TransCanada Energy, Ltd submits an amendment to its FERC Electric Rate Schedule No.1 pursuant to Order 652.

Filed Date: 2/9/2006.

Accession Number: 20060213–0001.

Comment Date: 5 p.m. eastern time on Thursday, March 2, 2006.

Docket Number: ER98–564–009.

Applicants: TransCanada Power Marketing Ltd.

Description: TransCanada Power Marketing Ltd submits an amendment to its FERC Electric Rate Schedule No.1.

Filed Date: 2/9/2006.

Accession Number: 20060213–0014.

Comment Date: 5 p.m. eastern time on Thursday, March 2, 2006.

Any person desiring to intervene or to protest in any of the above proceedings must file in accordance with Rules 211 and 214 of the Commission's Rules of Practice and Procedure (18 CFR 385.211 and 385.214) on or before 5 p.m. eastern time on the specified comment date. It is not necessary to separately intervene again in a subdocket related to a compliance filing if you have previously intervened in the same docket. Protests will be considered by the Commission in determining the appropriate action to be taken, but will not serve to make protestants parties to the proceeding. Anyone filing a motion to intervene or protest must serve a copy of that document on the Applicant. In reference to filings initiating a new proceeding, interventions or protests submitted on or before the comment deadline need not be served on persons other than the Applicant.

The Commission encourages electronic submission of protests and interventions in lieu of paper, using the FERC Online links at *http://www.ferc.gov.* To facilitate electronic service, persons with Internet access who will eFile a document and/or be listed as a contact for an intervenor must create and validate an eRegistration account using the eRegistration link. Select the eFiling link to log on and submit the intervention or protests.

Persons unable to file electronically should submit an original and 14 copies of the intervention or protest to the Federal Energy Regulatory Commission, 888 First St. NE., Washington, DC 20426.

The filings in the above proceedings are accessible in the Commission's eLibrary system by clicking on the appropriate link in the above list. They are also available for review in the Commission's Public Reference Room in Washington, DC. There is an eSubscription link on the Web site that enables subscribers to receive e-mail notification when a document is added to a subscribed dockets(s). For assistance with any FERC Online service, please e-mail *FERCOnlineSupport@ferc.gov.* or call (866) 208–3676 (toll free). For TTY, call (202) 502–8659.

Magalie R. Salas,

Secretary.

[FR Doc. E6–2854 Filed 2–27–06; 8:45 am]

BILLING CODE 6717–01–P

ENVIRONMENTAL PROTECTION AGENCY

[Docket No. EPA–HQ–ORD–2004–0015; FRL–8038–5]

Air Quality Criteria for Ozone and Related Photochemical Oxidants

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice of Availability of Final Document.

SUMMARY: The U.S. Environmental Protection Agency (EPA) Office of Research and Development's National Center for Environmental Assessment (NCEA) is announcing the availability of a final document, ''Air Quality Criteria for Ozone and Related Photochemical Oxidants (Final),'' Volumes I, II, and III, EPA 600/R–05/004aF–cF.

DATES: This document will be available on or about February 28, 2006.

FOR FURTHER INFORMATION CONTACT: For questions on availability of the document, refer to section B, **SUPPLEMENTARY INFORMATION**, in this notice. For technical information, contact Lori White, Ph.D., ORD/NCEA: telephone number 919–541–3146; fax number 919–541–1818; e-mail address white.*lori@epa.gov.*

SUPPLEMENTARY INFORMATION:

I. General Information

A. Background

Section 108 (a) of the Clean Air Act directs the EPA Administrator to identify certain pollutants which ''may reasonably be anticipated to endanger public health and welfare'' and to issue air quality criteria for them. These air quality criteria are to '' * * * accurately reflect the latest scientific knowledge useful in indicating the kind and extent of all identifiable effects on public health or welfare which may be expected from the presence of [a] pollutant in the ambient air * * *'' Under section 109 of the Act, EPA is then to establish National Ambient Air Quality Standards (NAAQS) for each pollutant for which EPA has issued criteria. Section 109(d) of the Act subsequently requires periodic review and, if appropriate, revision of existing air quality criteria to reflect advances in scientific knowledge on the effects of the pollutant on public health and welfare. EPA is also to revise the NAAQS, if appropriate, based on the revised criteria.

Ozone is one of six ''criteria'' pollutants for which EPA has established air quality criteria and NAAQS. On September 26, 2000 (65 FR 57810), EPA formally initiated its current review of the criteria and NAAQS for ozone, requesting the submission of recent scientific information on specified topics. A draft Project Work Plan for a revised Ozone AQCD, with preliminary outlines for the proposed chapters, was released for public comment (66 FR 67524, December 31, 2001) and reviewed by the Clean Air Scientific Advisory Committee (CASAC) of EPA's Science Advisory Board (68 FR 3527, January 24, 2003). EPA later convened a series of workshops to discuss draft sections and chapters that had been developed

for revising the existing Ozone AQCD (68 FR 17365, April 9, 2003, and 68 FR 60369, October 22, 2003).

In January 2005, EPA announced the availability of the First External Review Draft of the revised Ozone AQCD for public review and comments (70 FR 4850, January 31, 2005) and presented the draft to the CASAC Ozone Review Panel on May 4–5, 2005. Taking into account public and CASAC comments, EPA prepared and announced a Second External Review Draft for public review and comment (70 FR 51810, August 31, 2005).

At a public meeting in December 2005, EPA presented the Second External Review Draft to the Clean Air Scientific Advisory Committee (CASAC) for their review. Public comments and comments from the CASAC Review Panel were considered in preparing the final Ozone AQCD announced in this **Federal Register** notice.

B. How To Obtain Copies of the Final Ozone AQCD and Other Related Information

Internet users can download a copy of this document from the NCEA home page. The URL is *http://www.epa.gov/ncea.* A limited number of CD–ROM or paper copies will be available. Contact Ms. Diane Ray, ORD/NCEA: telephone number 919–541–3637; fax number 919–541–1818; or e-mail address *ray.diane@epa.gov* . Please provide the document's title, ''Air Quality Criteria for Ozone and Related Photochemical Oxidants (Final),'' Volumes I, II, and III, EPA 600/R–05/004aF–cF, as well as your name and address, to facilitate processing of your request.

EPA has established an official public docket for information pertaining to the revision of the Ozone AQCD, identified by Docket ID No. EPA–HQ–ORD–2004–0015. All documents in this docket are listed in the *http://www.regulations.gov* index. Some information is not publicly available, *e.g.*, Confidential Business Information (CBI). Other information, such as copyrighted material, is publicly available only in hard copy. Publicly available docket materials are available either electronically in *http://www.regulations.gov* or in hard copy at the Office of Environmental Information (OEI) Docket, EPA/DC, EPA West, Room B102, 1301 Constitution Ave., NW., Washington, DC: telephone 202–566–1752; facsimile 202–566–1753; or e-mail *ORD.Docket@epa.gov.* The Public Reading Room is open 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays: telephone 202–566–1744.

Dated : February 22, 2006.

P.W. Preuss,

Director, National Center for Environmental Assessment.

[FR Doc. E6–2799 Filed 2–27–06; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

[EPA–HQ–OEI–2006–0157; FRL–8038–6]

Office of Environmental Information; Announcement of Availability and Comment Period for Well Information Draft Data Standard

AGENCY: Environmental Protection Agency.

ACTION: Notice of data availability & request for comment.

SUMMARY: Notice of availability for a 45 day review and comment period is hereby given for the Draft Well Information Data Standard.

The Draft Well Information Data Standard describes data elements and data groupings that are used to exchange information about wells and is a supplement to the ESAR: Monitoring Location [EX000003.1] Data Standard when well information is being exchanged. It includes information about well ownership, location, use, construction, and where samples or measurements are made. The user may find that the information here can be very detailed, however, it should be noted that it provides structure for those data that are available and there is need to exchange. States and U.S. EPA completed a technical review of this standard in the Fall of 2005.

DATES: Comments must be submitted on or before April 13, 2006.

ADDRESSES: Submit your comments, identified by Docket ID No. EPA–HQ–OEI–2006–0157 by one of the following methods:

- *http://www.regulations.gov:* Follow the on-line instructions for submitting comments.
- E-mail: *oei.docket@epa.gov*
- Fax: 202–566–1753
- Mail: Environmental Protection Agency, EPA Docket Center (EPA/DC), Announcement of Availability and Comment Period for Well, Information Draft Data Standard, Mailcode: 28221T, 1200 Pennsylvania Avenue, NW., Washington, DC 20460.
- Hand Delivery: Public Reading Room, Room B102, EPA West Building, 1301 Constitution Avenue, NW., Washington, DC.

Instructions: Direct your comments to Docket ID No. EPA–HQ–OEI–2006–0157. EPA's policy is that all comments received will be included in the public docket without change and may be made available online at *www.regulations.gov,* including any personal information provided, unless the comment includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through *www.regulations.gov* or e-mail. The *www.regulations.gov* Web site is an ''anonymous access'' system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an e-mail comment directly to EPA without going through *www.regulations.gov* your e-mail address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD–ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses. For additional information about EPA's public docket visit the EPA Docket Center homepage at *http://www.epa.gov/epahome/dockets.htm.*

FOR FURTHER INFORMATION CONTACT: Dawn Banks-Waller; Environmental Protection Agency; 1200 Pennsylvania Avenue, MC 2822T; Washington, DC 20460; Phone: 202 566–0625; Fax: 202 566 1624; E-mail: *Banks-Waller.Dawn@epa.gov.*

SUPPLEMENTARY INFORMATION: This standard was developed by a group of professionals and submitted as a comment on the ESAR Suite of Data Standards published in an earlier **Federal Register**. The decision to put the Draft Well Information Data Standard out for review was made jointly by U.S. EPA, States, and Tribes (through the Exchange Network Leadership Council (ENLC)), an organization that represents the USE EPA, States and Tribal entities. The ENLC took over responsibility for Data Standards development, administration and management from the Environmental Data Standards Council (EDSC) in January 2006).

The standards are intended for use in environmental data exchanges among

States, Tribal entities and the U.S. EPA. They are not meant to dictate or to limit data an agency chooses to collect for its own internal purposes. Adoption of a data standard should not be interpreted to mean that revisions to databases or information systems are required. What the adoption does mean is that formats for sharing data with Exchange Network (EN) partners will change because the Exchange Network has adopted Shared Schema Components (SSCs) based on the data standards. The SSCs are available on the Exchange Network Web site *at http://www.exchangenetwork.net.*

The draft data standards documents can be found on EDSC's Web site at *http://www.envdatastandards.net/* and are available through the Docket system as indicated above.

Dated: February 21, 2006.

Oscar Morales,

Director, Collection Strategies Division.

[FR Doc. E6–2802 Filed 2–27–06; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

[FRL–8037–6]

Proposed Reissuance of the NPDES General Permit for Oil and Gas Exploration, Development and Production Facilities Located in State and Federal Waters in Cook Inlet (AKG–31–5000)

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice of proposed NPDES General Permit Reissuance.

SUMMARY: The Regional Administrator of Region 10 today proposes to reissue the National Pollutant Discharge Elimination System (NPDES) General Permit for Oil and Gas Exploration, Development and Production Facilities in State and Federal Waters in Cook Inlet (No. AKG–31–5000). As proposed, the permit would authorize discharges from exploration, development, and production platforms and related facilities that are included in the Coastal and Offshore Subcategory of the Oil and Gas Extraction Point Source Category as authorized by section 402 of the Clean Water Act (CWA or Act), 33 U.S.C. 1342.

DATES: Comments must be received by May 1, 2006.

ADDRESSES: Comments should be sent to: Director, Office of Water and Watersheds, U.S. EPA, Region 10, 1200 Sixth Avenue, M/S OWW–130, Seattle, Washington 98101.

Comments may also be submitted via e-mail to the following address: *shaw.hanh@epa.gov.*

FOR FURTHER INFORMATION CONTACT: Ms. Hanh Shaw, U.S. EPA, Region 10, 1200 Sixth Avenue, M/S OWW–130, Seattle, Washington 98101. Telephone: (206) 553–0171. A copy of the Proposed Permit, the fact sheet that fully explains the proposal, and a copy of EPA's Environmental Assessment (EA) and preliminary Finding of No Significant Impacts (FONSI), prepared pursuant to the National Environmental Policy Act (NEPA), may be obtained from Ms. Shaw. EPA's current administrative record on the proposal is available for examination at U.S. EPA, 1200 Sixth Avenue, Seattle, WA 98101. Additionally, a copy of the proposed permit, fact sheet, EA, preliminary FONSI, and this **Federal Register** Notice may be obtained on the Internet at: *http://www.epa.gov/r10earth.*

The documents are also available from the EPA Alaska Operations Office, Room 537, Federal Building, 222 West 7th Avenue, Anchorage, Alaska 99513. Please contact Ms. Dianne Soderlund at (907) 271–3425 for assistance.

SUPPLEMENTARY INFORMATION: The existing permit, NPDES Permit No. AKG–28–5000 (Existing Permit), was previously reissued on April 1, 1999 and expired on April 1, 2004 (64 FR 19156). The Existing Permit will remain in effect until a new permit is reissued for those discharges which were covered at the time of expiration. The Existing Permit authorizes discharges from oil and gas exploration, development, and production facilities located in and discharging to state and Federal waters in Cook Inlet north of a line extending between Cape Douglas (at 58°51′ latitude, 153°15′ longitude) on the west and Port Chatham (at 59°13′ latitude, 151°47′ longitude) on the east. EPA proposes to replace the Existing Permit with the proposed reissued permit (Proposed Permit), renumbered as AKG–31–5000.

The following changes are proposed to be made as a part of the permit reissuance:

1. EPA proposes to expand the existing coverage area to include the recent Minerals Management Service Lease Sales Nos. 191 and 199 and the State waters adjoining those lease areas.

2. EPA proposes to authorize discharges from oil and gas exploration facilities located within the expanded coverage area, including discharges associated with the use of synthetic-based drilling fluids.

3. EPA proposes to authorize discharges from new oil and gas development and production facilities located within the expanded coverage area, including sanitary waste water, domestic waste water, deck drainage, and miscellaneous discharges such as cooling water and boiler blowdown. These new development and production facilities, however, would not be authorized to discharge produced water, drilling fluids, or drill cuttings under the Proposed Permit.

4. EPA proposes to add new whole effluent toxicity and technology-based limits for discharges that contain treatment chemicals, such as biocides and corrosion inhibitors. These discharges include, but are not limited to, water flood waste water, cooling water, boiler blowdown, and desalination unit waste water.

5. EPA proposes to add a new water quality-based effluent limit for total residual chlorine.

6. EPA proposes to change the monitoring requirements found in the Existing Permit. The proposed changes would result in increased monitoring for facilities that violate the effluent limits, and reduced monitoring for facilities that demonstrate a good compliance record.

7. EPA proposes to expand the Existing Permit's baseline study to include all new facilities.

8. EPA proposes to include a new study that will involve collecting ambient data to determine the effect of large volume produced water discharges on Cook Inlet.

9. EPA proposes to expand the permit's discharge prohibition near protected areas, coastal marshes, and deltas.

10. EPA proposes to change the permit number from AKG–28–5000 to AKG–31–5000.

Regulated entities. The Proposed Permit regulates discharges from oil and gas extraction facilities located in Cook Inlet (e.g., coastal and offshore oil and gas extraction platforms and certain shore-based facilities); however, other types of facilities may also be subject to the conditions and limitations set forth in the Proposed Permit. To determine whether your facility, company, business, organization, etc., may be affected by today's action, you should carefully examine the applicability criteria in Part I of the Proposed Permit. Questions on the permit's application to specific facilities may also be directed to Ms. Shaw at the telephone number or address listed above.

The permit contains conditions and limitations that conform to the Offshore and Coastal Subcategories of the Oil and Gas Extraction Point Source Effluent Limitations Guidelines set forth in 40

CFR part 435, subparts A and D, as well as additional requirements that ensure that regulated discharges will not cause unreasonable degradation of the marine environment, as required by section 403(c) of the Clean Water Act (i.e., the Ocean Discharge Criteria), 33 U.S.C. 1343(c). Specific information on the derivation of those limitations and conditions is contained in the fact sheet.

Other Legal Requirements

National Environmental Policy Act. Because the proposed permit will cover new sources (development and production facilities) in Cook Inlet, the permit is subject to the National Environmental Policy Act (NEPA). Based on the EA and consideration of the proposed NPDES permit conditions, and in accordance with the guidelines for determining the significance of proposed federal actions (40 CFR 1508.27) and EPA criteria for initiating an Environmental Impact Statement (EIS) (40 CFR 6.605), EPA has concluded that the proposed NPDES permit will not result in significant effect on the human environment. The proposed permit will not significantly affect land use patterns or population, wetlands or flood plains, threatened or endangered species, farmlands, ecologically critical areas, historic resources, air quality, water quality, noise levels, and fish and wildlife resources. It will also not conflict with approved local, regional, or state land use plans or policies. The proposed permit also conforms with all applicable Federal statutes and executive orders. As a result of these findings, EPA has determined that an EIS will not be prepared.

Oil Spill Requirements. Section 311 of the Act, 33 U.S.C. 1321, prohibits the discharge of oil and hazardous materials in harmful quantities. Routine discharges specifically controlled by the Proposed Permit are excluded from the provisions of CWA Section 311, 33 U.S.C. 1321. However, the Proposed Permit does not preclude the institution of legal action, or relieve permittees from any responsibilities, liabilities, or penalties for other unauthorized discharges of oil and hazardous materials, which are covered by section 311.

Endangered Species Act. Section 7 of the Endangered Species Act requires Federal agencies to consult with NOAA Fisheries and the U.S. Fish and Wildlife Service (USFWS) if their actions have the potential to either beneficially or adversely affect any threatened or endangered species.

EPA has determined that the Proposed Permit is not likely to adversely affect any threatened or endangered species. During the NEPA process, EPA has initiated consultation with NOAA Fisheries and USFWS in order to meet its obligations under the Endangered Species Act. A Biological Evaluation (BE) was submitted to NOAA Fisheries and USFWS for review on January 23, 2006. The fact sheet and the Proposed Permit will be also submitted to NOAA Fisheries and USFWS for review during the public comment period. EPA will obtain concurrence with its determination from NOAA Fisheries and USFWS prior to issuing the final permit.

Essential Fish Habitat (''EFH''). The Magnuson-Stevens Fishery Conservation and Management Act requires EPA to consult with NOAA Fisheries when a proposed discharge has the potential to adversely affect an EFH. EPA is consulting with NOAA Fisheries to ensure that the discharges authorized by the Proposed Permit are not likely to adversely affect an EFH or associated species. An EFH assessment was sent on January 23, 2006 to NOAA Fisheries for review. EPA will also submit the fact sheet and the Proposed Permit to NOAA Fisheries for review during the public comment period.

Coastal Zone Management Act (''CZMA''). Pursuant to 40 CFR 122.49(d), requirements of the State coastal zone management program must be satisfied before the permit is issued. EPA has determined that the activities authorized by the Proposed Permit are consistent with the Coastal Zone Management Plan. EPA will seek concurrence with this determination from the Alaska Department of Natural Resources (ADNR) prior to issuing the final Proposed Permit.

Maritime Protection, Research, and Sanctuaries Act (''MPRSA''). No marine sanctuaries, as designated by the MPRSA, exist in the vicinity of the Proposed Permit coverage area. However, since state waters are involved in the Proposed Permit coverage area, the provisions of section 401 of the Act, 33 U.S.C. 1341, apply. In accordance with 40 CFR 124.10(c)(1), public notice of the Proposed Permit has been provided to the State agencies that have jurisdiction over fish, shellfish, and wildlife resources.

Annex V of MARPOL (73/78 and 33 CFR 155.73). Under Annex V of MARPOL, the U.S. Coast Guard (USCG) has issued interim final regulations under 33 CFR 151.73 to control the disposal of garbage and domestic wastes from fixed or floating platforms. These regulations include those platforms involved in the exploration, development, and production exploitation of oil and gas resources, such as oil drilling rigs and production platforms. These regulations also apply to all oil platforms when these platforms are located in navigable waters of the U.S. or within the 200 mile Exclusive Economic Zone. The Proposed Permit prohibits the discharge of garbage (as defined at 33 CFR part 151) within 12 miles of the nearest land. The term garbage, as it is applied here, includes operational and maintenance wastes. Beyond 12 miles, the discharge of food wastes that are ground so as to pass through a 25 millimeter mesh screen, incinerator ash, and non-plastic clinkers will be permitted.

State Certification. Section 401 of the Act, 33 U.S.C. 1341, requires EPA to seek a certification from the State that the conditions of the Proposed Permit are stringent enough to comply with State water quality standards. EPA obtained a draft certification from the Alaska Department of Environmental Conservation on November 2, 2005, which was revised on February 17, 2006. EPA intends to seek a final certification from the State of Alaska prior to issuing the final permit. When the State issues certification, the State may impose more stringent conditions than are currently included in the Proposed Permit to ensure compliance with State water quality standards.

Executive Order 12291. The Office of Management and Budget (OMB) exempts this action from the review requirements of Executive Order 12291 pursuant to section 8(b) of that Order. Guidance on Executive Order 12866 contains the same exemptions on OMB review as existed under Executive Order 12291. EPA, however, has prepared a regulatory impact analysis in connection with its promulgation of guidelines on which a number of the Proposed Permit's provisions are based and has submitted it to OMB for review (see 58 FR 12494).

Paperwork Reduction Act. EPA has reviewed the requirements imposed on regulated facilities in the proposed general permit under the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 et seq. OMB has already approved most of the Proposed Permit's information collection requirements in submissions made for the NPDES permit program under the provisions of the CWA. This information has been assigned OMB control number: No. 2040–0086 for NPDES permit applications and No. 2040–0004 for the discharge monitoring report form.

Regulatory Flexibility Act. After review of the facts presented in the notice of intent printed above, EPA certifies, pursuant to the provisions of 5

U.S.C. 605(b), that this Proposed Permit will not have a significant impact on a substantial number of small entities. This certification is based on the fact that the regulated parties have greater than 500 employees and are not classified as small businesses under the Small Business Administration regulations established at 49 FR 5023 et seq. (February 9, 1984). These facilities are classified as Major Group 13–Oil and Gas Extraction SIC 1311 Crude Petroleum and Natural Gas.

Dated: February 17, 2006.

Paula vanHaagen,

Acting Director, Office of Water and Watersheds.

[FR Doc. E6–2800 Filed 2–27–06; 8:45 am]

BILLING CODE 6560–50–P

EXPORT-IMPORT BANK OF THE UNITED STATES

Sunshine Act Meeting

ACTION: Notice an of open meeting of the Board of Directors of the Export-Import Bank of the United States.

TIME AND PLACE: Thursday, March 2, 2006 at 1:30 p.m. The meeting will be held at Ex-Im Bank in Room 1143, 811 Vermont Avenue, NW., Washington, DC 20571.

OPEN AGENDA ITEM: Small Business Committee.

PUBLIC PARTICIPATION: The meeting will be open to public participation.

FOR FURTHER INFORMATION CONTACT: Office of the Secretary, 811 Vermont Avenue, NW., Washington, DC 20571 (Tele. No. 202–565–3957).

Howard A. Schweitzer,

General Counsel (Acting).

[FR Doc. 06–1925 Filed 2–24–06; 3:58 pm]

BILLING CODE 6690–01–M

FARM CREDIT SYSTEM INSURANCE CORPORATION

Farm Credit System Insurance Corporation Board; Regular Meeting

AGENCY: Farm Credit System Insurance Corporation Board; Regular Meeting.

SUMMARY: Notice is hereby given of the regular meeting of the Farm Credit System Insurance Corporation Board (Board).

DATE AND TIME: The meeting of the Board will be held at the offices of the Farm Credit Administration in McLean, Virginia, on March 9, 2006, from 10 a.m. until such time as the Board concludes its business.

FOR FURTHER INFORMATION CONTACT: Roland E. Smith, Secretary to the Farm Credit System Insurance Corporation Board, (703) 883–4009, TTY (703) 883–4056.

ADDRESSES: Farm Credit System Insurance Corporation, 1501 Farm Credit Drive, McLean, Virginia 22102.

SUPPLEMENTARY INFORMATION: Parts of this meeting of the Board will be open to the public (limited space available) and parts will be closed to the public. In order to increase the accessibility to Board meetings, persons requiring assistance should make arrangements in advance. The matters to be considered at the meeting are:

Open Session

A. Approval of Minutes

- January 19, 2006 (Open).

B. Business Reports

- FCSIC Financial Report.
- Report on Insured Obligations.
- Quarterly Report on Annual Performance Plan.

C. New Business

- Presentation of 2005 Audit Results.

Closed Session

A. FCSIC Report on System Performance.

B. FCSIC Board Audit Committee with External Auditor.

Dated: February 21, 2006.

Roland E. Smith,

Secretary, Farm Credit System Insurance Corporation Board.

[FR Doc. E6–2768 Filed 2–27–06; 8:45 am]

BILLING CODE 6710–01–P

FEDERAL COMMUNICATIONS COMMISSION

[Report No. AUC–06–65–C (Auction No. 65); DA 06–376]

Auction of 800 MHz Air-Ground Radiotelephone Service Licenses; Comment Sought on Additional Payment Component of Default Payments for Auction No. 65

AGENCY: Federal Communications Commission.

ACTION: Notice.

SUMMARY: This document seeks comments on additional payment component of default payments for the auction of new nationwide commercial Air-Ground Radiotelephone Service licenses in the 800 MHz band (Auction No. 65), scheduled to commence on May 10, 2006.

DATES: Comments are due on or before March 7, 2006 and reply comments are due on or before March 14, 2006.

ADDRESSES: Comments and reply comments must be sent by electronic mail to the following address: *auctions65@fcc.gov.*

FOR FURTHER INFORMATION CONTACT: *For legal questions:* Brian Carter at (202) 418–0660. *For general auction questions:* Jeff Crooks at (202) 418–0660. *For service rules questions:* Erin McGrath or Richard Arsenault (legal); or Jay Jackson or Moslem Sawez (technical) at (202) 418–0620.

SUPPLEMENTARY INFORMATION: This is a summary of the *Supplemental Auction No. 65 Comment Public Notice* released on February 21, 2006. The complete text of the *Supplemental Auction No. 65 Comment Public Notice,* including attachments and related Commission documents is available for public inspection and copying from 8 a.m. to 4:30 p.m. Monday through Thursday or from 8 a.m. to 11:30 p.m. on Friday at the FCC Reference Information Center, Portals II, 445 12th Street, SW., Room CY–A257, Washington, DC 20554. The *Supplemental Auction No. 65 Comment Public Notice* and related Commission documents may also be purchased from the Commission's duplicating contractor, Best Copy and Printing, Inc. (BCPI), Portals II, 445 12th Street, SW., Room CY–B402, Washington, DC, 20554, telephone 202–488–5300, facsimile 202–488–5563, or you may contact BCPI at its Web site: *http://www.BCPIWEB.com.* When ordering documents from BCPI please provide the appropriate FCC document number for example, DA 06–376. The *Supplemental Auction No. 65 Comment Public Notice* and related documents are also available on the Internet at the Commission's Web site: *http://wireless.fcc.gov/auctions/65/.*

1. On January 10, 2006, in the *Auction No. 65 Comment Public Notice,* 71 FR 3513, January 23, 2006, the Wireless Telecommunications Bureau (''Bureau'') announced the auction of new nationwide commercial Air-Ground Radiotelephone Service licenses in the 800 MHz band and sought comment on procedures for the auction of these licenses (Auction No. 65). Auction No. 65 is scheduled to commence on May 10, 2006.

2. After the release of the *Auction No. 65 Comment Public Notice,* the Commission released the *CSEA/Part 1 Report and Order,* 71 FR 6214, February 7, 2006, in which it modified § 1.2104(g)(2) of its rules. This provision, which is part of the Commission's general competitive

bidding rules, governs default payments that must be paid by winning bidders that default on a down payment or final payment obligation or are disqualified after the close of an auction. Under the modified rule, the Commission will, as part of its determination of competitive bidding procedures in advance of a particular auction, establish the amount of the additional payment component of such default payments for that auction. Because § 1.2104(g)(2) was modified after the release of the *Auction No. 65 Comment Public Notice,* the Bureau did not seek comment therein on the appropriate level of this payment for Auction No. 65, nor did it establish the amount of this payment in the *Auction No. 65 Procedures Public Notice* released on February 21, 2006. Therefore, as explained below, the Commission seeks comment in this Public Notice on the appropriate level of this payment for Auction No. 65.

3. Section 1.2104(g)(2) provides that if, after the close of an auction, a winning bidder defaults on a down payment or final payment obligation or is disqualified (e.g., fails to submit a timely long-form application), the bidder is liable for a default payment. This payment consists of a deficiency payment, equal to the difference between the amount of the bidder's bid and the amount of the winning bid the next time a license covering the same spectrum is won in an auction, plus an additional payment equal to a percentage of the defaulter's bid or of the subsequent winning bid, whichever is less. Until recently this additional payment for non-combinatorial auctions has been set at 3 percent of the defaulter's bid or of the subsequent winning bid, whichever is less.

4. Pursuant to the modification of § 1.2104(g)(2) adopted in the *CSEA/Part 1 Report and Order,* the 3 percent limit on the additional default payment for non-combinatorial auctions has been increased to 20 percent. Thus, the Commission will, for each non-combinatorial auction, establish an additional default payment from 3 percent up to a maximum of 20 percent. As the Commission has indicated, the level of this payment in each case will be based on the nature of the service and the inventory of the licenses being offered.

5. For Auction No. 65, the Bureau proposes to establish an additional default payment of 20 percent. In this auction, licenses in three band plans will be available, but the only licenses that will be awarded will be those that comprise the band plan that receives the highest aggregate bid. Consequently, a bid on a single license may determine not only the winner of that license but also the winning band plan, and thus affect the ability of other bidders to win other licenses in the auction. By contrast, a bid on a license in an auction using the Commission's standard simultaneous multiple round auction format (''SMR'') may determine only the winner of that license. Because of the particular interdependence among bids in Auction No. 65 and the potential effects of one winning bidder's default on bidders for other licenses, the Commission believes that the detrimental effects of a default may be significantly greater than in a standard SMR auction. Accordingly, the Commission proposes a higher additional default payment in order to deter such defaults. The Commission seeks comment on this proposal.

6. Comments are due on or before March 7, 2006, and reply comments are due on or before March 14, 2006. All filings must be addressed to the Commission's Secretary Attn: WTB/ASAD, Office of the Secretary, Federal Communications Commission. Parties who file comments by paper must file an original and four copies of each filing. U.S. Postal Service first-class, Express, and Priority mail should be addressed to 445 12th Street, SW., Washington, DC 20554. Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. The Bureau also requires that all comments and reply comments be filed electronically to the following address: *auction65@fcc.gov*. The electronic mail containing the comments or reply comments must include a subject or caption referring to ''Auction No. 65 Comments'' and the name of the commenting party. The Bureau requests that parties format any attachments to electronic mail as Adobe® Acrobat® (pdf) or Microsoft® Word documents. Copies of comments and reply comments will be available for public inspection between 8 a.m. and 4:30 p.m. eastern time (e.t.) Monday through Thursday or 8 a.m. to 11:30 a.m. e.t. on Fridays in the FCC Reference Information Center, Room CY–A257, 445 12th Street, SW., Washington, DC 20554, and will also be posted on the Web page for Auction No. 65 at *http://wireless.fcc.gov/auctions/65/*.

7. This proceeding has been designated as a ''permit-but-disclose'' proceeding in accordance with the Commission's *ex parte* rules. Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentations must contain summaries of the substance of the presentations and not merely a listing of the subjects discussed. More than a one or two sentence description of the views and arguments presented is generally required. Other rules pertaining to oral and written *ex parte* presentations in permit-but-disclose proceedings are set forth in § 1.1206(b) of the Commission's rules.

Federal Communications Commission.

Gary D. Michaels,

Deputy Chief, Auctions and Spectrum Access Division, WTB.

[FR Doc. 06–1836 Filed 2–27–06; 8:45 am]

BILLING CODE 6712–01–P

FEDERAL RESERVE SYSTEM

Formations of, Acquisitions by, and Mergers of Bank Holding Companies

The companies listed in this notice have applied to the Board for approval, pursuant to the Bank Holding Company Act of 1956 (12 U.S.C. 1841 *et seq.*) (BHC Act), Regulation Y (12 CFR part 225), and all other applicable statutes and regulations to become a bank holding company and/or to acquire the assets or the ownership of, control of, or the power to vote shares of a bank or bank holding company and all of the banks and nonbanking companies owned by the bank holding company, including the companies listed below.

The applications listed below, as well as other related filings required by the Board, are available for immediate inspection at the Federal Reserve Bank indicated. The application also will be available for inspection at the offices of the Board of Governors. Interested persons may express their views in writing on the standards enumerated in the BHC Act (12 U.S.C. 1842(c)). If the proposal also involves the acquisition of a nonbanking company, the review also includes whether the acquisition of the nonbanking company complies with the standards in section 4 of the BHC Act (12 U.S.C. 1843). Unless otherwise noted, nonbanking activities will be conducted throughout the United States. Additional information on all bank holding companies may be obtained from the National Information Center website at *http://www.ffiec.gov/nic/*.

Unless otherwise noted, comments regarding each of these applications must be received at the Reserve Bank indicated or the offices of the Board of Governors not later than March 24, 2006.

A. Federal Reserve Bank of Chicago (Patrick M. Wilder, Assistant Vice President) 230 South LaSalle Street, Chicago, Illinois 60690-1414:

1. First Mid-Illinois Bancshares, Inc., Mattoon, Illinois; to acquire 100 percent of the voting shares of Mansfield Bancorp, Inc., Mansfield, Illinois, and thereby indirectly acquire Peoples State Bank of Mansfield, Mansfield, Illinois.

2. Minier Financial, Inc., Employee Stock Ownership Plan w/401(k) Provisions, Minier, Illinois; to become a bank holding company by acquiring 51 percent of the voting shares of Minier Financial Inc., Minier, Illinois, and thereby indirectly acquire First State Bank, Minier, Illinois.

Board of Governors of the Federal Reserve System, February 23, 2006.

Robert deV. Frierson,

Deputy Secretary of the Board.

[FR Doc. E6–2763 Filed 2–27–06; 8:45 am]

BILLING CODE 6210–01–S

GENERAL SERVICES ADMINISTRATION

Notice of Availability of the Draft Environmental Impact Statement for a New Federal Bureau of Investigation (FBI) Field Office Headquarters Facility in Los Angeles, CA

AGENCY: Public Buildings Service, GSA.

ACTION: Notice of Availability and Public Hearing.

SUMMARY: The General Services Administration (GSA) announces the availability of the draft Environmental Impact Statement (EIS) for construction of a new facility to house the Los Angeles Field Office Headquarters of the Federal Bureau of Investigation (FBI) for public review and comment. The EIS provides GSA and the public with an analysis of the environmental impacts that may result from two alternative construction proposals and a No Action alternative.

DATES: Written comments on the draft EIS are invited from the public and may be submitted through the end of the comment period on April 24, 2006 (see ADDRESS section for more details). Comments must be postmarked by April 24, 2006, to ensure consideration; late comments will be considered to the extent practicable. The GSA will use the comments received to help prepare the final version of the EIS. The public is cordially invited to participate in a Public Hearing scheduled on Tuesday, March 14, 2006 from 4:00 p.m. to 8:30 p.m. at the Doubletree Los Angeles—Westwood, 10740 Wilshire Boulevard, Los Angeles, California, 90024. The Public Hearing will be divided into two sessions from 4:00—6:00 p.m. and 6:30—8:30 p.m.; at the beginning of each session (at 4:30 PM and 6:30 PM) GSA will make brief identical presentations, each followed by a period for public comment. The Public Hearing will provide information on the proposed alternatives and their impacts, as well as an opportunity for the public to submit oral and written comments.

ADDRESSES: Comments may be submitted in writing to: Morris Angell, Regional Environmental Quality Advisor, GSA, Portfolio Management Division (9PTC), 450 Golden Gate Ave., 3rd Floor E, San Francisco, CA 94102, or via e-mail to Morris.Angell@gsa.gov. Oral and written comments may also be submitted at the public hearing described in the DATES section.

FOR FURTHER INFORMATION CONTACT: Morris Angell at (415) 522–3473 or via email at Morris.Angell@gsa.gov.

SUPPLEMENTARY INFORMATION: A notice of availability will be mailed to all agencies, organizations, and individuals who participated in the scoping process or were identified during the EIS process. GSA has distributed copies of the draft EIS to appropriate Congressional members and committees, the State of California, other federal agencies, and all interested parties who have requested copies.

The Draft EIS was prepared pursuant to the National Environmental Policy Act of 1969 (NEPA) [42 U.S.C. 4321 *et seq.*] and the Council on Environmental Quality NEPA regulations [40 CFR part 1500]. The draft EIS presents comparisons of these impacts among two action and one no action alternatives. For each alternative, impact discussions are presented by resource area (*e.g.* land use, geology and soils) or topic area (*e.g.*, traffic, environmental justice).

After the public comment period, which ends April 24, 2006, GSA will consider the comments received, revise the draft EIS, select a preferred alternative, and issue a Final EIS. GSA will consider the Final EIS, along with other economic and technical considerations, to make a decision on the appropriate course of action.

Dated: February 16, 2006.

Peter G. Stamison,

Regional Administrator, Public Buildings Service, Pacific Rim Region.

[FR Doc. 06–1863 Filed 2–27–06; 8:45 am]

BILLING CODE 6820–YF

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Administration for Children and Families

Proposed Information Collection Activity; Comment Request

Proposed Project:

Title: Relationship Quality Instrument for Mentoring Children of Prisoners Program.

OMB No.: New Collection.

Description: The Promoting Safe and Stable Families Amendments of 2001 (Pub. L. 107–133) amended Title IV–B of the Social Security Act (42 U.S.C. 629–629e) to provide funding for nonprofit agencies that recruit, screen, train, and support mentors for children with an incarcerated parent or parents. The Family and Youth Services Bureau (FYSB) of the Administration for Children and Families, United States Department of Health and Human Services, administers the Mentoring Children of Prisoners (MCP) program. The MCP program creates lasting, high-quality one-to-one mentoring relationships that provide young people with caring adult role models. The quality of these relationships is an important indicator of success in mentoring programs.

Previous research has shown an association between high-quality mentoring relationships and positive changes in youth behavior associated with positive youth benefits, such as improved school attendance, reductions in risk behavior, and other benefits.

The Relationship Quality Instrument consists of 15 rigorously field-tested questions [1] about the relationship, plus several questions that establish context (age, gender, duration of relationship and frequency of contacts, etc.). The answer to the questions help assess how satisfied the youth (mentee) is with the relationship; whether the mentee is happy in the relationship; whether the mentee trusts the mentor; and whether the mentor has helped the mentee to cope with problems. Researchers in the field of mentoring have tested and validated the questions.

FYSB requires grantees receiving funding to provide information that can be used to evaluate outcomes for participating children. FYSB will use the information provided by the instrument to assure effective service delivery and program management and

[1] Rhodes J., Reddy, R., Roffman, J., and Grossman J.B. (March, 2005). Promoting Successful Youth Mentoring Relationships: A Preliminary Screening Questionnaire. The Journal of Primary Prevention, 26:2, 147–167.

to guide the development of national monitoring and technical assistance systems. Finally, FYSB will use data from this collection for reporting program outcomes to Congress in the FY 2006 Performance Report during the budget process and as the basis for outcome evaluation of the program over the long term.

Respondents: Public, community- and faith-based organizations receiving funding to implement the MCP program.

ANNUAL BURDEN ESTIMATES

Instrument	Number of respondents	Number of responses per respondent	Average burden hours per response	Total burden hours
Relationship Quality Instrument for Mentoring Children of Prisoners Program.	215 MCP grantees serving a total of approximately 25,000 children in the active annual caseload.	1	16 (average caseload per MCP grantee).	24,940
Estimated Total Annual Burden Hours				24,940

In compliance with the requirements of section 3506(c)(2)(A) of the Paperwork Reduction Act of 1995, the Administration for Children and Families is soliciting public comment on the specific aspects of the information collection described above. Copies of the proposed collection of information can be obtained and comments may be forwarded by writing to the Administration for Children and Families, Office of Administration, Office of Information Services, 370 L'Enfant Promenade, SW., Washington, DC 20447, Attn: ACF Reports Clearance Officer. E-mail address: *infocollection@hhs.gov.* All requests should be identified by the title of the information collection.

The Department specifically requests comments on: (a) Whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information shall have practical utility; (b) the accuracy of the agency's estimate of the burden of the proposed collection of information; (c) the quality, utility, and clarity of the information to be collected; and (d) ways to minimize the buden of the collection of information on respondents, including through the use of automated collection techniques or other forms of information technology. Consideration will be given to comments and suggestions submitted within 60 days of this publication.

Dated: February 22, 2006.

Robert Sargis,

Reports Clearance Officer.

[FR Doc. 06–1817 Filed 2–27–06; 8:45 am]

BILLING CODE 4184–01–M

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Administration for Children and Families

State Median Income Estimate for a Four-Person Family (FFY 2007); Notice of the Federal Fiscal Year (FFY) 2007 State Median Income Estimates for Use Under the Low Income Home Energy Assistance Program (LIHEAP) Administered by the Administration for Children and Families, Office of Community Services, Division of Energy Assistance

AGENCY: Office of Community Services, ACF, HHS.

ACTION: Notice of estimated State median income estimates for FFY 2007.

SUMMARY: This notice announces the estimated median income for four-person families in each State and the District of Columbia for FFY 2007 (October 1, 2006 to September 30, 2007). LIHEAP grantees may adopt the State median income estimates beginning with the date of this publication of the estimates in the **Federal Register** or at a later date as discussed below. This means that LIHEAP grantees could choose to implement this notice during the period between the heating and cooling seasons. However, by October 1, 2006, or by the beginning of a grantee's fiscal year, whichever is later, LIHEAP grantees using State median income estimates must adjust their income eligibility criteria to be in accord with the FFY 2007 State median income estimates.

This listing of estimated State median incomes provides one of the maximum income criteria that LIHEAP grantees may use in determining a household's income eligibility for LIHEAP.

DATES: *Effective Date:* The estimates are effective at any time between the date of this publication and October 1, 2006, or by the beginning of a LIHEAP grantee's fiscal year, whichever is later.

FOR FURTHER INFORMATION CONTACT: Leon Litow, Administration for Children and Families, HHS, Office of Community Services, Division of Energy Assistance, 5th Floor West, 370 L'Enfant Promenade, SW., Washington, DC 20447, Telephone: (202) 401–5304 E-Mail: *llitow@acf.hhs.gov.*

SUPPLEMENTARY INFORMATION: Under the provisions of section 2603(11) of Title XXVI of the Omnibus Budget Reconciliation Act of 1981 (Pub. L. 97–35, as amended), we are announcing the estimated median income of a four-person family for each State, the District of Columbia, and the United States for FFY 2007 (the period of October 1, 2006, through September 30, 2007).

Section 2605(b)(2)(B)(ii) of the LIHEAP statute provides that 60 percent of the median income for each State, as annually established by the Secretary of the Department of Health and Human Services, is one of the income criteria that LIHEAP grantees may use in determining a household's eligibility for LIHEAP.

LIHEAP is authorized through the end of FFY 2007 by the Energy Policy Act of 2005, Pub. L. 109–58, which was enacted on August 8, 2005.

Estimates of the median income for a four-person family for each State and the District of Columbia for FFY 2007 have been developed by the Census Bureau of the U.S. Department of Commerce, using the most recently available income data. In developing the median income estimates for FFY 2007, the Census Bureau used the following three sources of data: (1) The Current Population Survey's 2005 Annual Social and Economic Supplement File; (2) the 2000 Decennial Census of Population; and (3) 2004 per capita personal income estimates, by State, from the Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce.

For further information on the estimating method and data sources, contact the Housing and Household Economic Statistics Division at the Census Bureau (301–763–3243). For information on recent U.S. income trends go to: *http://www.census.gov/prod/2005pubs/p60–229.pdf*

A state-by-state listing of median income and 60 percent of median income, for a four-person family for FFY 2007 follows. The listing describes the method for adjusting median income for families of different sizes as specified in regulations applicable to LIHEAP, at 45 CFR 96.85(b), which was published in the **Federal Register** on March 3, 1988 at 53 FR 6824.

Dated: February 17, 2006.

Josephine B. Robinson,

Director, Office of Community Services.

ESTIMATED STATE MEDIAN INCOME FOR A FOUR-PERSON FAMILY, BY STATE, FEDERAL FISCAL YEAR 2007 [1]

States	Estimated state median income for a four-person family [2]	60 percent of estimated state median income for a four-person family
Alabama	$58,652	$35,191
Alaska	78,057	46,834
Arizona	57,119	34,271
Arkansas	51,061	30,637
California	69,377	41,626
Colorado	73,213	43,928
Connecticut	89,319	53,591
Delaware	74,993	44,996
District of Columbia	64,980	38,988
Florida	60,803	36,482
Georgia	60,447	36,268
Hawaii	73,477	44,086
Idaho	57,773	34,664
Illinois	70,558	42,335
Indiana	65,464	39,278
Iowa	66,470	39,882
Kansas	65,777	39,466
Kentucky	57,540	34,524
Louisiana	54,394	32,636
Maine	66,107	39,664
Maryland	87,972	52,783
Massachusetts	86,747	52,048
Michigan	71,324	42,794
Minnesota	78,829	47,297
Mississippi	50,801	30,481
Missouri	63,460	38,076
Montana	55,618	33,371
Nebraska	64,417	38,650
Nevada	60,520	36,312
New Hampshire	81,313	48,788
New Jersey	89,372	53,623
New Mexico	51,452	30,871
New York	67,857	40,714
North Carolina	60,303	36,182
North Dakota	68,371	41,023
Ohio	67,589	40,553
Oklahoma	56,101	33,661
Oregon	61,250	36,750
Pennsylvania	68,913	41,348
Rhode Island	72,706	43,624
South Carolina	57,539	34,523
South Dakota	61,961	37,177
Tennessee	57,569	34,541
Texas	56,508	33,905
Utah	63,233	37,940
Vermont	72,465	43,479
Virginia	74,290	44,574
Washington	71,727	43,036
West Virginia	52,176	31,306
Wisconsin	71,267	42,760
Wyoming	66,325	39,795

Note—FFY 2007 covers the period of October 1, 2006 through September 30, 2007. The estimated median income for a four-person family living in the United States is $66,111 for FFY 2007. The estimates are effective for the Low Income Home Energy Assistance Program (LIHEAP) at any time between the date of this publication and October 1, 2006, or by the beginning of a LIHEAP grantee's fiscal year, whichever is later.

[1] In accordance with 45 CFR 96.85, each State's estimated median income for a four-person family is multiplied by the following percentages to adjust for family size: 52% for one person, 68% for two persons, 84% for three persons, 100% for four persons, 116% for five persons, and 132% for six persons. For each additional family member above six persons, add 3% to the percentage for a six-person family (132%), and multiply the new percentage by the State's estimated median income for a four-person family.

[2] Prepared by the Census Bureau from the Current Population Survey's 2005 Annual Social and Economic Supplement File, 2000 Decennial Census of Population and Housing, and 2004 per capita personal income estimates, by State, from the Bureau of Economic Analysis (BEA). For further information, contact the Housing and Household Economic Statistics Division at the Census Bureau (301–763–3243).

[FR Doc. E6–2754 Filed 2–27–06; 8:45 am]
BILLING CODE 4184–01–P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

Submission for OMB Review; Comment Request; Women's Health Initiative Observational Study

SUMMARY: Under the provisions of Section 3507(a)(1)(D) of the Paperwork Reduction Act of 1995, the Office of the Director, the National Heart, Lung, and Blood Institute (NHLBI), the National Institutes of Health (NIH) has submitted to the Office of Management and Budget (OMB) a request for review and approval of the information collection listed below. This proposed information collection was previously published in the **Federal Register** on November 7, 2005, page 67494 and allowed 60-days for public comment. No public comments were received. The purpose of this notice is to allow an additional 30 days for public comment. The National Institutes of Health may not conduct or sponsor, and the respondent is not required to respond to, an information collection that has been extended, revised or implemented on or after October 1, 1995 unless it displays a current valid OMB control number.

Proposed Collection

Title: Women's Health Initiative (WHI) Observational Study.

Type of Information Collection Request: REVISION: OMB No. 0925–0414, Expiration date: 4/30/2006.

Need and Use of Information Collection: This study will be used by the NIH to evaluate risk factors for chronic disease among older women by developing and following a large cohort of postmenopausal women and relating subsequent disease development to baseline assessments of historical, physical, psychosocial, and physiologic characteristics. In addition, the observational study will complement the clinical trial (which has received clinical exemption) and provide additional information on the common causes of frailty, disability and death for postmenopausal women, namely, coronary heart disease, breast and colorectal cancer, and osteoporotic fractures. Continuation of follow-up years for ascertainment of medical history update forms will provide essential data for outcomes assessment for this population of aging women.

Frequency of Response: On occasion.

Affected Public: Individuals and physicians.

Type of Respondents: Women, next-of-kin, and physician's office staff. The annual reporting burden is an follows:

Type of respondents	Estimated number of respondents	Estimated number of responses per respondent	Average burden hours per response	Estimated total annual burden hours requested
OS Participants	85,786	1.01	.21	18,195
Next-of-kin	1,483	1	.0835	124
Physician's Office Staff	4	1	.0835	.33
Total	87,273			18,319

The annualized cost burden to respondents is estimated at $293,112. There are no Capital Costs, Operating Costs and/or Maintenance Costs to report.

Request For Comments

Written comments and/or suggestions from the public and affected agencies should address one or more of the following points: (1) Evaluate whether the proposed collection is necessary for the proper performance of the function of the agency, including whether the information will have practical utility; (2) Evaluate the accuracy of the agency's estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used; (3) Enhance the quality, utility, and clarity of the information to be collected; and (4) Minimize the burden of the collection of information on those who are to respond, including the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology.

Direct Comments To OMB

Written comments and/or suggestions regarding item(s) contained in this notice, especially regarding the estimated public burden and associated response item, should be directed to: The Office of Management and Budget, Office of Regulatory Affairs, New Executive Office Building, Room 10235, Washington, DC 20503, Attention: Desk Officer for NIH. To request more information on the proposed project or to obtain a copy of the data collection plan and instruments, contact: Dr. Linda Pottern, Project Officer, Women's Health Initiative Program Office, 6701 Rockledge Drive, 2 Rockledge Centre, Suite 8204, MSC 7935, Bethesda, MD 20892–7935, or call 301–402–2900 or E-mail your request, including your address to: *pottern1@mail.nih.gov.*

Comments Due Date

Comments regarding this information collection are best assured of having their full effect if received within 30-days of the date of this publication.

Dated: February 17, 2006.

Linda Pottern,

Project Officer, Women's Health Initiative Women Health Initiative Program Office National Institutes of Health.

[FR Doc. 06–1844 Filed 2–27–06; 8:45 am]
BILLING CODE 4140–01–M

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

National Eye Institute; Notice of Closed Meeting

Pursuant to section 10(d) of the Federal Advisory Committee Act, as amended (5 U.S.C. Appendix 2), notice is hereby given of the following meeting.

The meeting will be closed to the public in accordance with the provisions set forth in sections 552b(c)(4) and 552b(c)(6), Title 5 U.S.C., as amended. The grant applications and

the discussions could disclose confidential trade secrets or commercial property such as patentable material, and personal information concerning individuals associated with the grant applications, the disclosure of which would constitute a clearly unwarranted invasion of personal privacy.

Name of Committee: National Eye Institute Special Emphasis Panel, Anterior Eye and Low Vision Clinical Applications.

Date: March 20, 2006.

Time: 8:30 a.m. to 1 p.m.

Agenda: To review and evaluate grant applications.

Place: Embassy Suites at the Chevy Chase Pavilion, 4300 Military Road, NW., Washington, DC 20015.

Contact Person: Anne E. Schaffner, PhD, Scientific Review Administrator, Division of Extramural Research, National Eye Institute, 5635 Fishers Lane, Suite 1300, MSC 9300, Bethesda, MD 20892–9300, (301) 451–2020, *aes@nei.nih.gov*.

(Catalogue of Federal Domestic Assistance Program Nos. 93.867, Vision Research, National Institutes of Health, HHS).

Dated: February 17, 2006.

Anna Snouffer,

Acting Director, Office of Federal Advisory Committee Policy.

[FR Doc. 06–1842 Filed 2–27–06; 8:45 am]

BILLING CODE 4140–01–M

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

National Human Genome Research Institute; Notice of Closed Meeting

Pursuant to section 10(d) of the Federal Advisory Committee Act, as amended (5 U.S.C. Appendix 2), notice is hereby given of the following meeting.

The meeting will be closed to the public in accordance with the provisions set forth in sections 552b(c)(4) and 552b(c)(6), Title 5 U.S.C., as amended. The grant applications and the discussions could disclose confidential trade secrets or commercial property such as patentable material, and personal information concerning individuals associated with the grant applications, the disclosure of which would constitute a clearly unwarranted invasion of personal privacy.

Name of Committee: National Human Genome Research Institute Special Emphasis Panel, Mouse KOMP.

Date: April 6–7, 2006.

Time: 8 a.m. to 4:30 p.m.

Agenda: To review and evaluate grant applications.

Place: The Watergate, 2650 Virginia Avenue, NW., Washington, DC 20037.

Contact Person: Ken D. Nakamura, PhD, Scientific Review Administrator, Scientific Review Branch, National Human Genome Research Institute, National Institutes of Health, 5635 Fishers Lane, Suite 4076, MSC 9306, Rockville, MD 20852, 301–402–0838.

(Catalogue of Federal Domestic Assistance Program Nos. 93.172, Human Genome Research, National Institutes of Health, HHS)

Dated: February 17, 2006.

Anna Snouffer,

Acting Director, Office of Federal Advisory Committee Policy.

[FR Doc. 06–1847 Filed 2–27–06; 8:45 am]

BILLING CODE 4140–01–M

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

National Institute of Diabetes and Digestive and Kidney Diseases; Notice of Closed Meetings

Pursuant to section 10(d) of the Federal Advisory Committee Act, as amended (5 U.S.C. Appendix 2), notice is hereby given of the following meetings.

The meetings will be closed to the public in accordance with the provisions set forth in section 552(b)(4) and 552b(c)(6), title 5 U.S.C., as amended. The grant applications and the discussions could disclose confidential trade secrets or commercial property such as patentable material, and personal information concerning individuals associated with the grant applications, the disclosure of which would constitute a clearly unwarranted invasion of personal property.

Name of Committee: National Institute of Diabetes and Digestive and Kidney Diseases Special Emphasis Panel, Ancillary Studies to Major Ongoing NIDDK Kidney Disease Clinical Trials.

Date: March 13, 2006.

Time: 12 p.m. to 2 p.m.

Agenda: To review and evaluate grant applications.

Place: National Institutes of Health, Two Democracy Plaza, 6707 Democracy Boulevard, Bethesda, MD 20892, (Telephone Conference Call).

Contact Person: Xiaodu Guo, MD, PhD, Scientific Review Administrator, Review Branch, DEA, NIDDK, National Institutes of Health, Room 910, 6707 Democracy Boulevard, Bethesda, MD 20892–5452, (301) 594–4719, *guox@extra.niddk,nih.gov.*

Name of Committee: National Institute of Diabetes and Digestive and Kidney Diseases Special Emphasis Panel, Animal Models of Diabetic Complications Consortium.

Date: March 14, 2006.

Time: 8 a.m. to 5 p.m.

Agenda: To review and evaluate grant applications.

Place: Bethesda Marriott, 5151 Pooks Hill Road, Bethesda, MD 20814.

Contact Person: Barbara A. Woynarowska, PhD, Scientific Review Administrator, Review Branch, DEA, NIDDK, National Institutes of Health, Room 754, 6707 Democracy Boulevard, Bethesda, MD 20892–5452, (301) 402–7172, *woynarowskab@niddk.nih.gov.*

Name of Committee: National Institute of Diabetes and Digestive and Kidney Diseases Special Emphasis Panel, Liver Immunology.

Date: March 15, 2006.

Time: 2 p.m. to 5 p.m.

Agenda: To review and evaluate grant applications.

Place: National Institutes of Health, Two Democracy Plaza, 6707 Democracy Boulevard, Bethesda, MD 20892, (Telephone Conference Call).

Contact Person: Carol J. Goter-Robinson, PhD, Scientific Review Administrator, Review Branch, DEA, NIDDK, National Institutes of Health, Room 748, 6707 Democracy Boulevard, Bethesda, MD 20892–5452, (301) 594–7791, *goterrobinsonc@extra.niddk.nih.gov.*

(Catalogue of Federal Domestic Assistance Program Nos. 93.847, Diabetes, Endocrinology and Metabolic Research; 93.848, Digestive Diseases and Nutrition Research; 93.849, Kidney Diseases, Urology and Hematology Research, National Institutes of Health, HHS)

Dated: February 17, 2006.

Anna Snouffer,

Acting Director, Office of Federal Advisory Committee Policy.

[FR Doc. 06–1839 Filed 2–27–06; 8:45 am]

BILLING CODE 4140–01–M

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

National Institute of Child Health and Human Development; Notice of Closed Meeting

Pursuant to section 10(d) of the Federal Advisory Committee Act, as amended (5 U.S.C. Appendix 2), notice is hereby given of the following meeting.

The meeting will be closed to the public in accordance with the provisions set forth in sections 552b(c)(4) and 552b(c)(6), Title 5 U.S.C., as amended. The grant applications and the discussions could disclose confidential trade secrets or commercial property such as patentable material, and personal information concerning individuals associated with the grant applications, the disclosure of which would constitute a clearly unwarranted invasion of personal privacy.

Name of Committee: National Institute of Child Health and Human Development

Special Emphasis Panel, Collaborative Urologic Research in Spinal Cord Injury.

Date: March 16, 2006.

Time: 9:30 a.m. to 12:30 p.m.

Agenda: To review and evaluate grant applications.

Place: National Institutes of Health, 6100 Executive Boulevard, Room 5B01, Rockville, MD 20852, (Telephone Conference Call).

Contact Person: Anne Krey, Scientific Review Administrator, Division of Scientific Review, National Institute of Child Health and Human Development, National Institutes of Health, Bethesda, MD 20892, 301–435–6908.

(Catalogue of Federal Domestic Assistance Program Nos. 93.864, Population Research; 93.865, Research for Mothers and Children; 93.929, Center for Medical Rehabilitation Research; 93.209, Contraception and Infertility Loan Repayment Program, National Institutes of Health, HHS)

Dated: February 17, 2006.

Anna Snouffer,

Acting Director, Office of Federal Advisory Committee Policy.

[FR Doc. 06–1841 Filed 2–27–06; 8:45 am]

BILLING CODE 4140–01–M

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

National Institute of Child Health and Human Development; Notice of Closed Meeting

Pursuant to section 10(d) of the Federal Advisory Committee Act, as amended (5 U.S.C. Appendix 2), notice is hereby given of the following meeting.

The meeting will be closed to the public in accordance with the provisions set forth in sections 552b(c)(4) and 552b(c)(6), Title 5 U.S.C., as amended. The grant applications and the discussions could disclose confidential trade secrets or commercial property such as patentable material, and personal information concerning individuals associated with the grant applications, the disclosure of which would constitute a clearly unwarranted invasion of personal privacy.

Name of Committee: National Institute of Child Health and Human Development Initial Review Group, Function, Integration, and Rehabilitation Sciences Subcommittee.

Date: March 17, 2006.

Time: 8:30 a.m. to 5 p.m.

Agenda: To review and evaluate grant applications.

Place: Bethesda Marriott, 5151 Pooks Hill Road, Bethesda, MD 20814.

Contact Person: Anne Krey, Scientific Review Administrator, Division of Scientific Review, National Institute of Child Health and Human Development, NIH, 6001 Executive Blvd., Room 5B01, Bethesda, MD 20892, 301–435–6908, *ak41o@nih.gov.*

(Catalogue of Federal Domestic Assistance Program Nos. 93.864, Population Research; 93.865, Research for Mothers and Children; 93.929, Center for Medical Rehabilitation Research; 93.209, Contraception and Infertility Loan Repayment Program, National Institutes of Health, HHS)

Dated: February 17, 2006.

Anna Snouffer,

Acting Director, Office of Federal Advisory Committee Policy.

[FR Doc. 06–1843 Filed 2–27–06; 8:45am]

BILLING CODE 4140–01–M

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

National Institute of Mental Health; Notice of Closed Meeting

Pursuant to section 10(d) of the Federal Advisory Committee Act, as amended (5 U.S.C. Appendix 2), notice is hereby given of the following meeting.

The meeting will be closed to the public in accordance with the provisions set forth in sections 552b(c)(4) and 552b(c)(6), Title 5 U.S.C., as amended. The grant applications and the discussions could disclose confidential trade secrets or commercial property such as patentable material, and personal information concerning individuals associated with the grant applications, the disclosure of which would constitute a clearly unwarranted invasion of personal privacy.

Name of Committee: National Institute of Mental Health Special Emphasis Panel, MLSCN Assay.

Date: March 3, 2006.

Time: 8 a.m. to 5 p.m.

Agenda: To review and evaluate grant applications.

Place: Bethesda Marriott, 5151 Pooks Hill Road, Bethesda, MD 20814.

Contact Person: Yong Yao, PhD, Scientific Review Administrator, Division of Extramural Activities, National Institute of Mental Health, NIH, Neuroscience Center, 6001 Executive Blvd., Room 6149, MSC 9606, Bethesda, MD 20892–9606, 301–443–6102, *yyao@mail.nih.gov.*

This notice is being published less than 15 days prior to the meeting due to the timing limitations imposed by the review and funding cycle.

(Catalogue of Federal Domestic Assistance Program Nos. 93.242, Mental Health Research Grants; 93.281, Scientist Development Award, Scientist Development Award for Clinicians, and Research Scientist Award; 93.282, Mental Health National Research Service Awards for Research Training, National Institutes of Health, HHS)

Dated: February 17, 2006.

Anna Snouffer,

Acting Director, Office of Federal Advisory Committee Policy.

[FR Doc. 06–1846 Filed 2–27–06; 8:45 am]

BILLING CODE 4140–01–M

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

Center for Scientific Review; Notice of Closed Meetings

Pursuant to section 10(d) of the Federal Advisory Committee Act, as amended (5 U.S.C. Appendix 2), notice is hereby given of the following meetings.

The meetings will be closed to the public in accordance with the provisions set forth in sections 552b(c)(4) and 552b(c)(6), Title 5 U.S.C., as amended. The grant applications and the discussions could disclose confidential trade secrets or commercial property such as patentable material, and personal information concerning individuals associated with the grant applications, the disclosure of which would constitute a clearly unwarranted invasion of personal privacy.

Name of Committee: Oncological Sciences Integrated Review Group, Cancer Immunopathology and Immunotherapy Study Section.

Date: March 2–3, 2006.

Time: 8 a.m. to 5 p.m.

Agenda: To review and evaluate grant applications.

Place: Bethesda Marriott, 5151 Pooks Hill Road, Bethesda, MD 20814.

Contact Person: Marcia Litwack, PhD, Center for Scientific Review, National Institutes of Health, 6701 Rockledge Drive, Room 6206, MSC 7804, Bethesda, MD 20892, (301) 435–1719, *litwackm@csr.nih.gov.*

This notice is being published less than 15 days prior to the meeting due to the timing limitations imposed by the review and funding cycle.

Name of Committee: Center for Scientific Review Special Emphasis Panel, Metabolic Regulation 03.

Date: March 9, 2006.

Time: 1 p.m. to 3:30 p.m.

Agenda: To review and evaluate grant applications.

Place: National Institutes of Health, 6701 Rockledge Drive, Bethesda, MD 20892, (Telephone Conference Call).

Contact Person: R. Paxton, PhD, Scientific Review Administrator, Center for Scientific Review, National Institutes of Health, 6701 Rockledge Drive, Room 6046C, MSC 7892, Bethesda, MD 20892, (301) 435–1049, *paxtonr@csr.nih.gov.*

This notice is being published less than 15 days prior to the meeting due to the timing limitations imposed by the review and funding cycle.

Name of Committee: Center for Scientific Review Special Emphasis Panel, Metabolic Regulation 02.
Date: March 10, 2006.
Time: 1 p.m. to 2:30 p.m.
Agenda: To review and evaluate grant applications.
Place: National Institutes of Health, 6701 Rockledge Drive, Bethesda, MD 20892, (Telephone Conference Call).
Contact Person: R. Paxton, PhD, Scientific Review Administrator, Center for Scientific Review, National Institutes of Health, 6701 Rockledge Drive, Room 6046C, MSC 7892, Bethesda, MD 20892, (301) 435–1049, *paxtonr@csr.nih.gov.*

Name of Committee: Center for Scientific Review Special Emphasis Panel. Member Special Emphasis Panel: Molecular Mechanisms of Aging.
Date: March 13, 2006.
Time: 2:30 p.m. to 3:30 p.m.
Agenda: To review and evaluate grant applications.
Place: National Institutes of Health, 6701 Rockledge Drive, Bethesda, MD 20892, (Telephone Conference Call).
Contact Person: Maqsood A. Wani, PhD, DVM, Scientific Review Administrator, Center for Scientific Review, National Institutes of Health, 6701 Rockledge Drive, Room 2114, MSC 7814, Bethesda, MD 20892, 301–435–2270, *wanimaqs@csr.nih.gov.*

Name of Committee: Center for Scientific Review Special Emphasis Panel, Member Conflicts: Computational Biology.
Date: March 13, 2006.
Time: 4 p.m to 5:30 p.m.
Agenda: To review and evaluate grant applications.
Place: National Institutes of Health, 6701 Rockledge Drive, Bethesda, MD 20892, (Telephone Conference Call).
Contact Person: Sally Ann Amero, PhD, Scientific Review Administrator, Center for Scientific Review, National Institutes of Health, 6701 Rockledge Drive, Room 4190, MSC 7849, Bethesda, MD 20892, 301–435–1159, *ameros@csr.nih.gov.*

Name of Committee: Center for Scientific Review Special Emphasis Panel, Biophysic and Neuro Processes 2.
Date: March 15, 2006.
Time: 3 p.m. to 5 p.m.
Agenda: To review and evaluate grant applications.
Place: National Institutes of Health, 6701 Rockledge Drive, Bethesda, MD 20892, (Telephone Conference Call).
Contact Person: Michael A. Land, PhD, Scientific Review Administrator, Center for Scientific Review, National Institutes of Health, 6701 Rockledge Drive, Room 4140, MSC 7850, Bethesda, MD 20892, (301) 435–1265, *langm@csr.nih.gov.*

Name of Committee: Center for Scientific Review Special Emphasis Panel, Biophysics and Neuro Processes 1.
Date: March 15, 2006.
Time: 12 p.m. to 3 p.m.
Agenda: To review and evaluate grant applications.
Place: National Institutes of Health, 6701 Rockledge Drive, Bethesda, MD 20892, (Telephone Conference Call).
Contact Person: Michael A. Lang, PhD, Scientific Review Administrator, Center for Scientific Review, National Institutes of Health, 6701 Rockledge Drive, Room 4140, MSC 7850, Bethesda, MD 20892, (301) 435–1265, *langm@csr.nih.gov.*

Name of Committee: Center for Scientific Review Special Emphasis Panel Materials Science and Environmental Monitoring.
Date: March 16–17, 2006.
Time: 7:30 p.m. to 4 p.m.
Agenda: To review and evaluate grant applications.
Place: Holiday Inn Select Bethesda, 8120 Wisconsin Ave, Bethesda, MD 20814.
Contact Person: Alexander Gubin, PhD, Scientific Review Administrator, Center for Scientific Review, National Institutes of Health, 6701 Rockledge Drive, Room 4196, MSC 7812, Bethesda, MD 20892, 301–435–2902, *gubina@csr.nih.gov.*

Name of Committee: Center for Scientific Review Special Emphasis Panel, Tools for Zebrafish Research.
Date: March 17, 2006.
Time: 8 a.m. to 5 p.m.
Agenda: To review and evaluate grant applications.
Place: The River Inn, 924 25th Street, NW., Washington, DC 20037.
Contact Person: Neelakanta Ravindranath, PhD, Scientific Review Administrator, Center for Scientific Review, National Institutes of Health, 6701 Rockledge Drive, Room 5140, MSC 7843, Bethesda, MD 20892, 301–435–1034, *ravindrn@csr.nih.gov.*

Name of Committee: Musculoskeletal, Oral and Skin Sciences Integrated Review Group, Musculoskeletal Tissue Engineering Study Section.
Date: March 17–18, 2006.
Time: 8 a.m. to 12:30 p.m.
Agenda: To review and evaluate grant applications.
Place: Hilton Chicago, 720 South Michigan Avenue, Chicago, IL 60605.
Contact Person: Jean Dow Sipe, PhD, Scientific Review Administrator, Center for Scientific Review, National Institutes of Health, 6701 Rockledge Drive, Room 4106, MSC 7814, Bethesda, MD 20892, 301/435–1743, *sipej@csr.nih.gov.*

Name of Committee: Center for Scientific Review Special Emphasis Panel, Molecular, Cellular, and Developmental Neurobiological Small Business Applications.
Date: March 17, 2006
Time: 8:30 a.m. to 5 p.m.
Agenda: To review and evaluate grant applications.
Place: Jury's Washington Hotel, 1500 New Hampshire Avenue, NW., Washington, DC 20036.
Contact Person: Michael A. Lang, PhD, Scientific Review Administrator, Center for Scientific Review, National Institutes of Health, 6701 Rockledge Drive, Room 4140, MSC 7850, Bethesda, MD 20892, (301) 435–1265, *langm@csr.nih.gov.*

Name of Committee: Center for Scientific Review Special Emphasis Panel, Member Special Emphasis Panel: Extracellular Matrix and Cardiac Function.
Date: March 17, 2006.
Time: 2:30 p.m. to 3:30 p.m.
Agenda: To review and evaluate grant applications.
Place: National Institutes of Health, 6701 Rockledge Drive, Bethesda, MD 20852, (Telephone Conference Call).
Contact Person: Maqsood A. Wani, Phd, DVM, Scientific Review Administrator, Center for Scientific Review, National Institutes of Health, 6701 Rockledge Drive, Room 2114, MSC 7814; Bethesda, MD 20892, 301–435–2270, *wanimaqs@csr,.nih.gov.*

Name of Committee: Center for Scientific Review Special Emphasis Panel, Bioengineering Research Partnership (PAR 04–023).
Date: March 18, 2006.
Time: 1 p.m. to 5 p.m.
Agenda: To review and evaluate grant applications.
Place: Hilton Chicago, 720 South Michigan Avenue, Chicago, IL 60605.
Contact Person: Jean D. Sipe, PhD, Scientific Review Administrator, Center for Scientific Review, National Institutes of Health, 6701 Rockledge Drive, Room 4106, MSC 7814, Bethesda, MD 20892, 301–435–1743, *sipe@csr.nih.gov.*

Name of Committee: Center for Scientific Review Special Emphasis Panel, Fellowships 3-Physiology and Pathobiology of Organ Systems.
Date: March 19–21, 2006.
Time: 6p.m. to 5 p.m.
Agenda: To review and evaluate grant applications.
Place: The Watergate Hotel, 2650 Virginia Avenue, NW, Riverview, Washington, DC 20037.
Contact Person: Abdelouahab Aitouche, PhD, Scientific Review Administrator, Center for Scientific Review, National Institutes of Health, 6701 Rockledge Drive, Room 2183, MSC 7818, Bethesda, MD 20892, (301) 435–2365, *abdelouahaba@csr.nih.gov.*

Name of Committee: Center for Scientific Review Special Emphasis Panel, Visual System Small Business.
Date: March 20–21, 2006.
Time: 8 a.m to 11 a.m.
Agenda: To review and evaluate grant applications.
Place: Hyatt Regency Bethesda, One Bethesda Metro Center, 7400 Wisconsin Avenue, Bethesda, MD 20814.
Contact Person: Jerome Wujek, PhD, Scientific Review Administrator, Center for Scientific Review, National Institutes of Health, 6701 Rockledge Drive, Room 5194, MSC 7846, Bethesda, MD 20892, (301) 435–2507, *wujekjer@csr.nihy.gov.*

Name of Committee: Center for Scientific Review Special Emphasis Panel, Cardiovascular Sciences Small Business Activities.
Date: March 20–21, 2006.
Time: 8 a.m. to 5 p.m.
Agenda: To review and evaluate grant applications.
Place: Holiday Inn Select, 480 King Street, Alexandria, VA 22314.
Contact Person: Lawrence E. Boerboom, PhD, Scientific Review Administrator, Center for Scientific Review, National Institutes of Health, 6701 Rockledge Drive, Room 5156, MSC 7814, Bethesda, MD 20892, (301) 435–8367, *boerboom@nih.gov.*

Name of Committee: Center for Scientific Review Special Emphasis Panel, Member Conflict: Primate Behavior.
Date: March 20, 2006.
Time: 11 a.m. to 12 p.m.
Agenda: To review and evaluate grant applications.
Place: National Institutes of Health, 6701 Rockledge Drive, Bethesda, MD 20892, (Telephone Conference Call).
Contact Person: Maribeth Champoux, PhD, Scientific Review Administrator, Center for Scientific Review, National Institutes of Health, 6701 Rockledge Drive, Room 3146, MSC 7759, Bethesda, MD 20892, 301–594–3163, *champoum@csr.nih.gov.*

Name of Committee: Center for Scientific Review Special Emphasis Panel, Sleep Mechanisms.
Date: March 20, 2006.
Time: 11:30 a.m. to 1:30 p.m.
Agenda: To review and evaluate grant applications.
Place: National Institute of Health, 6701 Rockledge Drive, Bethesda, MD 20892, (Telephone Conference Call).
Contact Person: Richard Marcus, PhD, Scientific Review Administrator, Center for Scientific Review, National Institutes of Health, 6701 Rockledge Drive, Room 5168, MSC 7844, Bethesda, MD 20892, 301–435–1245, *marcus@csr.nih.gov.*

Name of Committee: Center for Scientific Review Special Emphasis Panel, Member Conflict: Animal Conditioning.
Date: March 20, 2006.
Time: 1:30 p.m. to 2:30 p.m.
Agenda: To review and evaluate grant applications.
Place: National Institutes of Health, 6701 Rockledge Drive, Bethesda, MD 20892, (Telephone Conference Call).
Contact Person: Maribeth Champoux, PhD, Scientific Review Administrator, Center for Scientific Review, National Institutes of Health, 6701 Rockledge Drive, Room 3146, MSC 7759, Bethesda, MD 20892, 301–594–3163, *champoum@csr.nih.gov.*

Name of Committee: Center for Scientific Review Special Emphasis Panel, Member Special Emphasis Panel: Ion Channels in Cardiac Function.
Date: March 20, 2006.
Time: 2:30 p.m. to 3:30 p.m.
Agenda: To review and evaluate grant applications.
Place: National Institutes of Health, 6701 Rockledge Drive, Bethesda, MD 20892, (Telephone Conference Call).
Contact Person: Maqsood A. Wani, PhD, DVM, Scientific Review Administrator, Center for Scientific Review, National Institutes of Health, 6701 Rockledge Drive, Room 2114, MSC 7814, Bethesda, MD 20892, 301–435–2270, *wanimaqs@csr.nih.gov.*

Name of Committee: Center for Scientific Review Special Emphasis Panel, Anterior Eye Disease Member Conflict.
Date: March 20, 2006.
Time: 3:30 p.m. to 6 p.m.
Agenda: To review and evaluate grant applications.
Place: Hyatt Regency Bethesda, One Bethesda Metro Center, 7400 Wisconsin Avenue, Bethesda, MD 20814.
Contact Person: Jerome Wujek, PhD, Scientific Review Administrator, Center for Scientific Review, National Institutes of Health, 6701 Rockledge Drive, Room 5194, MSC 7846, Bethesda, MD 20892, (301) 435–2507, *wujekjer@csr.nih.gov.*

Name of Committee: Center for Scientific Review Special Emphasis Panel, Visual Bioengineering Research Projects.
Date: March 21, 2006.
Time: 11 a.m. to 1 p.m.
Agenda: To review and evaluate grant applications.
Place: Hyatt Regency Bethesda, One Bethesda Metro Center, 7400 Wisconsin Avenue, Bethesda, MD 20814.
Contact Person: Jerome Wujek, PhD, Scientific Review Administrator, Center for Scientific Review, National Institutes of Health, 6701 Rockledge Drive, Room 5194, MSC 7846, Bethesda, MD 20892, (301) 435–2507, *wujekjer@csr.nih.gov.*

Name of Committee: Center for Scientific Review Special Emphasis Panel, Hematopoiesis.
Date: March 22, 2006.
Time: 1:30 p.m. to 3 p.m.
Agenda: To review and evaluate grant applications.
Place: National Institutes of Health, 6701 Rockledge Drive, Bethesda, MD 20892, (Telephone Conference Call).
Contact Person: Delia Tang, MD, Scientific Review Administrator, Center for Scientific Review, National Institutes of Health, 6701 Rockledge Drive, Room 4126, MSC 7802, Bethesda, MD 20892, (301) 435–2506, *tangd@csr.nih.gov.*

Name of Committee: Center for Scientific Review Special Emphasis Panel, Member Conflict: Sleep Apnea and Aging.
Date: March 22, 2006.
Time: 2 p.m. to 4 p.m.
Agenda: To review and evaluate grant applications.
Place: National Institutes of Health, 6701 Rockledge Drive, Bethesda, MD 20892, (Telephone Conference Call).
Contact Person: Richard Marcus, PhD, Scientific Review Administrator, Center for Scientific Review, National Institutes of Health, 6701 Rockledge Drive, Room 5168, MSC 7844, Bethesda, MD 20892, (301) 435–1245, *marcusr@csr.nih.gov.*

Name of Committee: Center for Scientific Review Special Emphasis Panel, Minority/Disability Predoctoral Fellowships for DCPS.
Date: March 23–24, 2006.
Time: 8 a.m. to 5 p.m.
Agenda: To review and evaluate grant applications.
Place: Holiday Inn Georgetown, 2101 Wisconsin Avenue, NW., Washington, DC 20007.
Contact Person: Alfonso R. Latoni, PhD, Scientific Review Administrator, Center for Scientific Review, National Institutes of Health, 6701 Rockledge Drive, Room 3022C, MSC 7770, Bethesda, MD 20892, (301) 435–1735, *latonia@csr.nih.gov.*

Name of Committee: Center for Scientific Review Special Emphasis Panel, Biophysical and Biochemical Sciences.
Date: March 23–24, 2006.
Time: 8:30 a.m. to 5 p.m.
Agenda: To review and evaluate grant applications.
Place: Churchill Hotel, 1914 Connecticut Avenue, NW., Washington, DC 20009.
Contact Person: John L. Bowers, PhD, Scientific Review Administrator, Center for Scientific Review, National Institutes of Health, 6701 Rockledge Drive, Room 4178, MSC 7806, Bethesda, MD 20892, (301) 435–1725, *bowersj@csr.nih.gov.*

Name of Committee: Center for Scientific Review Special Emphasis Panel, Cell Differentiation and Development.
Date: March 24, 2006.
Time: 10 a.m. to 1 p.m.
Agenda: To review and evaluate grant applications.
Place: National Institutes of Health, 6701 Rockledge Drive, Bethesda, MD 20892, (Telephone Conference Call).
Contact Person: Syed Husain, PhD, Scientific Review Administrator, Center for Scientific Review, National Institutes of Health, 6701 Rockledge Drive, Room 5216, MSC 7850, Bethesda, MD 20892, (301) 435–1224, *husains@csr.nih.gov.*

(Catalogue of Federal Domestic Assistance Program Nos. 93.306, Comparative Medicine; 93.333, Clinical Research, 93.306, 93.333, 93.337, 93.393–93.396, 93.837–93.844, 93.846–93.878, 93.892. 93.893, National Institutes of Health, HHS)

Dated: February 17, 2006.

Anna Snouffer,

Acting Director, Office of Federal Advisory committee Policy.

[FR Doc. 06–1845 Filed 2–27–06; 8:45 am]

BILLING CODE 4140–01–M

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Substance Abuse and Mental Health Services Administration

Center for Substance Abuse Prevention; Notice of Meeting

Pursuant to Public Law 92–463, notice is hereby given of the meeting of the Substance Abuse and Mental Health Services Administration (SAMHSA) Drug Testing Advisory Board on March 7–8, 2006.

A portion of the meeting will be open and will include a roll call, general announcements, a Department of Health and Human Services drug testing program update, a Department of Transportation drug testing program update, and a Nuclear Regulatory Commission drug testing program update.

Attendance by the public will be limited to space available. Public comments are welcome. Please communicate with the individual listed below as contact to make arrangements to comment or to request special accommodations for persons with disabilities.

The Board will also meet to develop the final revisions to the proposed Mandatory Guidelines for Federal Workplace Drug Testing Programs that were published in the **Federal Register** on April 13, 2004 (69 FR 19673) and to discuss Federal agency specimen results, confirmatory drug test issues, specimen validity test issues, laboratory inspection issues, and analytical instrumentation issues. This meeting will be conducted in closed session since discussing these issues in open session will significantly frustrate the Department's ability to develop the revisions to the Mandatory Guidelines or to disclose information of a personal nature where disclosure would constitute an unwarranted invasion of personal privacy. The HHS Office of General Counsel made the determination that such matters are protected by exemptions (6) and 9(B) of section 552b(c) of title 5 U.S.C. and therefore may be closed to the public.

To facilitate entering the building for the open session, public attendees are required to contact Mrs. Giselle Hersh, Division of Workplace Programs, 1 Choke Cherry Road, Room 2–1042, Rockville, MD 20857, 240–276–2605 (telephone) or by e-mail to *Giselle.Hersh@samhsa.hhs.gov.*

Substantive program information and a roster of Board members may be obtained by accessing the SAMHSA workplace Web site (*http://workplace.samhsa.gov*) or communicating with the contact whose name and telephone number are listed below. The transcript for the open session will be available on the SAMHSA workplace Web site as soon as possible after the meeting.

Committee Name: Substance Abuse and Mental Health Services Administration Drug Testing Advisory Board.

Meeting Date: March 7–8, 2006.

Place: SAMHSA Building, Sugarloaf Room, 1 Choke Cherry Road, Rockville, Maryland 20850.

Type: Open: March 7, 2006; 8:30 a.m.–11:30 a.m., Closed: March 7, 2006; 11:30 a.m.–4:30 p.m., Closed: March 8, 2006; 8:30 a.m.–Noon.

Contact: Donna M. Bush, Ph.D., Executive Secretary, 1 Choke Cherry Road, Room 2–1033, Rockville, Maryland 20857, 240–276–2600 (telephone) and 240–276–2610 (fax), E-mail: *Donna.Bush@samhsa.hhs.gov.*

Dated: February 20, 2006.

Toian Vaughn,

Committee Management Officer, Substance Abuse and Mental Health Services Administration.

[FR Doc. E6–2761 Filed 2–27–06; 8:45 am]

BILLING CODE 4162–20–P

DEPARTMENT OF HOMELAND SECURITY

Immigration and Customs Enforcement

Agency Information Collection Activities: Extension of a Currently Approved Information Collection; Comment Request

ACTION: 60-Day Notice of Information Collection under Review; Exemption from NSEERS Registration Requirements (File No. OMB–40); OMB Control Number 1653–0035.

The Department of Homeland Security, U.S. Immigration and Customs Enforcement has submitted the following information collection request for review and clearance in accordance with the Paperwork Reduction Act of 1995. The information collection is published to obtain comments from the public and affected agencies. Comments are encouraged and will be accepted for sixty days until May 1, 2006.

Written comments and/or suggestions regarding the item(s) contained in this notice, especially regarding the estimated public burden and associated response time, should be directed to the Department of Homeland Security (DHS), USCIS, Director, Regulatory Management Division, Clearance Office, 111 Massachusetts Avenue, 3rd floor, Washington, DC 20529. Comments may also be submitted to DHS via facsimile to 202–272–8352 or via e-mail at *rfs.regs@dhs.gov.* When submitting comments by e-mail please make sure to add OMB Control Number 1653–0035 in the subject box. Written comments and suggestions from the public and affected agencies should address one or more of the following four points:

(1) Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;

(2) Evaluate the accuracy of the agencies estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used;

(3) Enhance the quality, utility, and clarity of the information to be collected; and

(4) Minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, *e.g.*, permitting electronic submission of responses.

Overview of this information collection:

(1) *Type of Information Collection:* Extention of a currently approved collection.

(2) *Title of the Form/Collection:* Exemption from NSEERS Registration Requirements.

(3) *Agency form number, if any, and the applicable component of the Department of Homeland Security sponsoring the collection:* No Agency Form Number (File No. OMB–40). U.S. Immigration and Customs Enforcement.

(4) *Affected public who will be asked or required to respond, as well as a brief abstract: Primary:* Individuals and Households. This information collection allows an alien to seek an exemption from the NSEERS registration requirements by submitting a letter to the Department of Homeland Security containing specific information.

(5) *An estimate of the total number of respondents and the amount of time estimated for an average respondent to respond:* 5,800 responses at 30 minutes (.5 hours) per response.

(6) *An estimate of the total public burden (in hours) associated with the collection:* 2,900 annual burden hours.

If you have additional comments, suggestions, or need a copy of the proposed information collection instrument with instructions, or additional information, please contact: USCIS, Regulatory Management Division, 111 Massachusetts Avenue, 3rd Floor, Washington, DC 20529, (202) 272–8377.

Dated: February 22, 2006.

Richard A. Sloan,

Director, Regulatory Management Division, U.S. Citizenship and Immigration Services, Department of Homeland Security.

[FR Doc. E6–2743 Filed 2–27–06; 8:45 am]

BILLING CODE 4410–10–P

DEPARTMENT OF HOMELAND SECURITY

Immigration and Customs Enforcement

Agency Information Collection Activities: Extension of Currently approved Collection; Comment Request

ACTION: 60-Day Notice of Information Collection Under Review: Request for Cancellation of Public Charge Bond; Form I–356; OMB Control Number 1653–0005.

The Department of Homeland Security, U.S. Immigration and Customs Enforcement has submitted the following information collection request for review and clearance in accordance with the Paperwork Reduction Act of 1995. The information collection is published to obtain comments from the public and affected agencies. Comments are encouraged and will be accepted for sixty days until May 1, 2006.

Written comments and/or suggestions regarding the item(s) contained in this notice, especially regarding the estimated public burden and associated response time, should be directed to the Department of Homeland Security (DHS), USCIS, Director, Regulatory Management Division, Clearance Office, 111 Massachusetts Avenue, 3rd floor, Washington, DC 20529. Comments may also be submitted to DHS via facsimile to 202–272–8352 or via e-mail at *rfs.regs@dhs.gov*. When submitting comments by e-mail please make sure to add OMB Control Number 1653–0005 in the subject box. Written comments and suggestions from the public and affected agencies should address one or more of the following four points:

(1) Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;

(2) Evaluate the accuracy of the agencies estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used;

(3) Enhance the quality, utility, and clarity of the information to be collected; and

(4) Minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, *e.g.*, permitting electronic submission of responses.

Overview of this information collection:

(1) *Type of Information Collection:* Extension of a currently approved information collection.

(2) *Title of the Form/Collection:* Request for Cancellation of Public Charge Bond.

(3) *Agency form number, if any, and the applicable component of the Department of Homeland Security sponsoring the collection:* Form I–356; U.S. Immigration and Customs Enforcement (USICE).

(4) *Affected public who will be asked or required to respond, as well as a brief abstract: Primary:* Individuals or Households. This form is used by the USICE to determine if the bond posted on behalf of an alien in the United States should be canceled.

(5) *An estimate of the total number of respondents and the amount of time estimated for an average respondent to respond:* 2,000 responses at 15 minutes (.25 hours) per response.

(6) *An estimate of the total public burden (in hours) associated with the collection:* 500 annual burden hours.

If you have additional comments, suggestions, or need a copy of the proposed information collection instrument with instructions, or additional information, please contact: USCIS, Regulatory Management Division, 111 Massachusetts Avenue, 3rd Floor, Washington, DC 20529, (202) 272–8377.

Dated: February 22, 2006.

Richard A. Sloan,

Director, Regulatory Management Division, U.S. Citizenship and Immigration Services, Department of Homeland Security.

[FR Doc. E6–2744 Filed 2–27–06; 8:45 am]

BILLING CODE 4410–10–P

DEPARTMENT OF HOMELAND SECURITY

Immigration and Customs Enforcement

Agency Information Collection Activities: Extension of Currently approved Collection; Comment Request

ACTION: 60-Day Notice of Information Collection Under Review: Baggage and Personal Effects of Detained Aliens; Form I–43; (OMB Control Number 1653–0023).

The Department of Homeland Security, U.S. Immigration and Customs Enforcement has submitted the following information collection request for review and clearance in accordance with the Paperwork Reduction Act of 1995. The information collection is published to obtain comments from the public and affected agencies. Comments are encouraged and will be accepted for sixty days until May 1, 2006.

Written comments and/or suggestions regarding the item(s) contained in this notice, especially regarding the estimated public burden and associated response time, should be directed to the Department of Homeland Security (DHS), USCIS, Director, Regulatory Management Division, Clearance Office, 111 Massachusetts Avenue, 3rd floor, Washington, DC 20529. Comments may also be submitted to DHS via facsimile to 202–272–8352 or via e-mail at *rfs.regs@dhs.gov*. When submitting comments by e-mail please make sure to add OMB Control Number 1653–0023 in the subject box. Written comments and suggestions from the public and affected agencies should address one or more of the following four points:

(1) Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;

(2) Evaluate the accuracy of the agencies estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used;

(3) Enhance the quality, utility, and clarity of the information to be collected; and

(4) Minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses.

Overview of this information collection:

(1) *Type of Information Collection:* Extension of a currently approved information collection.

(2) *Title of the Form/Collection:* Baggage and Personal Effects of Detained Aliens.

(3) *Agency form number, if any, and the applicable component of the Department of Homeland Security sponsoring the collection:* Form I–43; U.S. Immigration and Customs Enforcement (USICE).

(4) *Affected public who will be asked or required to respond, as well as a brief abstract: Primary:* Individuals or Households. This form is used by the arresting officer to ensure that the alien is afforded a reasonable opportunity to collect his or her property. The ICE also

uses this form to protect the government from possible fraudulent claims.

(5) *An estimate of the total number of respondents and the amount of time estimated for an average respondent to respond:* 600,000 responses at one minute (.017 hours) per response.

(6) *An estimate of the total public burden (in hours) associated with the collection:* 10,200 annual burden hours.

If you have additional comments, suggestions, or need a copy of the proposed information collection instrument with instructions, or additional information, please contact: USCIS, Regulatory Management Division, 111 Massachusetts Avenue, 3rd Floor, Washington, DC 20529, (202) 272–8377.

Dated: February 22, 2006.

Richard A. Sloan,

Director, Regulatory Management Division, U.S. Citizenship and Immigration Services, Department of Homeland Security.

[FR Doc. E6–2745 Filed 2–27–06; 8:45 am]

BILLING CODE 4410–10–P

DEPARTMENT OF HOMELAND SECURITY

Immigration and Customs Enforcement

Agency Information Collection Activities: Extension of a Currently Approved Information Collection; Comment Request

ACTION: 60-Day Notice of Information Collection Under Review; Immigration User Fee (File Number OMB–01); OMB Control Number 1653–0029.

The Department of Homeland Security, U.S. Immigration and Customs Enforcement has submitted the following information collection request for review and clearance in accordance with the Paperwork Reduction Act of 1995. The information collection is published to obtain comments from the public and affected agencies. Comments are encouraged and will be accepted for sixty days until May 1, 2006.

Written comments and/or suggestions regarding the item(s) contained in this notice, especially regarding the estimated public burden and associated response time, should be directed to the Department of Homeland Security (DHS), USCIS, Director, Regulatory Management Division, Clearance Office, 111 Massachusetts Avenue, 3rd floor, Washington, DC 20529. Comments may also be submitted to DHS via facsimile to 202–272–8352 or via e-mail at *rfs.regs@dhs.gov*. When submitting comments by e-mail please make sure to add OMB Control Number 1653–0029 in the subject box. Written comments and suggestions from the public and affected agencies should address one or more of the following four points:

(1) Evaluate whether the collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;

(2) Evaluate the accuracy of the agencies estimate of the burden of the collection of information, including the validity of the methodology and assumptions used;

(3) Enhance the quality, utility, and clarity of the information to be collected; and

(4) Minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses.

Overview of this information collection:

(1) *Type of Information Collection:* Extension of a currently approved collection.

(2) *Title of the Form/Collection:* Immigration User Fee.

(3) *Agency form number, if any, and the applicable component of the Department of Homeland Security sponsoring the collection:* No Agency Form Number (File No. OMB–01). U.S. Immigration and Customs Enforcement.

(4) *Affected public who will be asked or required to respond, as well as a brief abstract: Primary:* Business or other for profit: The information requested from commercial air carriers, commercial vessel operators and tour operators is necessary for effective budgeting, financial management, monitoring, and auditing of user fee collections. No forms are required.

(5) *An estimate of the total number of respondents and the amount of time estimated for an average respondent to respond:* 25 responses at 15 minutes per response.

(6) *An estimate of the total public burden (in hours) associated with the collection:* 331 hours this includes 250 annual recordkeeping hours plus 81 annual reporting burden hours.

If you have additional comments, suggestions, or need a copy of the proposed information collection instrument with instructions, or additional information, please contact: USCIS, Regulatory Management Division, 111 Massachusetts Avenue, 3rd Floor, Washington, DC 20529, (202) 272–8377.

Dated: February 22, 2006.

Richard A. Sloan,

Director, Regulatory Management Division, U.S. Citizenship and Immigration Services, Department of Homeland Security.

[FR Doc. E6–2746 Filed 2–27–06; 8:45 am]

BILLING CODE 4410–10–P

DEPARTMENT OF HOMELAND SECURITY

Federal Emergency Management Agency

[FEMA–1628–DR]

California; Major Disaster and Related Determinations

AGENCY: Federal Emergency Management Agency, Department of Homeland Security.

ACTION: Notice.

SUMMARY: This is a notice of the Presidential declaration of a major disaster for the State of California (FEMA–1628–DR), dated February 3, 2006, and related determinations.

DATES: *Effective Date:* February 3, 2006.

FOR FURTHER INFORMATION CONTACT: Magda Ruiz, Recovery Division, Federal Emergency Management Agency, Washington, DC 20472, (202) 646–2705.

SUPPLEMENTARY INFORMATION: Notice is hereby given that, in a letter dated February 3, 2006, the President declared a major disaster under the authority of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5121–5206 (the Stafford Act), as follows:

I have determined that the damage in certain areas of the State of California, resulting from severe storms, flooding, mudslides, and landslides from December 17, 2005, through and including January 3, 2006, is of sufficient severity and magnitude to warrant a major disaster declaration under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5121–5206 (the Stafford Act). Therefore, I declare that such a major disaster exists in the State of California.

In order to provide Federal assistance, you are hereby authorized to allocate from funds available for these purposes such amounts as you find necessary for Federal disaster assistance and administrative expenses.

You are authorized to provide Individual Assistance and Public Assistance in the designated areas and Hazard Mitigation throughout the State. Consistent with the requirement that Federal assistance be supplemental, any Federal funds provided under the Stafford Act for Public Assistance, Hazard Mitigation, and the Other Needs Assistance under Section 408 of the Stafford Act will be limited to 75 percent of the total eligible costs.

Further, you are authorized to make changes to this declaration to the extent allowable under the Stafford Act.

The time period prescribed for the implementation of section 310(a), Priority to Certain Applications for Public Facility and Public Housing Assistance, 42 U.S.C. 5153, shall be for a period not to exceed six months after the date of this declaration.

The Federal Emergency Management Agency (FEMA) hereby gives notice that pursuant to the authority vested in the Acting Director, under Executive Order 12148, as amended, Thomas P. Davies, of FEMA is appointed to act as the Federal Coordinating Officer for this declared disaster.

I do hereby determine the following areas of the State of California to have been affected adversely by this declared major disaster:

The counties of Contra Costa, Del Norte, Lake, Marin, Mendocino, Napa, Sacramento, Siskiyou, Solano, and Sonoma for Individual Assistance.

The counties of Alpine, Amador, Butte, Colusa, Contra Costa, Del Norte, El Dorado, Humboldt, Lake, Lassen, Marin, Mendocino, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, San Luis Obispo, San Mateo, Santa Cruz, Sierra, Siskiyou, Solano, Sonoma, Sutter, Trinity, Yolo, and Yuba for Public Assistance.

All counties within the State of California are eligible to apply for assistance under the Hazard Mitigation Grant Program.

(The following Catalog of Federal Domestic Assistance Numbers (CFDA) are to be used for reporting and drawing funds: 97.030, Community Disaster Loans; 97.031, Cora Brown Fund Program; 97.032, Crisis Counseling; 97.033, Disaster Legal Services Program; 97.034, Disaster Unemployment Assistance (DUA); 97.046, Fire Management Assistance; 97.048, Individuals and Households Housing; 97.049, Individuals and Households Disaster Housing Operations; 97.050 Individuals and Households Program—Other Needs, 97.036, Public Assistance Grants; 97.039, Hazard Mitigation Grant Program.)

R. David Paulison,

Acting Director, Federal Emergency Management Agency, Department of Homeland Security.

[FR Doc. E6–2756 Filed 2–27–06; 8:45 am]

BILLING CODE 9110–10–P

DEPARTMENT OF HOMELAND SECURITY

Federal Emergency Management Agency

[FEMA–1629–DR]

Nevada; Major Disaster and Related Determinations

AGENCY: Federal Emergency Management Agency, Department of Homeland Security.

ACTION: Notice.

SUMMARY: This is a notice of the Presidential declaration of a major disaster for the State of Nevada (FEMA–1629–DR), dated February 3, 2006, and related determinations.

DATES: *Effective Date:* February 3, 2006.

FOR FURTHER INFORMATION CONTACT: Magda Ruiz, Recovery Division, Federal Emergency Management Agency, Washington, DC 20472, (202) 646–2705.

SUPPLEMENTARY INFORMATION: Notice is hereby given that, in a letter dated February 3, 2006, the President declared a major disaster under the authority of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5121–5206 (the Stafford Act), as follows:

I have determined that the damage in certain areas of the State of Nevada, resulting from severe storms and flooding from December 31, 2005, through and including January 4, 2006, is of sufficient severity and magnitude to warrant a major disaster declaration under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5121–5206 (the Stafford Act). Therefore, I declare that such a major disaster exists in the State of Nevada.

In order to provide Federal assistance, you are hereby authorized to allocate from funds available for these purposes such amounts as you find necessary for Federal disaster assistance and administrative expenses.

You are authorized to provide Public Assistance in the designated areas and Hazard Mitigation throughout the State, and any other forms of assistance under the Stafford Act you may deem appropriate. Consistent with the requirement that Federal assistance be supplemental, any Federal funds provided under the Stafford Act for Public Assistance and Hazard Mitigation will be limited to 75 percent of the total eligible costs. If Other Needs Assistance under Section 408 of the Stafford Act is later warranted, Federal funding under that program will also be limited to 75 percent of the total eligible costs.

Further, you are authorized to make changes to this declaration to the extent allowable under the Stafford Act.

The Federal Emergency Management Agency (FEMA) hereby gives notice that pursuant to the authority vested in the Acting Director, under Executive Order 12148, as amended, Michael Karl, of FEMA is appointed to act as the Federal Coordinating Officer for this declared disaster.

I do hereby determine the following areas of the State of Nevada to have been affected adversely by this declared major disaster:

The counties of Carson City, Douglas, Lyon, Storey, and Washoe; and the Pyramid Lake Paiute Tribe in Washoe County and the Washoe Tribe in Douglas County for Public Assistance.

All counties within the State of Nevada are eligible to apply for assistance under the Hazard Mitigation Grant Program.

(The following Catalog of Federal Domestic Assistance Numbers (CFDA) are to be used for reporting and drawing funds: 97.030, Community Disaster Loans; 97.031, Cora Brown Fund Program; 97.032, Crisis Counseling; 97.033, Disaster Legal Services Program; 97.034, Disaster Unemployment Assistance (DUA); 97.046, Fire Management Assistance; 97.048, Individuals and Households Housing; 97.049, Individuals and Households Disaster Housing Operations; 97.050 Individuals and Households Program-Other Needs, 97.036, Public Assistance Grants; 97.039, Hazard Mitigation Grant Program.)

R. David Paulison,

Acting Director, Federal Emergency Management Agency, Department of Homeland Security.

[FR Doc. E6–2757 Filed 2–27–06; 8:45 am]

BILLING CODE 9110–10–P

DEPARTMENT OF HOMELAND SECURITY

U.S. Citizenship and Immigration Services

Agency Information Collection Activities: Comment Request

ACTION: 60-day notice of information collection under review: Application for Naturalization; Form N–400, 1615–0052.

The Department of Homeland Security, U.S. Citizenship and Immigration Services (USCIS) has submitted the following information collection request to the Office of Management and Budget (OMB) for review and clearance in accordance with the Paperwork Reduction Act of 1995. The information collection is published to obtain comments from the public and affected agencies. Comments are encouraged and will be accepted for sixty days until May 1, 2006.

Written comments and/or suggestions regarding the item(s) contained in this notice, especially regarding the estimated public burden and associated response time, should be directed to the

Department of Homeland Security (DHS), USCIS, Director, Regulatory Management Division, Clearance Office, 111 Massachusetts Avenue, 3rd Floor, Washington, DC 20529. Comments may also be submitted to DHS via facsimile to 202–272–8352 or via e-mail at *rfs.regs@dhs.gov.* When submitting comments by e-mail please make sure to add OMB Control Number 1615–0052 in the subject box. Written comments and suggestions from the public and affected agencies concerning the collection of information should address one or more of the following four points:

(1) Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;

(2) Evaluate the accuracy of the agencies estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used;

(3) Enhance the quality, utility, and clarity of the information to be collected; and

(4) Minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses.

Overview of this information collection:

(1) *Type of Information Collection:* Extension of a currently approved collection.

(2) *Title of the Form/Collection:* Application for Naturalization.

(3) *Agency form number, if any, and the appropriate component of the Department of Homeland Security sponsoring the collection:* Form N–400. U.S. Citizenship and Immigration Services.

(4) *Affected public who will be asked or required to respond, as well as a brief abstract:* Primary: Individuals or Households. The USCIS uses the information collected to determine eligibility for naturalization.

(5) *An estimate of the total number of respondents and the amount of time estimated for an average respondent to respond:* 700,000 responses at 6 hours and 8 minutes (6.13) per response.

(6) *An estimate of the total public burden (in hours) associated with the collection:* 4,291,000 annual burden hours.

If you have additional comments, suggestions, or need a copy of the proposed information collection instrument with instruction, or additional information, please visit the USCIS Web site at: *http://uscis.gov/graphics/formsfee/forms/pra/index.htm.*

If additional information is required contact: USCIS, Regulatory Management Division, 111 Massachusetts Avenue, 3rd Floor, Washington, DC 20529, (202) 272–8377.

Dated: February 17, 2006.

Richard A. Sloan,

Director, Regulatory Management Division, U.S. Citizenship and Immigration Services.

[FR Doc. 06–1799 Filed 2–27–06; 8:45 am]

BILLING CODE 4410–10–M

DEPARTMENT OF HOMELAND SECURITY

U.S. Citizenship and Immigration Services

Agency Information Collection Activities: Comment Request

ACTION: 60-day notice of information collection under review: Application for Certificate of Citizenship, Form N–600, 1615–0057.

The Department of Homeland Security, U.S. Citizenship and Immigration Services (USCIS) has submitted the following information collection request to the Office of Management and Budget (OMB) for review and clearance in accordance with the Paperwork Reduction Act of 1995. The information collection is published to obtain comments from the public and affected agencies. Comments are encouraged and will be accepted for sixty days until May 1, 2006.

Written comments and/or suggestions regarding the item(s) contained in this notice, especially regarding the estimated public burden and associated response time, should be directed to the Department of Homeland Security (DHS), USCIS, Director, Regulatory Management Division, Clearance Office, 111 Massachusetts Avenue, 3rd Floor, Washington, DC 20529. Comments may also be submitted to DHS via facsimile to 202–272–8352 or via e-mail at *rfs.regs@dhs.gov.* When submitting comments by e-mail please make sure to add OMB Control Number 1615–0057 in the subject box. Written comments and suggestions from the public and affected agencies concerning the collection of information should address one or more of the following four points:

(1) Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;

(2) Evaluate the accuracy of the agencies estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used;

(3) Enhance the quality, utility, and clarity of the information to be collected; and

(4) Minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses.

Overview of this information collection:

(1) *Type of Information Collection:* Extension of a currently approved collection.

(2) *Title of the Form/Collection:* Application for Certificate of Citizenship.

(3) *Agency form number, if any, and the applicable component of the Department of Homeland Security sponsoring the collection:* Form N–600. U.S. Citizenship and Immigration Services.

(4) *Affected public who will be asked or required to respond, as well as a brief abstract:* Primary: Individuals or households. This form is provided by the USCIS as a uniform format for obtaining essential data necessary to determine the applicant's eligibility for the requested immigration benefit.

(5) *An estimate of the total number of respondents and the amount of time estimated for an average respondent to respond:* 119,475 responses at 1 hour per response.

(6) *An estimate of the total public burden (in hours) associated with the collection:* 119,475 annual burden hours.

If you have additional comments, suggestions, or need a copy of the proposed information collection instrument with instructions, or additional information, please visit the USCIS Web site at: *http://uscis.gov/graphics/formsfee/forms/pra/index.htm.*

If additional information is required contact: USCIS, Regulatory Management Division, 111 Massachusetts Avenue, 3rd Floor, Washington, DC 20529, (202) 272–8377.

Dated: February 17, 2006.

Richard A. Sloan,

Director, Regulatory Management Division, U.S. Citizenship and Immigration Services.

[FR Doc. 06–1800 Filed 2–27–06; 8:45 am]

BILLING CODE 4410–10–M

DEPARTMENT OF HOMELAND SECURITY

U.S. Citizenship and Immigration Services

Agency Information Collection Activities: Comment Request

ACTION: 60-Day notice of information collection under review: Request for Hearing on a Decision in Naturalization Proceedings Under Section 336; Form N–336, 1615–0050.

The Department of Homeland Security, U.S. Citizenship and Immigration Services (USCIS) has submitted the following information collection request to the Office of Management and Budget (OMB) for review and clearance in accordance with the Paperwork Reduction Act of 1995. The information collection is published to obtain comments from the public and affected agencies. Comments are encouraged and will be accepted for sixty days until May 1, 2006.

Written comments and/or suggestions regarding the item(s) contained in this notice, especially regarding the estimated public burden and associated response time, should be directed to the Department of Homeland Security (DHS), USCIS, Director, Regulatory Management Division, Clearance Office, 111 Massachusetts Avenue, 3rd Floor, Washington, DC 20529. Comments may also be submitted to DHS via facsimile to 202–272–8352 or via e-mail at *rfs.regs@dhs.gov.* When submitting comments by e-mail please make sure to add OMB Control Number 1615–0050 in the subject box. Written comments and suggestions from the public and affected agencies concerning the collection of information should address one or more of the following four points:

(1) Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;

(2) Evaluate the accuracy of the agencies estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used;

(3) Enhance the quality, utility, and clarity of the information to be collected; and

(4) Minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses.

Overview of this information collection:

(1) *Type of Information Collection:* Extension of a currently approved information collection.

(2) *Title of the Form/Collection:* Request for Hearing on a Decision in Naturalization Proceedings under Section 336.

(3) *Agency form number, if any, and the applicable component of the Department of Homeland Security sponsoring the collection:* Form N–336. U.S. Citizenship and Immigration Services.

(4) *Affected public who will be asked or required to respond, as well as a brief abstract:* Primary: Individuals or Households. The form will be used by applicants for naturalization to pursue the only venue available to them in the appeal process.

(5) *An estimate of the total number of respondents and the amount of time estimated for an average respondent to respond:* 7,669 responses at 165 minutes (2.75 hours) per response.

(6) *An estimate of the total public burden (in hours) associated with the collection:* 21,090 annual burden hours.

If you have additional comments, suggestions, or need a copy of the proposed information collection instrument with instructions, or additional information, please visit the USCIS Web site at: *http://uscis.graphics/formsfee/forms/pra/index.htm.*

If additional information is required contact: USCIS, Regulatory Management Division, 111 Massachusetts Avenue, 3rd Floor, Washington, DC 20529, (202) 272–8377.

Dated: February 17, 2006.

Richard A. Sloan,

Director, Regulatory Management Division, U.S. Citizenship and Immigration Services.

[FR Doc. 06–1801 Filed 2–27–06; 8:45 am]

BILLING CODE 4410–10–M

DEPARTMENT OF HOMELAND SECURITY

U.S. Citizenship and Immigration Services

Agency Information Collection Activities: Comment Request

ACTION: 30-Day notice of information collection under review: Application to Replace Alien Registration Care, Form I–90, 1615–0082.

The Department of Homeland Security, U.S. Citizenship and Immigration Services (USCIS) has submitted the following information collection request to the Office of Management and Budget (OMB) for review and clearance in accordance with the Paperwork Reduction Act of 1995. The information collection was previously published in the **Federal Register** on December 14, 2005, at 770 FR 74028. The notice allowed for a 60-day public comment period. No comments were received on this information collection.

The purpose of this notice is to allow an additional 30 days for public comments. Comments are encouraged and will be accepted until March 30, 2006. This process is conducted in accordance with 5 CFR 1320.10.

Written comments and/or suggestions regarding the item(s) contained in this notice, especially regarding the estimated public burden and associated response time, should be directed to the Department of Homeland Security (DHS), USCIS, Director, Regulatory Management Division, Clearance Office, 111 Massachusetts Avenue, 3rd floor, Washington, DC 20529. Comments may also be submitted to DHS via facsimile to 202–272–8352 or via e-mail at *rfs.regs@dhs.gov.* When submitting comments by e-mail please make sure to add OMB Control Number 1615–0082 in the subject box. Written comments and suggestions from the public and affected agencies concerning the collection of information should address one or more of the following four points:

(1) Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;

(2) Evaluate the accuracy of the agencies estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used;

(3) Enhance the quality, utility, and clarity of the information to be collected; and

(4) Minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses.

Overview of this information collection:

(1) *Type of Information Collection:* Extension of currently approved collection.

(2) *Title of the Form/Collection:* Application to Replace Alien Registration Card.

(3) *Agency form number, if any, and the applicable component of the Department of Homeland Security sponsoring the collection:* Form I–90. U.S. Citizenship and Immigration Services.

(4) *Affected public who will be asked or required to respond, as well as a brief abstract:* Primary: Individuals or households. The information collected will be used by USCIS to determine eligibility for an initial Alien Registration Card, or to replace a previously issued card.

(5) *An estimate of the total number of respondents and the amount of time estimated for an average respondent to respond:* 410,799 responses at 55 minutes (.916) per response.

(6) *An estimate of the total public burden (in hours) associated with the collection:* 376,292 annual burden hours.

If you have additional comments, suggestions, or need a copy of the proposed information collection instrument with instructions, or additional information, please visit the USCIS Web site at: *http://uscis,gov/graphics/formsfee/forms/pra/index.htm.*

If additional information is required contact: USCIS, Regulatory Management Division, 111 Massachusetts Avenue, 3rd Floor, Washington, DC 20529, (202) 272–8377.

Dated: February 17, 2006.

Richard A. Sloan,

Director, Regulatory Management Division, U.S. Citizenship and Immigration Services.

[FR Doc. 06–1802 Filed 2–27–06; 8:45 am]

BILLING CODE 4410–10–M

DEPARTMENT OF HOMELAND SECURITY

U.S. Citizenship and Immigration Services

Agency Information Collection Activities: Comment Request

ACTION: 30-day notice of information collection under review: Application Requirements for the Adjustment of Status under Section 586 of Public Law 106–249; OMB–27, 1615–0081.

The Department of Homeland Security, U.S. Citizenship and Immigration Services (USCIS) has submitted the following information collection request to the Office of Management and Budget (OMB) for review and clearance in accordance with the Paperwork Reducation Act of 1995. The information collection was previously published in the **Federal Register** on December 14, 2005, at 770 FR 74029. The notice allowed for a 60-day public comment period. No comments were received on this information collection.

The purpose of this notice is to allow an additional 30 days for public comments. Comments are encouraged and will be accepted until March 30, 2006. This process is conducted in accordance with 5 CFR 1320.10.

Written comments and/or suggestions regarding the item(s) contained in this notice, especially regarding the estimated public burden and associated response time, should be directed to the Department of Homeland Security (DHS), USCIS, Director, Regulatory Management Division, Clearance Office, 111 Massachusetts Avenue, 3rd floor, Washington, DC 20529. Comments may also be submitted to DHS via facsimile to 202–272–8352 or via e-mail at *rfs.regs@dhs.gov.* When submitting comments by e-mail please make sure to add OMB Control Number 1615–0081 in the subject box. Written comments and suggestions from the public and affected agencies concerning the collection of information should address one or more of the following four points:

(1) Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;

(2) Evaluate the accuracy of the agency's estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used;

(3) Enhance the quality, utility, and clarity of the information to be collected; and

(4) Minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses.

Overview of This Information Collection

(1) *Type of Information Collection:* Extension of a currently approved information collection.

(2) *Title of Form/Collection:* Application Requirements for the Adjustment of Status under Section 586 of Public Law 106–249.

(3) *Agency form number, if any, and the applicable component of the Department of Homeland Security sponsoring the collection:* No Agency Form Number; File No. OMB–27, U.S. Citizenship and Immigration Services.

(4) *Affected public who will be asked or required to respond, as well as a brief abstract:* Primary: Individuals or Households. The data is used by the agency to determine an applicant's eligibility for adjustment of status under Section 586 of Public Law 106–249.

(5) *An estimate of the total number of respondents and the amount of time estimated for an average respondent to respond:* 5,000 responses at 30 (.05) minutes per response.

(6) *An estimate of the total public burden (in hours) associated with the collection:* 2,500 annual burden hours.

If you have additional comments, suggestions, or need a copy of the proposed information collection instrument with instructions, or additional information, please visit the USCIS Web site at: *htt;://uscis.gov/graphics/formsfee/forms/pra/index.htm.*

If additional information is required contact: USCIS, Regulatory Management Division, 111 Massachusetts Avenue, 3rd Floor, Washington, DC 20529, (202) 272–8377.

Dated: February 17, 2006.

Richard A. Sloan,

Director, Regulatory Management Division, U.S. Citizenship and Immigration Services.

[FR Doc. 06–1803 Filed 2–27–06; 8:45 am]

BILLING CODE 4410–10–M

DEPARTMENT OF HOMELAND SECURITY

U.S. Citizenship and Immigration Services

Agency Information Collection Activities: Comment Request

ACTION: 30-Day Notice of Information Collection Under Review: Sponsor's Notice of Change of Address, Form I–865, 1615–0076.

The Department of Homeland Security, U.S. Citizenship and Immigration Services (USCIS) has submitted the following information collection request to the Office of Management and Budget (OMB) for review and clearance in accordance with the Paperwork Reduction Act of 1995. The information collection was previously published in the **Federal Register** on December 14, 2005, at 70 FR 74028. The notice allowed for a 60-day public comment period. No comments were received on this information collection.

The purpose of this notice is to allow an additional 30 days for public

comments. Comments are encouraged and will be accepted until March 30, 2006. This process is conducted in accordance with 5 CFR 1320.10.

Written comments and/or suggestions regarding the item(s) contained in this notice, especially regarding the estimated public burden and associated response time, should be directed to the Department of Homeland Security (DHS), USCIS, Director, Regulatory Management Division, Clearance Office, 111 Massachusetts Avenue, 3rd floor, Washington, DC 20529. Comments may also be submitted to DHS via facsimile to 202–272–8352 or via e-mail at *rfs.regs@dhs.gov*. When submitting comments by e-mail please make sure to add OMB Control Number 1615–0076 in the subject box. Written comments and suggestions from the public and affected agencies concerning the collection of information should address one or more of the following four points:

(1) Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;

(2) Evaluate the accuracy of the agencies estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used;

(3) Enhance the quality, utility, and clarity of the information to be collected; and

(4) Minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses.

Overview of this information collection:

(1) *Type of Information Collection:* Extension of a currently approved information collection.

(2) *Title of the Form/Collection:* Sponsor's Notice of Change of Address.

(3) *Agency form number, if any, and the applicable component of the Department of Homeland Security sponsoring the collection:* Form I–865. U.S. Citizenship and Immigration Services (USCIS).

(4) *Affected public who will be asked or required to respond, as well as a brief abstract:* Primary: Individuals or Households. This form will be used by every sponsor who has filed an Affidavit of Support under Section 213A of the Immigration and Nationality Act (INA) to notify the USCIS of a change of address. The data will be used to locate a sponsor if there is a request for reimbursement.

(5) *An estimate of the total number of respondents and the amount of time estimated for an average respondent to respond:* 100,000 responses at .233 hours (14 minutes) per response.

(6) *An estimate of the total public burden (in hours) associated with the collection:* 23,300 annual burden hours.

If you have additional comments, suggestions, or need a copy of the proposed information collection instrument with instructions, or additional information, please visit the USCIS Web site at: *http://uscis.gov/graphics/formsfee/forms/pra/index.htm*.

If additional information is required contact: USCIS, Regulatory Management Division, 111 Massachusetts Avenue, 3rd Floor, Washington, DC 20529, (202) 272–8377.

Dated: February 17, 2006.

Richard A. Sloan,

Director, Regulatory Management Division, U.S. Citizenship and Immigration Services.

[FR Doc. 06–1804 Filed 2–27–06; 8:45 am]

BILLING CODE 4410–10–M

DEPARTMENT OF HOMELAND SECURITY

U.S. Citizenship and Immigration Services

Agency Information Collection Activities: Extension of a Currently Approved Information Collection: Comment Request

ACTION: 60-Day Notice of Information Collection Under Review: Notice of Immigration Pilot Program, File No. OMB–5, 1615–0061.

The Department of Homeland Security, U.S. Citizenship and Immigration Services (USCIS) has submitted the following information collection request to the Office of Management and Budget (OMB) for review and clearance in accordance with the Paperwork Reduction Act of 1995. The information collection is published to obtain comments from the public and affected agencies. Comments are encouraged and will be accepted for sixty days until May 1, 2006.

Written comments and/or suggestions regarding the item(s) contained in this notice, especially regarding the estimated public burden and associated response time, should be directed to the Department of Homeland Security (DHS), USCIS, Director, Regulatory Management Division, Clearance Office, 111 Massachusetts Avenue, 3rd floor, Washington, DC 20529. Comments may also be submitted to DHS via facsimile to 202–272–8352 or via e-mail at *rfs.regs@dhs.gov.* When submitting comments by e-mail please make sure to add OMB Control Number 1615–0061 in the subject box. Written comments and suggestions from the public and affected agencies concerning the collection of information should address one or more of the following four points:

(1) Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility.

(2) Evaluate the accuracy of the agencies estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used:

(3) Enhance the quality, utility, and clarity of the information to be collected; and

(4) Minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses.

Overview of this information collection:

(1) *Type of Information Collection: Extension of currently approved collection.*

(2) *Title of the Form/Collection:* Application to Replace Alien Registration Card.

(3) *Agency form number, if any, and the applicable component of the Department of Homeland Security sponsoring the collection:* Form I–90. U.S. Citizenship and Immigration Services.

(3) *Affected public who will be asked or required to respond, as well as a brief abstract:* Primary individuals or households. The information collected will be used by USIS to determine eligibility for an initial Alien Registration Card or to replace a previously issued card.

(3) *An estimate of the total number of respondents and the amount of time estimated for an average respondent to respond:* 410,799 responses at 55 minutes (.916) per response.

(6) *An estimate of the total public burden (in hours) associated with the collection:* 376,292 annual burden hours.

If you have additional comments, suggestion, or need a copy of the proposed information collection instrument with instructions, or additional information, please visit the

USCIS Web site at: *http://uscis.gov/graphics/formsfee/forms/pra/index.htm.*

If additional information is required contact: USCIS, Regulatory Management Division, 111 Massachusetts Avenue, 3rd Floor, Washington, DC 20529, (202) 272–8377.

Dated: February 22, 2006.

Richard A. Sloan,

Director, Regulatory Management Division, U.S. Citizenship and Immigration Services.

[FR Doc. 06–1805 Filed 2–27–06; 8:45 am]

BILLING CODE 4410–10–M

DEPARTMENT OF HOMELAND SECURITY

Citizenship and Immigration Services

Agency Information Collection Activities: Proposed Collection; Comment Request

ACTION: 30-day notice of information collection under review: Affidavit of Support under Section 213A of the Act, Contract Between Sponsor and Household Member, EZ Affidavit of Support under Sec. 213 of the Act, and Intending Immigrant's Affidavit of Support Exemption; Forms I–864, I–864A, I–864EZ and I–864W.

The Department of Homeland Security, U.S. Citizenship and Immigration Services (USCIS) has submitted the following information collection request to the Office of Management and Budget (OMB) for review and clearance in accordance with the Paperwork Reduction Act of 1995. The information collection was previously published in the **Federal Register** on December 14, 2005, at 70 FR 74029. The notice allowed for a 60-day comment period. No comments were received on this information collection.

The purpose of this notice is to allow an additional 30 days for public comments. Comments are encouraged and will be accepted until March 30, 2006. This process is conducted in accordance with 5 CFR 1320.10.

Written comments and/or suggestions regarding the item(s) contained in this notice, especially regarding the estimated public burden and associated response time, should be directed to the Department of Homeland Security (DHS), USCIS, Director, Regulatory Management Division, Clearance Office, 111 Massachusetts Avenue, 3rd floor, Washington, DC 20529. Comments may also be submitted to DHS via facsimile to 202–272–8352 or via e-mail at *rfs.regs@dhs.gov.* When submitting comments by e-mail please make sure to add OMB Control Number 1615–0075 in the subject box. Written comments and suggestions from the public and affected agencies concerning the collection of information should address one or more of the following four points:

(1) Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;

(2) Evaluate the accuracy of the agency's estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used;

(3) Enhance the quality, utility, and clarity of the information to be collected; and

(4) Minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, *e.g.,* permitting electronic submission of responses.

Overview of This Information Collection

(1) *Type of Information Collection:* Revision of a currently approved information collection.

(2) *Title of the Form/Collection:* Affidavit of Support under Section 213A of the Act, Contract Between Sponsor and Household Member, EZ Affidavit of Support under Section 213 of the Act, and Intending Immigrant's Affidavit of Support Exemption.

(3) *Agency form number, if any, and the applicable component of the Department of Homeland Security sponsoring the collection:* Forms I–864, Form I–864A, I–864EZ, and I–864W. U.S. Citizenship and Immigration Services.

(4) *Affected public who will be asked or required to respond, as well as a brief abstract:* Primary: Individuals or Households. The forms are mandated by law for a petitioning relative to submit an affidavit on their relative's behalf. The executed form creates a contract between the sponsor and any entity that provides means-tested benefits.

(5) *An estimate of the total number of respondents and the amount of time estimated for an average respondent to respond:* 756,300 responses at 3.3 hours per response.

(6) *An estimate of the total public burden (in hours) associated with the collection:* 2,502,450 annual burden hours.

If you have additional comments, suggestions, or need a copy of the proposed information collection instrument with instructions, or additional information, please visit the USCIS Web site at: *http://uscis.gov/graphics/formsfee/forms/pra/index.htm.*

If additional information is required contact: USCIS, Regulatory Management Division, 111 Massachusetts Avenue, 3rd Floor, Washington, DC 20529, (202) 272–8377.

Dated: February 22, 2006.

Richard A. Sloan,

Director, Regulatory Management Division, U.S. Citizenship and Immigration Services.

[FR Doc. 06–1829 Filed 2–27–06; 8:45 am]

BILLING CODE 4410–10–M

DEPARTMENT OF HOMELAND SECURITY

Citizenship and Immigration Services

Agency Information Collection Activities: Comment Request

ACTION: 30-day notice of information collection under review: Immigrant Petition by Alien Entrepreneur, Form I–526, 1615–0026.

The Department of Homeland Security, U.S. Citizenship and Immigration Services (USCIS) has submitted the following information collection request to the Office of Management and Budget (OMB) for review and clearance in accordance with the Paperwork Reduction Act of 1995. The information collection was previously published in the **Federal Register** on December 14, 2005, at 70 FR 74028. The notice allowed for a 60-day public comment period. No comments were received on this information collection.

The purpose of this notice is to allow an additional 30 days for public comments. Comments are encouraged and will be accepted until March 30, 2006. This process is conducted in accordance with 5 CFR 1320.10.

Written comments and/or suggestions regarding the item(s) contained in this notice, especially regarding the estimated public burden and associated response time, should be directed to the Department of Homeland Security (DHS), USCIS, Director, Regulatory Management Division, Clearance Office, 111 Massachusetts Avenue, 3rd floor, Washington, DC 20529. Comments may also be submitted to DHS via facsimile to 202–272–8352 or via e-mail at *rfs.regs@dhs.gov.* When submitting comments by e-mail please make sure to add OMB Control Number 1615–0026 in the subject box. Written comments and suggestions from the public and affected agencies concerning the collection of

information should address one or more of the following four points:

(1) Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;

(2) Evaluate the accuracy of the agencies estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used;

(3) Enhance the quality, utility, and clarity of the information to be collected; and

(4) Minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses.

Overview of This Information Collection

(1) *Type of Information Collection:* Extension of a Currently Approved Information Collection.

(2) *Title of the Form/Collection:* Immigrant Petition by Alien Entrepreneur.

(3) *Agency form number, if any, and the applicable component of the Department of Homeland Security sponsoring the collection:* Form I–526. U.S. Citizenship and Immigration Services.

(4) *Affected public who will be asked or required to respond, as well as a brief abstract:* Primary: Individuals or Households. This form used by qualified immigrants seeking to enter the United States under section 203(b)(5) of the Immigration and Nationality Act for the purpose of engaging in a commercial enterprise, must petition the U.S. Citizenship and Immigration Services.

(5) *An estimate of the total number of respondents and the amount of time estimated for an average respondent to respond:* 1,368 responses at 1 hour and 15 minutes (1.25 hours) per response.

(6) *An estimate of the total public burden (in hours) associated with the collection:* 1,710 annual burden hours.

If you have additional comments, suggestions, or need a copy of the proposed information collection instrument with instructions, or additional information, please visit the USCIS Web site at *http://uscis.gov/graphics/formsfee/forms/pra/index.htm*.

If additional information is required contact: USCIS, Regulatory Management Division, 111 Massachusetts Avenue, 3rd Floor, Washington, DC 20529, (202) 272–8377.

Dated: February 22, 2006.

Richard A. Sloan,

Director, Regulatory Management Division, U.S. Citizenship and Immigration Services.

[FR Doc. 06–1830 Filed 2–27–06; 8:45 am]

BILLING CODE 4410–10–M

DEPARTMENT OF HOMELAND SECURITY

U.S. Citizenship and Immigration Services

Agency Information Collection Activities: Comment Request, Renewal of Existing Collection

ACTION: Notice of information collection under review: Form, I–817, Application for Benefits Under the Family Unity Program.

The Department Homeland Security, U.S. Citizenship and Immigration Services has submitted the following information collection request for review and clearance in accordance with the Paperwork Reduction Act of 1995. This notice is published to obtain comments from the public and affected agencies. Comments are encouraged and will be accepted for sixty days until May 1, 2006.

Written comments and/or suggestions regarding the item(s) contained in this notice, especially regarding the estimated public burden and associated response time, should be directed to the Department of Homeland Security (DHS), USCIS, Director, Regulatory Management Division, Clearance Officer, 111 Massachusetts Avenue, 3rd floor, Washington, DC 20529. Comments may also be submitted to DHS via facsimile to 202–272–8352 or via e-mail at *rfs.regs@dhs.gov*. When submitting comments by e-mail please make sure to add OMB Control Number 1615–0005 in the subject box. Written comments and suggestions from the public and affected agencies concerning the collection of information should address one or more of the following four points:

(1) Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;

(2) Evaluate the accuracy of the agencies estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used;

(3) Enhance the quality, utility, and clarity of the information to be collected; and

(4) Minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses.

Overview of This Information Collection

(1) *Type of Information Collection:* Extension of a currently approved collection.

(2) *Title of the Form/Collection:* Application for Benefits Under the Family Unity Program.

(3) *Agency form number, if any, and the applicable component of the Department of Homeland Security sponsoring the collection:* Form I–817. U.S. Citizenship and Immigration Services.

(4) *Affected public who will be asked or required to respond, as well as a brief abstract:* Primary: Individuals or households. The information collected will be used to determine whether the applicant meets the eligibility requirements for benefits under 8 CFR 245A, Subpart C.

(5) *An estimate of the total number of respondents and the amount of time estimated for an average respondent to respond:* 40,000 responses at 2 hours and 30 minutes (2.5) hours per response.

(6) *An estimate of the total public burden (in hours) associated with the collection:* 100,000 annual burden hours.

If you have additional comments, suggestions, or need a copy of the proposed information collection instrument with instructions, or additional information, please visit the USCIS Web site at: *http://uscis.gov/graphics/formsfee/forms/pra/index.htm*

Dated: February 22, 2006.

Richard A. Sloan,

Director, Regulatory Management Division, Department of Homeland Security, U.S. Citizenship and Immigrant Services.

[FR Doc. 06–1831 Filed 2–27–06; 8:45 am]

BILLING CODE 4410–10–M

DEPARTMENT OF HOMELAND SECURITY

U.S. Citizenship and Immigration Services

Agency Information Collection Activities: Comment Request, Renewal of Existing Collection

ACTION: Request OMB approval: 1615–0001, Petition for Alien Fiancé(e).

The Department Homeland Security, U.S. Citizenship and Immigration Services has submitted the following information collection request for review and clearance in accordance with the Paperwork Reduction Act of 1995. This notice is published to obtain comments from the public and affected agencies. Comments are encouraged and will be accepted for sixty days until May 1, 2006.

Written comments and/or suggestions regarding the item(s) contained in this notice, especially regarding the estimated public burden and associated response time, should be directed to the Department of Homeland Security (DHS), USCIS, Director, Regulatory Management Division, Clearance Office, 111 Massachusetts Avenue, 3rd floor, Washington, DC 20529. Comments may also be submitted to DHS via facsimile to 202–272–8352 or via e-mail at *rfs.regs@dhs.gov.* When submitting comments by e-mail please make sure to add OMB Control Number 1615–0001 in the subject box. Written comments and suggestions from the public and affected agencies concerning the collection of information should address one or more of the following four points:

(1) Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;

(2) Evaluate the accuracy of the agencies estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used;

(3) Enhance the quality, utility, and clarity of the information to be collected; and

(4) Minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses.

Overview of This Information Collection

Type of Information Collection: Extension of a currently approved information collection.

Title of the Form/Collection: Petition for Alien Fiancé(e).

Agency form number, if any, and the applicable component of the Department of Homeland Security sponsoring the collection: Form I–129F, U.S. Citizenship and Immigration Services.

Affected public who will be asked or required to respond, as well as a brief abstract: Primary: individuals and households. This form is used by a U.S. citizen to facilitate the entry of his/her fiancé(e) into the United States so that a marriage may be concluded within 90 days of entry between the U.S. citizen and the beneficiary of the petition. This form also allows the spouse or child of a U.S. citizen to enter the U.S. as a nonimmigrant, in accordance with provisions of section 1103 of the Legal Immigration Family Equity Act of 2000.

An estimate of the total number of respondents and the amount of time estimated for an average respondent to respond: 200,000 responses at 30 minutes (.50 hours) per response.

An estimate of the total public burden (in hours) associated with the collection: 100,000 annual burden hours.

If you have additional comments, suggestions, or need a copy of the purposed information collection instrument with instructions, or additional information, please visit the USCIS Web site at: *http/uscis.gov/graphics/formsfee/forms/pra/index.htm.*

If additional information is required contact: USCIS, Regulatory Management Division, 111 Massachusetts Avenue, 3rd Floor, Washington, DC 20529, (202) 272–8377.

Dated: February 22, 2006.

Richard A. Sloan,

Director, Regulatory Management Division, U.S. Citizenship and Immigration Services.

[FR Doc. 06–1832 Filed 2–27–06; 8:45 am]

BILLING CODE 4410–10–M

DEPARTMENT OF THE INTERIOR

Bureau of Indian Affairs

Collection of Water Delivery and Electric Service Data for the Operation of Irrigation and Power Projects and Systems: Proposed Collection of Water Delivery and Electric Service Data; Comment Request

AGENCY: Bureau of Indian Affairs, Interior.

ACTION: Notice.

SUMMARY: In compliance with the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*), the Bureau of Indian Affairs invites comments on two information collection requests which will be renewed. The two collections are: Electrical Service Application, 1076–0021, and Water Request, 1076–0141.

DATES: Comments must be received on or before May 1, 2006, to be assured of consideration.

ADDRESSES: Comments should be sent to: John Anevski, Bureau of Indian Affairs, Branch of Irrigation, Power, and Safety of Dams, Mail Stop 4655–MIB, Washington, DC 20240.

FOR FURTHER INFORMATION CONTACT: Interested persons may obtain a copy of the information collection requests without charge by contacting John Anevski at (202) 208–5480, or facsimile number: (202) 219–0006.

SUPPLEMENTARY INFORMATION: The Paperwork Reduction Act of 1995 provides an opportunity for interested parties to comment on proposed information collection requests. The Bureau of Indian Affairs, Branch of Irrigation, Power, and Safety of Dams is proceeding with this public comment period as the first step in obtaining a normal information collection clearance from Office of Management and Budget (OMB). Each request contains (1) Type of review, (2) title, (3) summary of the collection, (4) respondents, (5) frequency of collection, (6) reporting and record keeping requirements.

The Bureau of Indian Affairs (BIA) solicits comments in order to:

(1) Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the BIA, including whether the information will have practical utility;

(2) Evaluate the BIA's estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used;

(3) Enhance the quality, utility, and clarity of the information to be collected; and

(4) Minimize the burden of the collection of information on those who are to respond.

Any public comments will be addressed in the Bureau of Indian Affairs' submission of the information collection request to the Office of Management and Budget.

Water Request

OMB Control Number: 1076–0141.

Type of review: Extension of a currently approved collection.

Title: Water Request, 25 CFR 171.

Summary: In order for irrigators to receive water deliveries, information is needed by the BIA to operate and maintain its irrigation projects and fulfill reporting requirements. Section 171.7 of 25 CFR part 171, [Irrigation] Operation and Maintenance, specifies the information collection requirement. Water users must apply for water delivery. The information to be collected includes: name; water delivery location; time and date of requested water delivery; duration of water delivery; rate of water flow; number of acres irrigated; crop statistics; and other operational information identified in the local administrative manuals. Collection of this information is currently authorized under an approval by OMB (OMB Control Number 1076–0141). All information is collected at least annually from each water user with a response required each time irrigation water is provided. Annual reporting and recordkeeping burden for this collection of information is estimated to average 8 minutes per request. There is a range of 1 to 10 requests from each irrigation water user each season with an average of 5 responses per respondent. For all 5 responses, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information, the total per respondent is 40 minutes. The total number of respondents is estimated at 10,300 per year. Thus, the total annual reporting and recordkeeping burden for this collection is estimated to be 4,292 hours.

Frequency of Collection: On occasion.

Description of Respondents: BIA Irrigation Project Water Users.

Total Respondents: 10,300.

Total Annual Responses: 51,500.

Total Annual Burden Hours: 6,867 hours.

Electric Service Application

OMB Control Number: 1076–0021.

Type of review: Extension of a currently approved collection.

Title: Electric Service Application, 25 CFR 175.

Summary: In order for electric power consumers to be served, information is needed by the BIA to operate and maintain its electric power utilities and fulfill reporting requirements. Section 175.22 of 25 CFR part 175, Indian electric power utilities, specifies the information collection requirement. Power consumers must apply for electric service. The information to be collected includes: name; electric service location; and other operational information identified in the local administrative manuals. Collection of this information is currently authorized under an approval by OMB (OMB Control Number 1076–0021). All information is collected from each electric power consumer. Annual reporting and recordkeeping burden for this collection of information is estimated to average 30 minutes for each response for 3,000 respondents, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Thus, the total annual reporting and recordkeeping burden for this collection is estimated to be 1,500 hours.

Frequency of Collection: On Occasion.

Description of Respondents: BIA Electric Power Consumers.

Total Respondents: 3,000.

Total Annual Responses: 3,000.

Total Annual Burden Hours: 1,500 hours.

Dated: February 22, 2006.

Debbie L. Clark,

Acting Principal Deputy Assistant Secretary—Indian Affairs.

[FR Doc. E6–2749 Filed 2–27–06; 8:45 am]

BILLING CODE 4310–W7–P

DEPARTMENT OF THE INTERIOR

Bureau of Indian Affairs

Draft Environmental Impact Statement for the Scotts Valley Band of Pomo Indians' Proposed 29.87 Acre Fee-to-Trust Transfer and Casino Project, Contra Costa County, California

AGENCY: Bureau of Indian Affairs, Interior.

ACTION: Notice.

SUMMARY: This notice advises the public that the Bureau of Indian Affairs (BIA) has filed a Draft Environmental Impact Statement (DEIS) with the U.S. Environmental Protection Agency for a proposed 29.87 acre fee-to-trust land transfer and casino project to be located within unincorporated Contra Costa County, California. The purpose of the proposed action is to help provide for the economic development of the Scotts Valley Band of Pomo Indians (Tribe). This notice also announces a hearing for the public to provide comments on the DEIS.

DATES: Written comments on the DEIS must arrive by April 28, 2006. The public hearing will be held March 15, 2006, from 6 p.m. to 9 p.m., or until the last public comment is received.

ADDRESSES: You may mail or hand carry written comments to Clay Gregory, Regional Director, Pacific Regional Office, Bureau of Indian Affairs, 2800 Cottage Way, Sacramento, California 95825. Please include your name, return address, and the caption, ''DEIS Comments, Scotts Valley Casino Project,'' on the first page of your written comments.

The public hearing will be held at the Richmond Memorial Auditorium, 403 Civic Center Plaza, Richmond, California.

The DEIS will be available for review at the Richmond Public Library, Main Library, 325 Civic Center Plaza, Richmond, California 94804, and at the Contra Costa County Library, San Pablo Branch, 2300 El Portal Drive, Suite D, San Pablo, California 94806. General information for the Richmond Public Library can be obtained by calling (510) 620–6555 and for the Contra Costa County Library by calling (925) 646–6423.

If you would like to obtain a copy of the DEIS, please write or call John Rydzik, Chief, Division of Environmental, Cultural Resource Management and Safety, Pacific Region, Bureau of Indian Affairs, 2800 Cottage Way, Room W–2820, Sacramento, CA 95825, telephone (916) 978–6042. An electronic version of the DEIS may be viewed at *http://www.analyticalcorp.com.*

FOR FURTHER INFORMATION CONTACT: John Rydzik, (916) 978–6042.

SUPPLEMENTARY INFORMATION: The Tribe has requested that the BIA take into trust 29.87 acres of land currently held in fee by the Tribe, on which the Tribe proposes to construct a casino, parking areas and other facilities. The proposed project is located in unincorporated Contra Costa County, contiguous with the City of Richmond. The project site is adjacent to Richmond Parkway and Parr Boulevard, within 3 miles of Interstate 80.

The proposed action includes the development of a 225,000 square foot casino complex, 45 feet in height, which would consist of a combination of uses. These include a main gaming hall, restaurant, entertainment lounge, buffet, sports bar, food court, banking and administration facilities and events center. The proposed facility would also include a five level parking structure with 2,044 parking spaces and approximately 1,275 surface parking spaces to accommodate self-parking, valet parking, overflow parking, bus and RV parking, employee parking, and executive parking. Driveways along Parr Boulevard would provide access to the

parking areas and casino. Regional access to the casino complex would be from Richmond Parkway via Interstate 80.

A range of project alternatives is considered in the DEIS. These are as follows: (1) The proposed casino complex; (2) a reduced casino; (3) a reduced casino and commercial development; (4) retail/office development; and (5) no action. Environmental issues addressed in the DEIS include land resources, water resources, air quality, biological resources, cultural resources, socioeconomic conditions, environmental justice, transportation, land use, agriculture, public services, noise, hazardous materials, visual resources, cumulative effects, indirect effects, growth inducing effects and mitigation measures.

The BIA is the lead agency for the EIS/DEIS on this project. The Tribe, Contra Costa County and the California Department of Transportation are participating as cooperating agencies. A public scoping meeting for the EIS was held by the BIA on August 4, 2004, in Richmond, California.

Public Comment Availability

Comments, including names and addresses of respondents, will be available for public review at the BIA address shown in the **ADDRESSES** section, during business hours, 8 a.m. to 4:30 p.m., Monday through Friday, except holidays. Individual respondents may request confidentiality. If you wish us to withhold your name and/or address from public review or from disclosure under the Freedom of Information Act, you must state this prominently at the beginning of your written comment. Such requests will be honored to the extent allowed by the law. We will not, however, consider anonymous comments. All submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, will be made available for public inspection in their entirety.

Authority

This notice is published in accordance with section 1503.1 of the Council on Environmental Quality Regulations (40 CFR Parts 1500 through 1508) implementing the procedural requirements of the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 *et seq.*), and the Department of the Interior Manual (516 DM 1–6), and is in the exercise of authority delegated to the Principal Deputy Assistant Secretary—Indian Affairs by 209 DM 8.l.

Dated: February 10, 2006.

Michael D. Olsen,

Acting Principal Deputy Assistant Secretary—Indian Affairs.

[FR Doc. E6–2755 Filed 2–27–06; 8:45 am]

BILLING CODE 4310–W7–P

DEPARTMENT OF THE INTERIOR

Bureau of Indian Affairs

Amendment (Title 8 of the Tribal Code) to Omaha Tribe's Beverage Control Ordinance

AGENCY: Bureau of Indian Affairs, Interior.

ACTION: Notice.

SUMMARY: This notice publishes an Amendment to Title 8 of the Omaha Tribe's Beverage Control Ordinance. The Ordinance regulates and controls the possession, sale and consumption of liquor within the Omaha Tribe's Reservation. The Reservation is located on trust land and this Ordinance allows for the possession and sale of alcoholic beverages within the exterior boundaries of the Omaha Tribe's Indian Reservation. This Ordinance will increase the ability of the tribal government to control the community's liquor distribution and possession, and at the same time will provide an important source of revenue for the continued operation and strengthening of the tribal government and the delivery of tribal services.

DATES: *Effective Date:* This Ordinance is effective on February 28, 2006.

FOR FURTHER INFORMATION CONTACT: James Steele, Sr., Tribal Government Officer, Great Plains Regional Office, 115 Fourth Avenue SE, Aberdeen, SD 57401, Telephone (605) 226–7376; or Ralph Gonzales, Office of Tribal Services, 1951 Constitution Avenue, NW., Mail Stop 320–SIB, Washington, DC 20240, Telephone (202) 513–7629.

SUPPLEMENTARY INFORMATION: Pursuant to the Act of August 15, 1953, Public Law 83–277, 67 Stat. 586, 18 U.S.C. 1161, as interpreted by the Supreme Court in *Rice* v. *Renner,* 463 U.S. 713 (1983), the Secretary of the Interior shall certify and publish in the **Federal Register** notice of adopted liquor ordinances for the purpose of regulating liquor transactions in Indian country. The Omaha Tribal Council adopted this Amendment to Title 8 of the Omaha Tribe's Beverage Control Ordinance by Ordinance No. 04–54 on June 15, 2004. The purpose of this Ordinance is to govern the sale, possession and distribution of alcohol within the Omaha Tribe's Indian Reservation.

This notice is published in accordance with the authority delegated by the Secretary of the Interior to the Principal Deputy Assistant Secretary—Indian Affairs. I certify that the Tribal Council duly adopted this Amendment to Title 8 of the Omaha Tribe's Beverage Control Ordinance of the Omaha Tribe on June 15, 2004.

Dated: February 22, 2006.

Debbie L. Clark,

Acting Principal Deputy Assistant Secretary—Indian Affairs.

The Amendment to Title 8 of the Omaha Tribe's Beverage Control Ordinance reads as follows:

The Omaha Tribal Code (2003), Title 8, ALCOHOLIC BEVERAGE CONTROL, shall be, and hereby is, amended to delete reference to ''in the State of Iowa'' at Sections 8–1–1(m), 8–1–8, 8–2–14, and by such amendment, specifically makes such Omaha Tribal Code (2003), Title 8 ALCOHOLIC BEVERAGE CONTROL applicable to any and all territory within the confines of the Omaha Indian Reservation, and to any and all future additions of land acquired within or without said boundary lines by the Secretary of the Interior for the Tribe or by the Tribe, and,

The Omaha Tribal Code (2003), Title 8, ALCOHOLIC BEVERAGE CONTROL, shall now read as follows:

Omaha Tribal Code (2003): Title 8. Alcoholic Beverage Control

Source: Omaha Tribal Council Resolution No. 92–88 (6–1–92); repealing 92–48 (12–17–91); repealing in part 85–89 (11–7–85). *See* 58 FR 8888–01 (2–17–93), 1993 WL 37754 (FR)

Chapter 1. Alcoholic Beverages

Section 8–1–1. Definition of Terms

Terms used in this Title, unless the context otherwise plainly requires, shall mean as follows:

(a) ''Alcoholic Beverages'' shall mean any intoxicating liquor, beer or any wine as defined under the provisions of this Title.

(b) ''Application'' shall mean a formal written request for the issuance of a license supported by a verified statement of facts.

(c) ''Intoxicating Liquor'' shall mean any liquid either commonly used, or reasonable adopted to use for beverage purposes, containing in excess of three and two-tenths percentum of alcohol by weight. This shall include any type of wine, regardless of alcohol content.

(d) ''Legal Age'' shall mean the age requirements as defined by Chapter 4.

(e) ''Liquor Store'' shall mean any store, established for the sale of alcoholic beverages.

(f) ''On-Sale Dealer'' shall mean the Omaha Tribe of Nebraska, Tribal Citizen or other person, firm or entity that sells, or keeps for sale, any alcoholic beverages authorized under this Title for consumption on the premises where sold.

(g) ''On-Sale'' shall mean the sale of any alcoholic beverage for consumption only upon the premises where sold.

(h) ''Off-Sale'' shall mean the sale of any alcoholic beverage for consumption off the premises where sold.

(i) ''Package'' shall mean the bottle or immediate container of any alcoholic beverage.

(j) ''Package Dealer'' shall mean the Omaha Tribe of Nebraska, Tribal Citizen or any person, firm or entity as distinguished from a distiller, manufacturer, or wholesaler, that sells, or keeps for sale, any alcoholic beverage authorized under the Title for consumption off the premises where sold.

(k) ''Public Place'' shall mean any place, building, or conveyance to which the public has or is permitted access.

(l) ''Retailer'' shall mean Omaha Tribe of Nebraska, Tribal Citizen or any person, firm or entity that sells alcoholic beverages authorized under this Title for other than resale.

(m) ''Reservation'' shall mean all lands located within the exterior boundaries of the Reservation of the Tribe, and such other lands over which the Tribe exercises governmental authority.

(n) ''Sacramental Wine'' shall mean wines for sacramental purposes only and used by ordained Rabbis, Priests, Ministers, or Pastors, or any church or established religious organization.

(o) ''Sale'' shall mean the transfer of bottled or canned liquor for any consideration and of title to any alcoholic beverage.

(p) ''Tribal Citizen'' or ''Citizen of the Tribe'' shall mean an enrolled member of the Tribe and persons eligible for enrollment.

(q) ''Tribal Council'' shall mean the governing body of the Omaha Tribe of Nebraska.

(r) ''Tribe'' shall mean the Omaha Tribe of Nebraska.

(s) ''Vendor'' shall mean, in the case of a Tribal Citizen, any person employed and under the direct supervision of such Tribal citizen to conduct and manage Tribal Citizen's liquor stores, and in the case of other persons, firms or entities, a vendor shall mean such person, firm or entity and any person employed and under the direction supervision of such person, firm or entity.

(t) ''Wholesaler'' shall mean any person other than a brewer or bottler of beer, who shall sell, barter, exchange, offer for sale, have in possession with intent to sell, deal or traffic in intoxicating liquor or beer; no wholesaler shall be permitted to sell for consumption upon the premises.

(u) ''Wine'' shall mean any beverage containing alcohol obtained by the fermentation of the natural sugar content of fruits or other agricultural products, and containing not more than seventeen percent of alcohol by weight, including sweet wines fortified with wine spirits, such as port, sherry, muscatel and other fortified wines.

(v) The Terms, ''the provisions of this Title'' ''as provided in this Title'' or similar terms shall include all rules and regulations of the Tribe adapted to aid in the administration or enforcement of this Title.

Section 8–1–2. Public Policy Declared

This Title shall be cited as the ''Alcoholic Beverage Control Title'' and under the inherent sovereignty of the Omaha Tribe of Nebraska, shall be deemed an exercise of the Tribe's power, for the protection of the welfare, health, peace, morals, and safety of the people of the Tribe, and all its provisions shall be liberally construed for the accomplishment of that purpose, and it is declared to be public policy that the traffic in alcoholic beverages if it affects the public interest of the people, should be regulated to the extent of prohibiting all traffic of liquor, except as provided in this Title.

Section 8–1–3. General Prohibition

It shall be unlawful to manufacture for sale, sell, offer, or keep for sale, possess or transport intoxicating liquor or beer except upon the terms, conditions, limitations, and restrictions specified in this Title.

Section 8–1–4. Director Appointed

The Omaha Tribal Council shall appoint one of its members to serve as Director of Liquor Control. The Director shall not have an interest directly or indirectly in the transportation or sale of intoxicating liquor or beer, or in any building or property used in connection with such a business. The Director shall review liquor licenses, applications for liquor licenses and shall report to the Council on such matters. The Director shall serve at the pleasure of the Tribal Council.

Section 8–1–5. Removal

The Director may be removed for cause by the Omaha Tribal Council and such removal shall not be in lieu of any other punishment that may be prescribed by the laws of the Tribe or the United States. The Director so removed shall be entitled to an opportunity to be heard before the Omaha Tribal Council before removal.

Section 8–1–6. Tribal Control of Importation of Liquor

The Tribal Council shall have the sole and exclusive right of authorizing importation, into the Reservation, of all forms of intoxicating liquor and beer, except as otherwise provided in this Title, and no person or organization shall so import any such intoxicating liquor or beer into the Reservation, unless authorized by the Tribal Council by the issuance of a Class C wholesaler's license. No licensed wholesaler or distillery shall sell any intoxicating liquor or beer within the Reservation to any person or organization unless authorized by the Tribal Council and except as otherwise provided in this Title. It is the intent of this section to retain in the Tribal Council, exclusive control within the Reservation both as authorizer and controller of all alcoholic beverages sold by licensed wholesalers or distilleries within the Reservation or imported therein, and except as otherwise provided in this Title.

Section 8–1–7. Individual and Firms To Hold License

An individual person, as well as firms, corporations or other entities may hold a liquor license under the provisions of this Title. It is the intent of this Title to allow individuals as well as firms, corporations or other entities to hold liquor licenses, as provided by this Title.

Section 8–1–8. Tribal Liquor Stores or Lounges

Subject to the provisions of Chapter 2, the Tribal Council may establish and maintain anywhere on the Reservation the Tribal Council may deem advisable, a Tribal liquor store, lounge or stores or lounges for storage and sale of alcoholic beverages in accordance with the provisions of this Title.

Section 8–1–9. Vendor-Cash Sales

In the conduct and management of Tribal liquor stores and lounges, the Tribal Council is empowered to employ a person who shall be under the direct supervision of the Director, who shall be known as a ''vendor'' and who shall observe all provisions of this Title and rules and regulations that may be prescribed by the Tribal Council under this Title. No vendor shall sell alcoholic beverages to any person or organization except for cash, check, or credit card

transaction, except where the purchaser is a bona fide registered guest in a hotel or motel.

Section 8–1–10. Storage of Beverages

The Omaha Tribe of Nebraska and all licensees under this Title shall not keep or store any alcoholic beverages at any place within the Omaha Tribe of Nebraska Reservation other than on the premises where they are authorized to operate and except as otherwise provided by this Title.

Section 8–1–11. Payment of Fee

There shall be a filing fee on applications for any licenses under this Title, as established by the Tribal Council.

Section 8–1–12. Request for Notice of Hearing

If any Tribal Citizen shall file with the Tribal Council, a written request that he or she be notified of the time and place of hearing upon any specified application or applications for licenses for the on or off sale at retail of alcoholic beverages, the Director shall give notice to such person by certified mail and within a sufficient length of time prior to the hearing upon such application as to allow such person a reasonable opportunity to be present. For the purpose of this section, the certified letter must be deposited with the U.S. Post Office at least five (5) days before the scheduled date of the hearing.

Section 8–1–13. Time and Place for Hearing

The Tribal Council shall fix a time and place for hearing upon all such applications which may come before the Tribal Council, and the Director shall publish notice once in a newspaper of general circulation within the Reservation which notice shall be headed ''Notice of Hearing Upon Application for Sale of Alcoholic Beverage'' and shall state the time and place, when and where such applications will be considered by the Tribal Council and that any person interested in the approval or rejection of any such application may appear and be heard, which notice shall be published at least one week prior to such hearing. At the time and place so fixed, the Tribal Council shall consider such applications and all objections thereto, if any, prior to final decision thereon.

Section 8–1–14. Transfer of License

No license granted pursuant to the provisions of this Title shall be transferred to another person or organization. If a transfer to a new location is requested by a licensee, the licensee must make application showing all the relevant facts as to such new application, which application shall take the same course and be acted upon as if an original application. No fee shall be required of a licensee who desires to transfer to a new location; however, such licensee must pay the actual costs involved in the Notification of Hearing as published in the official newspaper.

Section 8–1–15. Sale of Stock on Termination

Any license authorized to deal in alcoholic beverages upon termination of its license may at any time within twenty (20) days thereafter sell the whole or any part of the alcoholic beverages included in its stock in trade at the time of termination, to any licensed wholesaler approved under the provisions of the Title to deal in alcoholic beverages as a wholesaler. A complete report of such purchase and sale must be made by both the wholesaler and licensee to the Tribal Council. At the discretion of the Tribal Council, an additional twenty (20) days extension to sell may be granted to the licensee by the Tribal Council.

Section 8–1–16. Complaints Authorized

Any person may file with the Tribal Council, a duly notarized complaint as to any violations of the provisions of this Title and immediately upon receipt thereof, the Tribal Council shall cause the Director to make a thorough investigation and, if there is evidence to support the charge made in such complaint, the Tribal Council may revoke or suspend the license in question and/or take other appropriate action.

Section 8–1–17. Revocation Proceedings

The Tribal Council shall on due notice to such licensee, conduct a hearing and on the basis thereof determine whether such license should be revoked or suspended.

Section 8–1–18. Subpoena by Tribal Council

For the purpose of conducting the hearing as prescribed above, the Tribal Council shall have the power to subpoena witnesses and to administer oaths. Witnesses so subpoenaed may be paid at the then prevailing witness rate which is established by the Tribal Council from time-to-time. Said witness fee may be paid from the Tribal Liquor Control Fund. The initial witness fee shall be $20.00 per day. Criminal proceedings must be filed in the Tribal Court and may be instituted by the Tribal Council as Complainant against any violator except the Omaha Tribe of Nebraska.

Section 8–1–19. Dismissal or Acceptance of Complaint

If the Tribal Council determines the license should not be revoked or suspended, it shall dismiss the complaint. If the Tribal Council determines the license should be suspended or revoked and suspends or revokes such license, it must make in writing, findings of fact as to every such violation alleged in such complaint before it revokes or suspends such license, and must within thirty (30) days following the hearing, make a report available to the membership of the Tribe consisting of a transcript of the proceedings had, and all findings as to every such violation alleged in such complaint.

Section 8–1–20. Suspension in Lieu of Revocation

The Tribal Council may, if the facts warrant, mitigate the revocation to a suspension. When in any proceedings upon verified complaint, the Tribal Council is satisfied that the nature of such violation and the circumstances thereof were such that a suspension of license would be adequate, it may suspend the license for a period not exceeding sixty (60) days, which suspension shall become effective twenty-four (24) hours after service of notice thereof upon the license. During the period of such suspension, such licensee shall exercise no rights or privileges whatsoever under the license.

Section 8–1–21. Public Hearing Required

All hearings under the provisions of this Title shall be public, and place of hearing shall be specifically designated in the notice of hearing.

Section 8–1–22. Order of Revocation

In any case where the Tribal Council approves a revocation of a license, it shall forthwith make an order for such revocation and upon service of notice thereof on the licensee, all of such licensee's rights under such license shall terminate three (3) days after such notice, except in the event of a Stay of Appeal.

Section 8–1–23. Waiting Period for New License

Any licensee, except the Omaha Tribe of Nebraska, whose license is revoked, shall not for a period of two (2) years thereafter, be granted any license under the provisions of this Title.

Section 8–1–24. Appeal to the Omaha Tribal Court

Any licensee whose license is revoked or suspended by the Tribal Council regardless of how the proceedings were instituted, may appeal from such revocation or suspension, to the Omaha Tribal Court within five (5) days after notice to the licensee of such revocation or suspension, and such appeal operate to stay all proceedings for a period of fifteen (15) days thereafter. Upon good cause shown, the Tribal Court may extend the stay an additional period of time but not to exceed thirty (30) additional days. The Tribal Council shall forthwith, upon such appeal being made, prepare a complete record in the proceedings and shall thereupon fix a time and place for hearing before the Tribal Court, due notice of such hearing shall be given to all concerned parties involved in the appeal. The Tribal Court shall review the proceeding before the Tribal Council on the record made before the Tribal Council utilizing the clearly erroneous standard of review for findings of fact.

Section 8–1–25. Bootlegging

Any person, who by himself, or through another acting for him, shall keep or carry on his person, or in a vehicle, or leave in a place for another to secure, any alcoholic liquor or beer with intent to sell or dispense of such liquor or beer or otherwise in violation of law, or who shall, within this Reservation in any manner, directly or indirectly solicit, take, or accept any order for the purchase, sale, shipment, or delivery of such alcoholic liquor or beer in violation of law, or aid in the delivery and distribution of any alcoholic liquor or beer so ordered or shipped, or who shall in any manner procure for, sell, or give any alcoholic liquor or beer to any person under legal age, for any purpose except as authorized and permitted in this Title, shall be guilty of bootlegging and upon conviction thereof shall be subject to a fine of not less than one hundred dollars ($100.00) nor more than five hundred dollars ($500.00), and to a jail sentence of not less than three (3) months, nor more than six (6) months, or both such fine and jail sentence plus costs. Proceedings under this Section involving Tribal Citizens shall be criminal in nature and heard before the Omaha Tribal Court.

Proceedings under this Section involving non-Tribal Citizens shall be deemed an administrative exercise of the Tribe's regulatory power and the fine for any one offense cannot exceed $10,000.00 and no jail sentence may be imposed.

Section 8–1–26. Sacramental Wines

The provisions of this Title, except as otherwise provided, shall not apply to the purchase and sale of sacramental wines. Ordained rabbis, priests, ministers, or pastors of any church or established religious organizations within the Omaha Tribe Reservation may buy sacramental wines from any person in such quantities as necessary for their religious purposes only.

Chapter 2. Liquor Licenses and Sales

Section 8–2–1. Power to License and Tax

The power to establish licenses and levy taxes under the provisions of this Title is vested exclusively with the Tribal Council. The Tribal Council may levy an administrative fine for violations of this Title by those who are not Citizens of the Tribe, but such fines shall not exceed Ten Thousand Dollars ($10,000.00) per violation.

Section 8–2–2. Classes of Licenses

Classes of licenses under this Chapter with the fee for each class as established by the Tribal Council from time-to-time shall be as follows:

(a) Class A Package Dealers: $1,000.00
(b) Class B On Sale Dealers: $1,500.00
(c) Class C Wholesalers: $500.00

Section 8–2–3. Acceptance or Rejection of License

In accepting or rejecting a request for a license, the Tribal Council shall consider the need of the area to be served for such liquor sales, the number of existing licensed businesses covering the area, the desires of the community within the area to be served, any law enforcement problem which may arise because of the sale of liquor, the character and reputation of the person seeking the license, suitability of the physical premises and plan of operation of the person seeking the license, and any other consideration relevant to the request.

Section 8–2–4. Domestication Requirement for Corporated Licenses

Any corporate, partnership or other entity applying for a Class A or Class B license under this chapter must be a corporation, partnership or entity organized under the laws of the Omaha Tribe of Nebraska, provided that if the applicant is a foreign corporation, partnership or entity, the applicant shall be deemed eligible if, prior to the application, it has complied with all the laws of the United Sates and the Tribe concerning doing business within the Omaha Reservation and submitted to the jurisdiction of the Tribe by appointing a resident agent for service of process. Individuals, partnerships, and other forms of business association shall be eligible to obtain all classes of licenses under this chapter.

Section 8–2–5. Discretion of the Tribal Council

Application for licenses under this chapter shall be submitted to the Tribal Council as specified in Chapter 1 of this Title and the Tribal Council shall have absolute discretion to approve or disapprove the same in accordance with the provisions of this Title.

Section 8–2–6. Cancellation of Surety Bond

Any surety may cancel any bond required under this Title as to future liability by giving thirty (30) days notice to the Tribal Council. Unless the licensee gives other sufficient surety by the end of the thirty (30) day period, the license shall be revoked automatically at the end of the thirty (30) days.

Section 8–2–7. Surety Bond

(a) Every application for a license under this Title, unless exempted by the Tribal Council, must be accompanied by a bond, which shall become operative and effective upon the issuing of a license unless the licensee already has a continuing bond in force. The bond shall be in the amount of $10,000.00 and must be in a form approved by the Tribal Council and it shall be conditioned that the licensee will faithfully obey and abide by all the provisions of this Title and all existing laws relating to the conduct of its business and will promptly pay to the Omaha Tribe of Nebraska when due, all taxes and license fees payable by it under the provisions of this Title and also any costs and cost penalty assessed against it in any judgment for violation of the terms of this Title.

(b) All bonds required by this Title shall be with a corporate surety as surety, or shall be by cash deposit. If said bond is placed by cash, it shall be kept in a separate escrow account within a legally chartered bank.

Section 8–2–8. Action of Bond for Injury

Any person injured by reason of the failure of any licensee to faithfully obey and abide by all the provisions of this Title shall have a direct right of acting upon the bond before the Tribal Council, and if the Tribal Council or the Tribe is the Complainant, before the Tribal Court, for the purpose of recovering the damage sustained by

such person, which action may be prosecuted in the name of the injured.

Section 8–2–9. Agreement by Licensee To Grant Access

Every application for a license under this Title must include an agreement by the applicant that his premises, for the purpose of search and seizure laws shall be considered public premises, and that such premises and all buildings, safes, cabinets, lockers, and store rooms thereon will at all times on demand of the Tribal Council or a duly appointed Tribal or Federal policeman, be open to inspection, and that all its books and records dealing with the sale of ownership of alcoholic beverages shall be open to said person or persons for such inspection, and that the application and the license issued thereon shall constitute an irrevocable contract between the licensee and the Omaha Tribe of Nebraska entitling the Tribe for the purpose of enforcing the provisions of this Title to inspect the premises and books at any time.

Section 8–2–10. Duration of Licenses

The period covered by the licenses under this Title shall be from 12:00 o'clock midnight on the 31st day of December to 12 o'clock midnight on the 31st of the following December, except that the license shall be valid for an additional thirty (30) days provided that proper application for a new license is in the possession of the Tribal Council prior to midnight on the 31st day of December when the license for a portion of such period, unless otherwise provided by this Title.

Section 8–2–11. Refilling Prohibited

No licensee shall buy or sell any package which has previously contained alcoholic beverages sold under the provisions of this Title or refill any such package.

Section 8–2–12. Deliveries

No licensee under this Title shall make any delivery of alcoholic beverages outside the premises described in the license.

Section 8–2–13. Prohibited Sales

No vendor shall sell any intoxicating liquor:

(a) To any person under legal age;

(b) To any person who is intoxicated at the time, or who is known to the vendor to be a habitual drunkard;

(c) To any person to whom the vendor has been requested in writing not to make such sale, where such request is by the Tribal Council, any police or peace officer, or the husband or wife of the person; or

(d) To any mentally ill or mentally retarded person.

Any person who violates any of the provisions of this section shall be guilty of an offense and punished by a fine of not less than one hundred dollars ($100.00) nor more than five hundred dollars ($500,00), or by both such fine and imprisonment with costs.

Section 8–2–14. After Hours Sales

No vendor shall sell, serve or allow to be consumed on the premises covered by the license, alcoholic beverages other than in the hours permitted by its license. The Tribal Council shall specify the hours of sale in the license issued to the vendor, provided that such hours of sale shall not be more extensive than those permitted from time to time.

Section 8–2–15. Prohibited Sales

No Class B licensed On-Sale establishment shall allow to be sold any alcoholic beverages in a package, whether sealed or unsealed, or whether full or partially full.

Section 8–2–16. Unsealed Packages in Public

No person shall have an unsealed package containing intoxicating liquor in his possession in any public place, other than in a duly licensed facility authorizing such broken seal.

Section 8–2–17. Prohibited Use

No person shall be permitted either to consume any intoxicating liquor or to mix or blend any intoxicating liquor or alcohol with any other beverage whether or not such other beverage is an alcoholic beverage, in any public place other than upon the premises of a licensed on-sale dealer as defined and authorized by this Title, and any vendor who knowingly permits such violation to occur upon the premises shall be equally responsible with the person performing the act for the violation of the terms thereof.

Section 8–2–18. Cash Sales Only

All sales of alcoholic beverage shall be made for cash, check or by credit card transaction except where the purchaser is a bona fide registered guest in a hotel or motel. No Licensee may extend credit for the purchase of alcoholic beverages or engage in any pawn business of any type.

Chapter 3. Sales Tax

Section 8–3–1. Sales Tax Levied

There is hereby imposed a sales tax on the purchaser of alcoholic beverages from any retail licensee licensed under the provisions of this Title in the amount of ten percentum (105) of the retail selling price. Such sales tax shall be deposited in a specific fund for use to prevent and control substance abuse on the Reservation.

Chapter 4. Age Requirements

Section 8–4–1. Sales to Persons Under 21

It shall be unlawful to sell or give any alcoholic beverage to any person under the age of twenty-one (21) years. Any Tribal Citizen who violates this section shall be guilty of an offense and upon conviction thereof shall be punished by a fine of not less than one hundred dollars ($100.00) or more than five hundred dollars ($500.00) or by imprisonment in jail for not less than thirty (30) days nor more than one hundred eighty (180) days, or by both such fine and imprisonment with costs. Violations of this Section by persons or entities which are not Tribal Citizens may be regulated by the levy of an administrative fine not in excess of $2,000.00 per violation following an opportunity for a hearing before the Tribal Council. The levy of an administrative fine by the Tribal Council under this Section is in addition to the power to suspend or revoke any license.

Section 8–4–2. Purchase, Possession by Minor

It shall be unlawful for any person under the age of twenty-one (21) years of age to purchase, attempt to purchase or possess or consume intoxicating liquor, or to misrepresent his age for the purpose of purchasing or attempting to purchase such intoxicating liquor. Any person who violates any of the provisions of this section shall be guilty of an offense and upon conviction thereof shall be punished by a fine of not less than One Hundred Dollars ($100.00) or more than Five Hundred Dollars ($500.00) or by imprisonment in the jail for a period of not less than thirty (30) days nor more than one hundred twenty (120) days, or by both such fine and imprisonment with costs. Violating this Section by persons who are not Citizens of the Tribe may be regulated by the levy of an administrative fine not in excess of $1,000.00 per violation following an opportunity for a hearing before the Tribal Council.

Section 8–4–3. Evidence of Legal Age Demanded

Upon attempt to purchase any alcoholic beverages in any liquor store licensed pursuant to this Title by any person who appears to the vendor to be under legal age, such vendor shall

demand, and the prospective purchaser upon such demand, shall display satisfactory evidence that he or she is of legal age. Any person under legal age who presents to any vendor falsified evidence as to his age shall be guilty of a misdemeanor and upon conviction shall be subject to the penalties specified in Section 8–4–1 above.

Chapter 5. Revision

Section 8–5–1. Severability

If any section of any chapter of this Title or the application thereof to any party or class, or to any circumstances, shall be held to be invalid for any cause whatsoever, the remainder of the chapter or Title shall not be affected thereby and shall remain in full force and effect as though no part thereof had been declared to be invalid.

Section 8–5–2. All Prior Ordinances and Resolutions Repealed

All prior Ordinances and Resolutions thereof that are repugnant or inconsistent to any provision of this Title are hereby repealed.

Section 8–5–3. Amendment or Repeal of Title

This Title may be amended or repealed only by majority vote of the Tribal Council in regular session.

History: Omaha Tribal Council Resolution No. 85–89 (11–7–85) forbids the sale of alcohol within the exterior boundaries of the Omaha Tribal Reservation, but it is now repealed.

[FR Doc. E6–2764 Filed 2–27–06; 8:45 am]

BILLING CODE 4310–4J–P

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

[UT–910–06–1120–PH–24–1A]

Notice of Utah Resource Advisory Council Meeting

AGENCY: Bureau of Land Management, Department of Interior.

ACTION: Notice of Utah Resource Advisory Council (RAC) Meeting.

SUMMARY: In accordance with the Federal Land Policy and Management Act (FLPMA) and the Federal Advisory Committee Act of 1972 (FACA), the U.S. Department of the Interior, Bureau of Land Management's (BLM) Utah Resource Advisory Council (RAC) will meet as indicated below.

DATES: The Utah Resource Advisory Council (RAC) will meet March 23, 2006 from 9 a.m. until 5 p.m., and from 8:30 a.m. until 2 p.m., on March 24, 2006 in Wayne County, Utah.

ADDRESSES: On March 23, the Utah BLM Resource Advisory Council meet at the parking area on Factory Bench Road near the Highway 24 turn-off for a field tour of the Factory Butte area. On March 24, the RAC will be meeting at the Civic Center, 90 West Center, in Loa, Utah.

FOR FURTHER INFORMATION CONTACT: Sherry Foot, Special Programs Coordinator, Utah State Office, Bureau of Land Management, P.O. Box 45155, Salt Lake City, Utah, 84145–0155; phone (801) 539–4195.

SUPPLEMENTARY INFORMATION: On March 23, 2006, the RAC will be taking a field tour with its Factory Butte RAC subcommittee to look at OHV-related issues in the Factory Butte area, including possible open-use areas under the Resource Management Plan now being updated for the Richfield Field Office. The RAC is planning stops on the field trip at Swing Arm City, Neilson Wash, the Pinnacles, Skyline Rim Overlook, Salt Wash, Lower Blue Hills, Notom Road, and possibly other points of interest (weather permitting). On March 24, the RAC will be meeting in Loa to hear status information and reporting from its Factory Butte RAC subcommittee. The Factory Butte RAC subcommittee has been meeting periodically since July 2005 examining OHV-related issues in the Factory Butte area, including possible recommendations to the RAC on future designation of open-use areas near Factory Butte. A public comment period, where members of the public may address the RAC, is scheduled from 12:30 p.m. until 2 p.m. Written comments may be sent to the Bureau of Land Management address listed above. All meetings are open to the public; however, transportation, lodging, and meals are the responsibility of the participating public.

Dated: February 14, 2006.

Gene R. Terland,

Acting, State Director.

[FR Doc. E6–2753 Filed 2–27–06; 8:45 am]

BILLING CODE 4310–DK–P

DEPARTMENT OF THE INTERIOR

National Park Service

Oil and Gas Management Plan, Final Environmental Impact Statement, Big Thicket National Preserve, TX

AGENCY: National Park Service, Department of the Interior.

ACTION: Notice of Availability of a Record of Decision on the Final Environmental Impact Statement for the Oil and Gas Management Plan, Big Thicket National Preserve.

SUMMARY: Pursuant to section 102(2)(C) of the National Environmental Policy Act of 1969, 83 Stat. 852, 853, codified as amended at 42 U.S.C 4332(2)(C), the National Park Service announces the availability of the Record of Decision on the Final Environmental Impact Statement for the Oil and Gas Management Plan, Big Thicket National Preserve, Texas. On February 3, 2006, the Director, Intermountain Region approved the Record of Decision for the project. As soon as practicable, the National Park Service will begin to implement the Preferred Alternative contained in the FEIS issued on December 16, 2006. The following course of action will occur under the preferred alternative: An oil and gas management plan will be implemented that clearly articulates the Current Legal and Policy Requirements applicable to the exploration, production, and transportation of nonfederal oil and gas resources in the Preserve; performance standards, mitigation measures, and operating stipulations will be developed and applied Preserve-wide to protect resources and values; and Special Management Areas will be formally designated and will include timing and surface use stipulations for different types of nonfederal oil and gas operations. This course of action and 2 alternatives were analyzed in the Draft and Final Environmental Impact Statements. The full range of foreseeable environmental consequences was assessed, and appropriate mitigating measures were identified.

The Record of Decision includes a description of the background of the project, statement of the decision made, mitigation measures/monitoring, synopses of other alternatives considered, the basis for the decision, a finding on impairment of park resources and values, a description of the environmentally preferred alternative, and an overview of public and agency involvement in the decision-making process.

FOR FURTHER INFORMATION CONTACT: Linda Dansby, P.O. Box 728, Santa Fe, New Mexico 87504–0728; 505–988–6095.

SUPPLEMENTARY INFORMATION: Copies of the Record of Decision may be obtained from the contact listed above or online at *htp://parkplanning.nps.gov.*

Dated: February 3, 2006.

Michael D. Snyder,

Regional Director, Intermountain Region, National Park Service.

[FR Doc. 06–1899 Filed 2–27–06; 8:45 am]

BILLING CODE 4312–CB–M

DEPARTMENT OF COMMERCE

International Trade Administration

[(C–428–829); (C–421–809); (C–412–821)]

Low Enriched Uranium From Germany, the Netherlands, and the United Kingdom: Preliminary Results of Countervailing Duty Administrative Reviews and Intent To Revoke the Countervailing Duty Orders

AGENCY: Import Administration, International Trade Administration, Department of Commerce.

SUMMARY: The Department of Commerce (the Department) is conducting administrative reviews of the countervailing duty (CVD) orders on low enriched uranium (LEU) from Germany, the Netherlands, and the United Kingdom (UK) for the period January 1, 2004, through December 31, 2004. For information on the net subsidy for the reviewed companies, please see the ''Preliminary Results of Reviews'' section of this notice. In addition, we preliminarily determine that the Governments of Germany, the Netherlands, and the UK have met the requirements for revocation of these CVD orders. For further information, please refer to the ''Revocation of the Orders'' section of this notice. Interested parties are invited to comment on these preliminary results. *See* the ''Public Comment'' section of this notice.

EFFECTIVE DATE: February 28, 2006.

FOR FURTHER INFORMATION CONTACT: Darla Brown, AD/CVD Operations, Office 3, Import Administration, International Trade Administration, U.S. Department of Commerce, Room 4012, 14th Street and Constitution Avenue NW., Washington DC 20230; telephone: 202–482–2786.

SUPPLEMENTARY INFORMATION:

Background

On February 13, 2002, the Department published in the **Federal Register** the CVD orders on LEU from Germany, the Netherlands, and the UK. *See Notice of Amended Final Determinations and Notice of Countervailing Duty Orders: Low Enriched Uranium from Germany, the Netherlands and the United Kingdom*, 67 FR 6688 (February 13, 2002) (*Amended Final*). On February 1, 2005, the Department published a notice of opportunity to request an administrative review of these CVD orders. *See Antidumping or Countervailing Duty Order, Finding, or Suspended Investigation; Opportunity To Request Administrative Review*, 70 FR 5136 (February 1, 2005). On February 23, 2005, we received timely requests for review from Urenco Deutschland GmbH of Germany (UD), Urenco Nederland B.V. of the Netherlands (UNL), Urenco (Capenhurst) Limited (UCL) of the UK, Urenco Ltd., Urenco Inc., and Urenco Enrichment Company Ltd. (UEC) (collectively, the Urenco Group or Urenco), the producers and exporters of the subject merchandise. We note that this request covered all subject merchandise produced by Urenco in Germany, the Netherlands, and the UK. On February 25, 2005, we received a timely request for review from petitioners.[1] On February 25, 2005, we received timely requests for revocation of the CVD orders from the Governments of Germany, the Netherlands, and the UK.

On March 23, 2005, the Department initiated administrative reviews of the CVD orders on LEU from Germany, the Netherlands, and the UK. *See Initiation of Antidumping and Countervailing Duty Administrative Reviews and Requests for Revocation in Part*, 70 FR 14643 (March 23, 2005).

On April 13, 2005, the Department issued a questionnaire to the Government of the United Kingdom (UKG) and UCL, Urenco's producer of subject merchandise in the UK. On May 2, 2005, the Department issued a separate questionnaire to the Government of the Netherlands (GON) and UNL, Urenco's producer of subject merchandise in the Netherlands. On June 13, 2005, the Department issued a questionnaire to the Government of Germany (GOG) and UD, Urenco's producer of subject merchandise in Germany.

We received questionnaire responses from the UKG and UCL on May 20, 2005, from the GON and UNL on June 8, 2005, from the GOG on July 18, 2005, and from UD on July 20, 2005.

On October 17, 2005, we extended the due date for these preliminary results from October 31, 2005, to February 28, 2006. *See Low Enriched Uranium from France, Germany, the Netherlands, and the United Kingdom: Extension of Preliminary Results of Countervailing Duty Administrative Reviews*, 70 FR 60284 (October 17, 2005) (*Extension Notice*).

[1] Petitioners are the United States Enrichment Corporation (USEC) and USEC Inc.

In accordance with 19 CFR 351.213(b), these reviews cover only those producers or exporters for which a review was specifically requested. The companies subject to these reviews are UD, UNL, UCL, Urenco Ltd., and Urenco Inc. These reviews cover four programs.

Scope of the Order

The product covered by these orders is all LEU. LEU is enriched uranium hexafluoride (UF_6) with a U^{235} product assay of less than 20 percent that has not been converted into another chemical form, such as UO_2, or fabricated into nuclear fuel assemblies, regardless of the means by which the LEU is produced (including LEU produced through the down-blending of highly enriched uranium).

Certain merchandise is outside the scope of these orders. Specifically, these orders do not cover enriched uranium hexafluoride with a U^{235} assay of 20 percent or greater, also known as highly enriched uranium. In addition, fabricated LEU is not covered by the scope of these orders. For purposes of these orders, fabricated uranium is defined as enriched uranium dioxide (UO_2), whether or not contained in nuclear fuel rods or assemblies. Natural uranium concentrates (U_3O_8) with a U^{235} concentration of no greater than 0.711 percent and natural uranium concentrates converted into uranium hexafluoride with a U^{235} concentration of no greater than 0.711 percent are not covered by the scope of these orders.

Also excluded from these orders is LEU owned by a foreign utility end-user and imported into the United States by or for such end-user solely for purposes of conversion by a U.S. fabricator into uranium dioxide (UO_2) and/or fabrication into fuel assemblies so long as the uranium dioxide and/or fuel assemblies deemed to incorporate such imported LEU (i) remain in the possession and control of the U.S. fabricator, the foreign end-user, or their designed transporter(s) while in U.S. customs territory, and (ii) are re-exported within eighteen (18) months of entry of the LEU for consumption by the end-user in a nuclear reactor outside the United States. Such entries must be accompanied by the certifications of the importer and end-user.

The merchandise subject to these orders is currently classifiable in the Harmonized Tariff Schedule of the United States (HTSUS) at subheading 2844.20.0020. Subject merchandise may also enter under 2844.20.0030, 2844.20.0050, and 2844.40.00. Although the HTSUS subheadings are provided for convenience and customs purposes,

the written description of the merchandise is dispositive.

Period of Review

The period of review (POR) for these administrative reviews is January 1, 2004, through December 31, 2004.

International Consortium

In our *Notice of Final Affirmative Countervailing Duty Determinations: Low Enriched Uranium from Germany, the Netherlands, and the United Kingdom*, 66 FR 65903 (December 21, 2001) (*LEU Final*), and accompanying Issues and Decision Memorandum (LEU Decision Memo) at Comment 2: International Consortium Provision, we found that the Urenco Group operates as an international consortium within the meaning of section 701(d) of the Tariff Act of 1930, as amended (the Act). No new information or evidence of changed circumstances has been presented since the *LEU Final* which would persuade us to reconsider this conclusion. Therefore, we continue to find that the Urenco Group of companies constitutes an international consortium. Accordingly, we have continued to cumulate all countervailable subsidies received by the member companies from the GOG, the GON, and the UKG, pursuant to section 701(d) of the Act.

Subsidies Valuation Information

Allocation Period

Under section 351.524(d)(2) of the Department's regulations, we will presume the allocation period for non-recurring subsidies to be the average useful life (AUL) of renewable physical assets for the industry concerned, as listed in the Internal Revenue Service's (IRS) 1977 Class Life Asset Depreciation Range System (IRS Tables), as updated by the Department of the Treasury. The presumption will apply unless a party claims and establishes that these tables do not reasonably reflect the AUL of the renewable physical assets for the company or industry under investigation, and the party can establish that the difference between the company-specific or country-wide AUL for the industry under investigation is significant. In this instance, however, the IRS Tables do not provide a specific asset guideline class for the uranium enrichment industry.

In the *LEU Final*, we derived an AUL of 10 years for the Urenco Group (*see* LEU Decision Memo at Comment 3: Average Useful Life). The AUL issue is currently subject to litigation related to the investigation. Because there has been no final and conclusive court decision changing the AUL, and no new information or evidence of changed circumstances has been submitted, for these reviews, we continue to apply the 10-year AUL that was calculated in the *LEU Final*.

Revocation of the Orders

On February 25, 2005, we received requests for revocation of the CVD orders on LEU from the GOG, the GON, and the UKG. Their requests were filed in accordance with 19 CFR 351.222(c). The Department may revoke, in whole or in part, a CVD order upon completion of one or more reviews under section 751 of the Act. While Congress has not specified the procedures that the Department must follow in revoking an order, the Department has developed a procedure for revocation that is described in 19 CFR 351.222, which was amended on September 22, 1999. *See Amended Regulation Concerning the Revocation of Antidumping and Countervailing Duty Orders*, 64 FR 51236 (September 22, 1999).

Pursuant to 19 CFR 351.222(e)(2)(i), during the third and subsequent annual anniversary months of the publication of the CVD order, the government of the affected country may request in writing that the Department revoke an order under 351.222(c)(1) if the government submits with the request its certification that it has satisfied, during the period of review, the requirements set out in 351.222(c)(1)(i) and that it will not reinstate for the subject merchandise those programs or substitute other countervailable subsidy programs. The GOG, the GON, and the UKG provided the certifications required by 19 CFR 351.222(e)(2)(i).

Upon receipt of such a request, the Department, pursuant to 19 CFR 351.222(c), will consider the following in determining whether to revoke the order: (1) whether the government of the affected country has eliminated all countervailable subsidies on the subject merchandise by abolishing for the subject merchandise, for a period of at least three consecutive years, all programs previously found countervailable; (2) whether exporters and producers of the subject merchandise are continuing to receive any net countervailable subsidy from an abolished program; and (3) whether the continued application of the CVD order is otherwise necessary to offset subsidization.

In the instant reviews, we preliminarily determine, in accordance with 19 CFR 351.222(c)(1)(i)(A), that all programs found by the Department to have provided countervailable subsidies on LEU from Germany, the Netherlands, and the UK have been abolished for at least three consecutive years. Specifically, in the underlying investigations, the Department found that the GOG provided measurable countervailable benefits to Urenco through agreements between the GOG and Uranitisotopentrennungsgeselleschaft mbH (Uranit)[2] for (1) enrichment technology research and development and (2) forgiveness of centrifuge enrichment capacity subsidies. Under the enrichment technology program, the GOG provided grants to Uranit from 1980 through 1993. Under the forgiveness program, the GOG waived the contingent liability associated with monies provided from 1975 to 1993. These agreements ended with the September 1993 formation of Urenco Ltd., thus effectively abolishing all the subsidy programs within the meaning of 19 CFR 351.222(c)(1)(i)(A). Since the issuance of the order, the Department has not initiated a review of, nor identified, any additional or replacement subsidies.

We also preliminarily determine that the net countervailable subsidy rate during the POR of the instant reviews is zero, and, therefore, that the exporters and producers are no longer receiving any net countervailable subsidy from the abolished programs within the meaning of 19 CFR 351.222(c)(1)(i)(B). Because we have allocated all non-recurring subsidies over a 10-year AUL, the benefit streams from these agreements were fully allocated at the end of 2002, *i.e.*, prior to the POR of these reviews. Finally, we preliminarily determine that there is no evidence currently on the record of the instant reviews indicating that these CVD orders are necessary to offset subsidization. For these reasons, we preliminarily find, in accordance with 19 CFR 351.222(c)(1)(i)(C), that the continued application of these CVD orders is not necessary to offset subsidization. Therefore, if the final results of these reviews remain unchanged from these preliminary results, the Department intends to revoke these CVD orders pursuant to 19 CFR 351.222(c)(1)(ii).

Analysis of Programs

I. Programs Preliminarily Determined Not to Confer a Benefit From the Government of Germany

1. *Enrichment Technology Research and Development Program*

In the first administrative reviews, we determined that grant disbursements made under this program prior to 1992,

[2] The predecessor German company.

including the 1985 disbursement made under the ''Financing Agreement,'' no longer provided a benefit during those reviews' POR, *i.e.*, January 14, 2001, through December 31, 2002. We also determined that only the grant disbursements made in 1992 and 1993 continued to provide benefits during the 2001–2002 POR. *See Final Results of Countervailing Duty Administrative Reviews: Low Enriched Uranium From Germany, the Netherlands, and the United Kingdom*, 69 FR 40869 (July 7, 2004) (*2001–2002 LEU*) and the accompanying Issues and Decision Memorandum (*2001–2002 LEU* Decision Memo) at the ''Analysis of Programs'' section. In the second administrative reviews, we continued to find that each of these grants has been fully allocated prior to the POR. *See Final Results of Countervailing Duty Administrative Reviews: Low Enriched Uranium From Germany, the Netherlands, and the United Kingdom*, 70 FR 40000 (July 12, 2005) (*2003 LEU*).

In *2001–2002 LEU* and *2003 LEU*, we determined that Urenco would not benefit from Enrichment Technology Research and Development Program subsidies from the GOG after 2002 because the grants were fully allocated at the end of 2002. *See 2001–2002 LEU* Decision Memo at Comment 3: Cash Deposit Rate for Future Urenco Imports.

Because the grant disbursements under this program were made between 1980 and 1993, the 10-year allocation period for each grant disbursement expired prior to the POR. Therefore, we preliminarily determine that each of these grants has been fully allocated prior to the POR, and, therefore, no benefit was received under this program during the POR.

2. *Forgiveness of Centrifuge Enrichment Capacity Subsidies*

In *2001–2002 LEU* and *2003 LEU*, we determined that Urenco would not benefit from Forgiveness of Centrifuge Enrichment Capacity subsidies from the GOG after 2002 because the grants were fully allocated at the end of 2002. *See 2001–2002 LEU* Decision Memo at Comment 3: Cash Deposit Rate for Future Urenco Imports. Therefore, we preliminarily determine that the grant has been fully allocated prior to the POR, and, therefore, no benefit was received under this program during the POR.

II. Programs Preliminarily Determined To Be Not Used From the Government of the Netherlands

1. *Wet Investeringsrekening Law (WIR)*

In the *2003 LEU*, we found that the WIR program was not used. In the instant administrative reviews, we asked UNL if it received or used benefits under this program during the POR. In its June 8, 2005, questionnaire response, UNL responded that it did not apply for, use, or receive benefits from the WIR program during the POR. Furthermore, UNL reported that the WIR program ended in 1988 and investment credits could only be claimed through the 1989 tax year. Therefore, we preliminarily find that the WIR was not used during the POR.

2. *Regional Investment Premium*

In the *Amended Final*, we found that, after correcting for a ministerial error in the *LEU Final*, the subsidy from the Regional Investment Program (IPR) was less than 0.5 percent of the Urenco Group's combined sales and, in accordance with 19 CFR 351.524(b)(2), was allocable to the year of receipt (1985). As a result of this revision, the net subsidy for this program decreased from 0.03 percent *ad valorem* to 0.00 percent *ad valorem*. *See Amended Final*, 67 FR 6688. Moreover, in the instant reviews, UNL reported in its June 8, 2005, questionnaire response that it did not apply for nor did it use the IPR program during the POR. Therefore, we preliminarily determine that UNL did not use the IPR program during the POR.

III. Programs from the Government of the United Kingdom

We preliminarily determine that UCL neither received any subsidies nor benefitted from any subsides during the POR.

Preliminary Results of Reviews

In accordance with 19 CFR 351.221(b)(4)(i), we calculated an individual subsidy rate for UD, UNL, UCL, Urenco Ltd., and Urenco Inc, the only producers/exporters subject to these administrative reviews, for the POR, *i.e.*, calendar year 2004. We preliminarily determine that the total estimated net countervailable subsidy rate is 0.00 percent *ad valorem*.

If the final results of these reviews remain the same as these preliminary results, the Department intends to instruct U.S. Customs and Border Protection (CBP), within 15 days of publication of the final results of these reviews, to liquidate without regard to countervailing duties all shipments of subject merchandise from the producers/exporters under review, entered, or withdrawn from warehouse, for consumption during the POR. Moreover, should the final results of these reviews remain the same as these preliminary results, the Department also will instruct CBP not to collect cash deposits of estimated countervailing duties on all shipments of the subject merchandise from the reviewed entity, entered, or withdrawn from warehouse, for consumption on or after the date of publication of the final results of these reviews.

Public Comment

Pursuant to 19 CFR 351.224(b), the Department will disclose to parties to the proceeding any calculations performed in connection with these preliminary results within five days after the date of the public announcement of this notice. Pursuant to 19 CFR 351.309, interested parties may submit written comments in response to these preliminary results. Unless otherwise indicated by the Department, case briefs must be submitted within 30 days after the publication of these preliminary results. Rebuttal briefs, which are limited to arguments raised in case briefs, must be submitted no later than five days after the time limit for filing case briefs, unless the Department alters this time limit. Parties who submit argument in this proceeding are requested to submit with the argument: (1) a statement of the issue, and (2) a brief summary of the argument. Parties submitting case and/or rebuttal briefs are requested to provide the Department copies of the public version on disk. Case and rebuttal briefs must be served on interested parties in accordance with 19 CFR 351.303(f). Also, pursuant to 19 CFR 351.310, within 30 days of the date of publication of this notice, interested parties may request a public hearing on arguments to be raised in the case and rebuttal briefs. Unless the Department specifies otherwise, the hearing, if requested, will be held two days after the date for submission of rebuttal briefs. *See* 19 CFR 351.310(d).

Representatives of parties to the proceeding may request disclosure of proprietary information under administrative protective order no later than 10 days after the representative's client or employer becomes a party to the proceeding, but in no event later than the date the case briefs, under 19 CFR 351.309(c)(ii), are due. The Department will publish the final results of these administrative reviews, including the results of its analysis of issues raised in any case or rebuttal brief or at a hearing.

These administrative reviews and this notice are issued and published in accordance with sections 751(a)(1), 751(a)(3) and 777(i)(1) of the Act and 19 CFR 351.221(b)(4).

Dated: February 22, 2006.

David M. Spooner,

Assistant Secretary for Import Administration.

[FR Doc. E6–2781 Filed 2–27–03; 8:45 am]

BILLING CODE 3510–DS–S

INTERNATIONAL TRADE COMMISSION

[Inv. No. 337–TA–548]

In the Matter of Certain Tissue Converting Machinery, Including Rewinders, Tail Sealers, Trim Removers, and Components Thereof; Notice of Commission Decision Not To Review an Initial Determination Granting Adding a Complainant and Amending the Notice of Investigation

AGENCY: U.S. International Trade Commission.

ACTION: Notice.

SUMMARY: Notice is hereby given that the U.S. International Trade Commission has determined not to review an initial determination (''ID'') issued by the presiding administrative law judge (''ALJ'') adding Fabio Perini S.p.A. as a complainant and amending the notice of investigation in the above-captioned investigation accordingly.

FOR FURTHER INFORMATION CONTACT: Jonathan Engler, Esq., Office of the General Counsel, U.S. International Trade Commission, 500 E Street, SW., Washington, DC 20436, telephone (202) 205–3112. Copies of non-confidential documents filed in connection with this investigation are or will be available for inspection during official business hours (8:45 a.m. to 5:15 p.m.) in the Office of the Secretary, U.S. International Trade Commission, 500 E Street, SW., Washington, DC 20436, telephone (202) 205–2000. General information concerning the Commission may also be obtained by accessing its Internet server (*http://www.usitc.gov*). The public record for this investigation may be viewed on the Commission's electronic docket (EDIS) at *http://edis.usitc.gov.* Hearing-impaired persons are advised that information on this matter can be obtained by contacting the Commission's TDD terminal on (202) 205–1810.

SUPPLEMENTARY INFORMATION: This investigation was instituted by the Commission based on a complaint filed by Fabrio Perini North America Inc. (''Perini-NA'') of Green Bay, Wisconsin. 70 FR 46884 (August 11, 2005). The complaint alleged violations of section 337 of the Tariff Act of 1930, 19 U.S.C. 1337, in the importation into the United States, the sale for importation, and the sale within the United States after importation of certain tissue converting machinery, including rewinders, tail sealers, trim removers, and components thereof by reason of infringement of claims 1, 3, 6, 7, 8, 13, 14, and 15 of U.S. Patent No. 5,979,818, claims 1–5 of U.S. Patent No. Re. 35,729, and Claim 5 of U.S. Patent No. 5,475,917. The complaint and notice of investigation named Chan Li Machinery, Co., Ltd. (''Chan Li'') of Taipei Hsien, Taiwan as the respondent.

On January 17, 2006, Chan Li moved to compel Fabio Perini S.p.A. (''Perini-Italy'') to join as a complainant, arguing that it is an indispensable party for purposes of this litigation. On January 23, 2006, Perini-NA represented that Perini-Italy consented to joinder as a complainant. The Commission Investigative Staff indicated that it supported adding Perini-Italy as a complainant. On January 25, 2006, the ALJ issued an ID (Order No. 11) adding Perini-Italy as a complainant and amending the notice of investigation accordingly.

This action is taken under the authority of section 337 of the Tariff Act of 1930, 19 U.S.C. 1337, and Commission Rule 210.42, 19 CFR 210.42.

Issued: February 22, 2006.

By order of the Commission.

Marilyn R. Abbott,

Secretary to the Commission.

[FR Doc. E6–2796 Filed 2–27–06; 8:45 am]

BILLING CODE 7020–02–P

INTERNATIONAL TRADE COMMISSION

[Inv. No. 337–TA–548]

In the Matter of Certain Tissue Converting Machinery, Including Rewinders, Tail Sealers, Trim Removers, and Components Thereof; Notice of Commission Decision Not To Review an Initial Determination Granting Complainants' Motion To Amend the Complaint and Notice of Investigation

AGENCY: U.S. International Trade Commission.

ACTION: Notice.

SUMMARY: Notice is hereby given that the U.S. International Trade Commission has determined not to review an initial determination (''ID'') issued by the presiding administrative law judge (''ALJ'') granting complainants'' motion to amend the complaint and notice of investigation in the above-captioned investigation.

FOR FURTHER INFORMATION CONTACT: Jonathan Engler, Esq., Office of the General Counsel, U.S. International Trade Commission, 500 E Street, SW., Washington, DC 20436, telephone (202) 205–3112. Copies of non-confidential documents filed in connection with this investigation are or will be available for inspection during official business hours (8:45 a.m. to 5:15 p.m.) in the Office of the Secretary, U.S. International Trade Commission, 500 E Street, SW., Washington, DC 20436, telephone (202) 205–2000. General information concerning the Commission may also be obtained by accessing its Internet server (*http://www.usitc.gov*). The public record for this investigation may be viewed on the Commission's electronic docket (EDIS) at *http://edis.usitc.gov*. Hearing-impaired persons are advised that information on this matter can be obtained by contacting the Commission's TDD terminal on (202) 205–1810.

SUPPLEMENTARY INFORMATION: This investigation was instituted by the Commission based on a complaint filed by Fabrio Perini North America Inc. (''Perini-NA'') of Green Bay, Wisconsin. 70 FR 46884 (August 11, 2005). The complaint alleged violations section 337 of the Tariff Act of 1930, 19 U.S.C. 1337, in the importation into the United States, the sale for importation, and the sale within the United States after importation of certain tissue converting machinery, including rewinders, tail sealers, trim removers, and components thereof by reason of infringement of claims 1, 3, 6, 7, 8, 13, 14, and 15 of U.S. Patent No. 5,979,818, claims 1–5 of U.S. Patent No. Re. 35,729, and Claim 5 of U.S. Patent No. 5,475,917. The complaint and notice of investigation named Chan Li Machinery, Co., Ltd. (''Chan Li'') of Taipei Hsien, Taiwan as the respondent.

On November 15, 2005, Perini-NA filed a ''Motion to File a First Amended Complaint'' to add an additional patent to this investigation, i.e. United States Patent No. 6,948,677 (the ''677 patent''), which issued on September 27, 2005. On December 5, 2005, the ALJ denied this motion, finding that Perini-NA had failed to provide a sufficient basis to allege that machines practicing the '677 patent had been imported or sold since issuance of the patent, or would be imported or sold in the future.

On January 4, 2006, Perini-NA filed its ''Renewed Motion to Amend the Complaint and Notice of Investigation'', based on additional discovery. On January 17, 2006, Chan Li filed its

opposition to the renewed motion to amend, arguing that the present procedural schedule would not permit it to prepare a proper defense with respect to the new '677 patent. On January 17, 2006, the Commission Investigative Staff filed a response in support of Perini-NA's motion to amend. Chan Li filed a motion for leave to reply to the Staff on January 18, 2006, in which it argued for a postponement of the current deadlines.

On January 20, 2006, the ALJ issued an ID (Order No. 10) granting Perini-NA's motion to amend the complaint and notice of investigation. The ALJ found good cause to add claims 7, 12, 15, and 16 of the '677 patent to this investigation. He also found that there is no evidence that an inordinate extension of the procedural schedule or target date would be required by the addition of the '677 patent to this investigation. The Commission has determined not to review this ID.

Issued: February 22, 2006.
By order of the Commission.

Marilyn R. Abbott,

Secretary to the Commission.

[FR Doc. E6–2797 Filed 2–27–06; 8:45 am]

BILLING CODE 7020–02–P

INTERNATIONAL TRADE COMMISSION

[Inv. Nos. TA–131–032 and TA–2104–021]

U.S.-Republic of Korea Free Trade Agreement: Advice Concerning the Probable Economic Effect of Providing Duty-Free Treatment for Imports

AGENCY: United States International Trade Commission.

ACTION: Institution of investigations and scheduling of hearing.

DATES: *Effective Date:* February 21, 2006.

SUMMARY: Following receipt on February 6, 2006, of a request from the United States Trade Representative (USTR), the Commission instituted investigation Nos. TA–131–032 and TA–2104–021, *U.S.-Republic of Korea Free Trade Agreement: Advice Concerning the Probable Economic Effect of Providing Duty-Free Treatment for Imports*, under section 131 of the Trade Act of 1974 and section 2104(b)(2) of the Trade Act of 2002.

FOR FURTHER INFORMATION CONTACT: Information specific to these investigations may be obtained from Jonathan Coleman (202–205–3465; *jonathan.coleman@usitc.gov*) or Brad Gehrke (202–205–3329; *brad.gehrke@usitc.gov*), Office of Industries, United States International Trade Commission, Washington, DC 20436. For information on the legal aspects of these investigations, contact William Gearhart of the Office of the General Counsel (202–205–3091; *william.gearhart@usitc.gov*). General information concerning the Commission may also be obtained by accessing its Internet server (*http://www.usitc.gov*).

Background: On February 2, 2006, the USTR notified the Congress of the President's intent to enter into negotiations for a free trade agreement (FTA) with the Republic of Korea (Korea). Accordingly, the USTR, pursuant to section 131 of the Trade Act of 1974 (19 U.S.C. 2151), requested the Commission to provide a report including advice as to the probable economic effect of providing duty-free treatment for imports of products of Korea (i) on industries in the United States producing like or directly competitive products, and (ii) on consumers. In preparing the advice, the Commission's analysis will consider each article in chapters 1 through 97 of the Harmonized Tariff Schedule of the United States for which U.S. tariffs will remain after the United States fully implements its Uruguay Round tariff commitments. The import advice will be based on the 2006 Harmonized Tariff System nomenclature and 2005 trade data. The advice with respect to the removal of U.S. duties on imports from Korea will assume that any known U.S. nontariff barrier will not be applicable to such imports. The Commission will note in its report any instance in which the continued application of a U.S. nontariff barrier to such imports would result in different advice with respect to the effect on the removal of the duty.

Also as requested, pursuant to section 2104(b)(2) of the Trade Act of 2002 (19 U.S.C. 3804(b)(2)), the Commission will provide advice as to the probable economic effect of eliminating tariffs on imports of certain agricultural products of Korea on (i) industries in the United States producing the product concerned, and (ii) the U.S. economy as a whole.

The Commission expects to provide its report to the USTR by July 14, 2006. The USTR indicated that those sections of the Commission's report that relate to the analysis of probable economic effects will be classified and that it also considers the Commission's report to be an interagency memorandum containing pre-decisional advice and subject to the deliberative process privilege.

Public Hearing: A public hearing in connection with these investigations is scheduled to begin at 9:30 a.m. on April 20, 2006, at the U.S. International Trade Commission Building, 500 E Street, SW., Washington, DC. Requests to appear at the public hearing should be filed with the Secretary, no later than 5:15 p.m., March 29, 2006, in accordance with the requirements in the ''Submissions'' section below. In the event that, as of the close of business on March 29, 2006, no witnesses are scheduled to appear, the hearing will be canceled. Any person interested in attending the hearing as an observer or non-participant may call the Secretary (202–205–2000) after March 29, 2006 to determine whether the hearing will be held.

Statements and Briefs: In lieu of or in addition to participating in the hearing, interested parties are invited to submit written statements or briefs concerning these investigations in accordance with the requirements in the ''Submissions'' section below. Any prehearing briefs or statement should be filed not later than 5:15 p.m., April 3, 2006; the deadline for filing post-hearing briefs or statements is 5:15 p.m., April 27, 2006.

Written Submissions: In lieu of or in addition to participating in the hearing, interested parties are invited to submit written statements concerning the matters to be addressed by the Commission in its report on this investigation. Submissions should be addressed to the Secretary, United States International Trade Commission, 500 E Street, SW., Washington, DC 20436. To be assured of consideration by the Commission, written statements related to the Commission's report should be submitted to the Commission at the earliest practical date and should be received no later than 5:15 p.m., April 27, 2006. All written submissions must conform with the provisions of section 201.8 of the *Commission's Rules of Practice and Procedure* (19 CFR 201.8). Section 201.8 of the rules requires that a signed original (or copy designated as an original) and fourteen (14) copies of each document be filed. In the event that confidential treatment of the document is requested, at least four (4) additional copies must be filed, in which the confidential business information must be deleted (see the following paragraph for further information regarding confidential business information). The Commission's rules do not authorize filing submissions with the Secretary by facsimile or electronic means, except to the extent permitted by section 201.8 of the rules (see Handbook for Electronic Filing Procedures, *ftp://ftp.usitc.gov/pub/reports/electronic_filing_handbook.pdf*). Persons with questions regarding electronic filing should contact the

Secretary (202–205–2000 or *edis@usitc.gov*).

Any submissions that contain confidential business information must also conform with the requirements of section 201.6 of the *Commission's Rules of Practice and Procedure* (19 CFR 201.6). Section 201.6 of the rules requires that the cover of the document and the individual pages be clearly marked as to whether they are the ''confidential'' or ''nonconfidential'' version, and that the confidential business information be clearly identified by means of brackets. All written submissions, except for confidential business information, will be made available in the Office of the Secretary to the Commission for inspection by interested parties.

The Commission may include some or all of the confidential business information submitted in the course of these investigations in the report it sends to the USTR and the President. However, should the Commission publish a public version of this report, such confidential business information will not be published in a manner that would reveal the operations of the firm supplying the information. The public record for this investigation may be viewed on the Commission's electronic docket (EDIS) *http://edis.usitc.gov.* Hearing impaired individuals may obtain information on this matter by contacting the Commission's TDD terminal on 202–205–1810. Persons with mobility impairments who will need special assistance in gaining access to the Commission should contact the Office of the Secretary at 202–205–2000.

List of Subjects

Korea, tariffs, and imports.

By order of the Commission.

Issued: February 22, 2006.

Marilyn R. Abbott,

Secretary to the Commission.

[FR Doc. E6–2750 Filed 2–27–06; 8:45 am]

BILLING CODE 7020–02–P

NATIONAL FOUNDATION ON THE ARTS AND THE HUMANITIES

National Endowment for the Arts; Arts Advisory Panel

Pursuant to Section 10(a)(2) of the Federal Advisory Committee Act (Pub. L. 92–463), as amended, notice is hereby given that a meeting of the Arts Advisory Panel (NEA Jazz Masters Fellowships review) to the National Council on the Arts will be held by teleconference at the Nancy Hanks Center, 1100 Pennsylvania Avenue, NW., Washington, DC 20506 from 1 p.m. to 2 p.m. (est) on March 29, 2006. This meeting will be closed.

Closed portions of meetings are for the purpose of Panel review, discussion, evaluation, and recommendations on financial assistance under the National Foundation on the Arts and the Humanities Act of 1965, as amended, including information given in confidence to the agency. In accordance with the determination of the Chairman of April 8, 2005, these sessions will be closed to the public pursuant to subsection (c)(6) of section 552b of Title 5, United States Code.

Further information with reference to these meetings can be obtained from Ms. Kathy Plowitz-Worden, Office of Guidelines & Panel Operations, National Endowment for the Arts, Washington, DC 20506, or call 202/682–5691.

Dated: February 17, 2006.

Kathy Plowitz-Worden,

Panel Coordinator, Panel Operations, National Endowment for the Arts.

[FR Doc. E6–2762 Filed 2–27–06; 8:45 am]

BILLING CODE 7537–01–P

NATIONAL TRANSPORTATION SAFETY BOARD

Sunshine Act Meeting

TIME AND PLACE: 9:30 a.m., Tuesday, March 7, 2006.

PLACE: NTSB Conference Center, 429 L'Enfant Plaza, SW., Washington, DC 20594.

STATUS: The two items are open to the public.

MATTERS TO BE CONSIDERED:

7679A *Marine Accident Report*—Capsizing of U.S. Small Passenger Vessel Lady D, Northwest Harbor, Baltimore, Maryland, March 6, 2004.

7646A *Aircraft Accident Report*—Controlled Flight into Terrain, Era Aviation, Sikorsky, S–76A++, N579EH, Gulf of Mexico, About 70 Nautical Miles South-Southeast of Scholes International Airport, Galveston, Texas, March 23, 2004.

News Media Contact: Telephone: (202) 314–6100.

Individuals requesting specific accommodations should contact Chris Bisett at (202) 314–6305 by Friday, March 3, 2006.

The public may view the meeting via a live or archived Webcast by accessing a link under ''News & Events'' on the NTSB home page at *http://www.ntsb.gov.*

FOR FURTHER INFORMATION CONTACT: Vicky D'Onofrio, (202) 314–6410.

Dated: February 24, 2006.

Vicky D'Onofrio,

Federal Register Liaison Officer.

[FR Doc. 06–1909 Filed 2–24–06; 12:46pm]

BILLING CODE 7533–01–M

NUCLEAR REGULATORY COMMISSION

[Docket Nos. 50–282 and 50–306]

Nuclear Management Company, LLC (NMC); Notice of Withdrawal of Application for Amendment to Facility Operating License

The U.S. Nuclear Regulatory Commission (the Commission) has granted the request of Nuclear Management Company, LLC (NMC) (the licensee) to withdraw its February 28, 2005, application for proposed amendment to Facility Operating License No. DPR–42 and DPR–60 for the Prairie Island Nuclear Generating Plant, Units 1 and 2, located in Goodhue County, Minnesota.

The proposed change would allow the use of the small-break loss-of-coolant accident (SBLOCA) methodology described in Westinghouse WCAP 10054–P–A Addendum 2 Revision 1, ''Addendum to the Westinghouse small-break emergency core cooling system Evaluation Model Using the NOTRUMP Code: Safety Injection into the Broken Loop and COSI Condensation Model'' dated July 1997. This revised methodology determines the core response following a SBLOCA event and would have been used to assure compliance with the post loss-of-coolant accident acceptance criteria specified in 10 CFR part 50.46.

The Commission had previously issued a Notice of Consideration of Issuance of Amendment published in the **Federal Register** on April 26, 2005 (79 FR 21459). However, by letter dated February 2, 2006, the licensee withdrew the proposed change.

For further details with respect to this action, see the application for amendment dated February 28, 2005, and the licensee's letter dated February 2, 2006, which withdrew the application for license amendment. Documents may be examined, and/or copied for a fee, at the NRC's Public Document Room (PDR), located at One White Flint North, Public File Area 01 F21, 11555 Rockville Pike (first floor), Rockville, Maryland. Publicly available records will be accessible electronically from the Agencywide Documents Access and Management Systems (ADAMS) Public Electronic Reading Room on the internet at the NRC Web

site, *http://www.nrc.gov/reading-rm/adams/html.* Persons who do not have access to ADAMS or who encounter problems in accessing the documents located in ADAMS, should contact the NRC PDR Reference staff by telephone at 1–800–397–4209, or 301–415–4737 or by e-mail to *pdr@nrc.gov.*

Dated at Rockville, Maryland, this 16th day of February, 2006.

For the Nuclear Regulatory Commission.

Mahesh Chawla,

Project Manager, Plant Licensing Branch III–1, Division of Operating Reactor Licensing, Office of Nuclear Reactor Regulation.

[FR Doc. E6–2787 Filed 2–27–06; 8:45 am]

BILLING CODE 7590–01–P

NUCLEAR REGULATORY COMMISSION

[Docket No. 72–22]

Private Fuel Storage, Limited Liability Company

Notice of Issuance of Materials License Snm–2513 for the Private Fuel Storage Facility

AGENCY: Nuclear Regulatory Commission.

ACTION: Issuance of Materials License; Termination of NHPA Consultation.

FOR FURTHER INFORMATION CONTACT: Stewart W. Brown, Senior Project Manager, Spent Fuel Project Office, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Telephone: (301) 415–8531; fax number: (301) 415–8555; e-mail: *swb1@nrc.gov.*

SUPPLEMENTARY INFORMATION: The U.S. Nuclear Regulatory Commission (NRC or the Commission) has issued Materials License No. SNM–2513 to Private Fuel Storage, Limited Liability Company (PFS) for the receipt, possession, storage, and transfer of spent fuel at the Private Fuel Storage Facility (PFSF), to be located on the Reservation of the Skull Valley Band of Goshute Indians, in Tooele County, Utah.

In connection with its review of the PFS license application, the NRC, in coordination with three cooperating Federal agencies, developed a final environmental impact statement pursuant to the National Environmental Policy Act of 1969 (NEPA), which was published in December 2001. In addition, the NRC participated in consultations with the three cooperating agencies and other parties concerning the protection of historic and cultural properties which may be impacted by the agencies' proposed actions, in accordance with the National Historic Preservation Act (NHPA) and regulations promulgated by the Advisory Council on Historic Preservation (ACHP). By letter dated November 22, 2005, the NRC notified the ACHP that it was terminating the NHPA consultation process for reasons described in the letter, pursuant to 36 CFR 800.7(a); notice of such termination was also provided to all parties involved in the consultation process. By letter dated January 9, 2006, the ACHP provided its comments in response to the NRC's letter of November 22, 2005. In accordance with 36 CFR 800.7(c)(4), the NRC has considered the ACHP's comments, as set forth in a letter to the ACHP dated February 10, 2006, and has determined that final action on the PFS license application is appropriate.

Accordingly, notice is hereby provided that the NRC has determined to grant the PFS license application, and to issue Materials License No. SNM–2513 to PFS for the PFSF. This Materials License is issued under the provisions of 10 CFR Part 72, and is effective as of the date of issuance. In accordance with 10 CFR Part 72, the PFSF license is issued for a term of 20 years, but the licensee may seek to renew the license prior to its expiration. The license authorizes PFS to provide interim storage in a dry cask storage system for up to 40,000 metric tons of uranium contained in intact spent fuel, damaged fuel assemblies, and fuel debris. The dry cask storage system authorized for use is a site-specific version of the HI-STORM 100 system designed by Holtec International, Inc., as more fully described in Materials License No. SNM–2513.

Background

Following receipt of PFS's application dated June 20, 1997, the NRC staff published a ''Notice of Docketing, Notice of Proposed Action, and Notice of Opportunity for a Hearing for a Materials License for the PFSF in the **Federal Register** on July 31, 1997 (62 FR 41099). In conjunction with the issuance of this license, the staff and three cooperating Federal agencies (Bureau of Land Management, Bureau of Indian Affairs, and Surface Transportation Board) published the ''Final Environmental Impact Statement for the Construction and Operation of an Independent Spent Fuel Storage Installation on the Reservation of the Skull Valley Band of Goshute Indians and the Related Transportation Facility in Tooele County, Utah,'' NUREG–1714 (December 2001) (FEIS). The FEIS considered the impacts of the construction, operation and decommissioning of the proposed ISFSI at the Skull Valley site and the impacts of certain transportation facilities which had been proposed by PFS. The FEIS indicated that the NRC staff and the three Cooperating Agencies had concluded, in part, that the overall benefits of the proposed PFSF outweigh the disadvantages and cost, and that the measures required by other permitting authorities and the mitigation measures proposed in the FEIS would eliminate or ameliorate any potential adverse environmental impacts associated with the PFS license application.

The safety and security of the proposed PFSF were addressed in a Safety Evaluation Report (SER) issued in December 2000 and two amendments thereto, as reissued in a consolidated SER in March 2002. Evidentiary hearings on the proposed license application were held before an Atomic Safety and Licensing Board in 2000, 2002 and 2004, and final adjudicatory decisions have been issued with respect to all contested issues in the proceeding.

In sum, the NRC has completed its environmental and safety reviews of the PFSF license application. Based on its review of the application and other pertinent information, the NRC issued Materials License No. SNM–2513 for the PFSF on February 21, 2006.

Further details with respect to this action are provided in the application dated June 20, 1997, as amended; the staff's Final Environmental Impact Statement, dated December 2001; the staff's Consolidated Safety Evaluation Report, dated March 5, 2002; Materials License SNM–2513; the NRC's letter to the ACHP dated November 22, 2005; the ACHP's letter dated January 9, 2006; the NRC's letter to the ACHP dated February 10, 2006; and other related documents, which are publicly available in the records component of NRC's Agencywide Documents Access and Management System (ADAMS). These documents may be accessed through the NRC's Public Electronic Reading Room on the Internet at: *http://www.nrc.gov/reading-rm/adams.html.* These documents may also be viewed electronically on the public computers located at the NRC's Public Document Room (PDR), O1F21, One White Flint North, 11555 Rockville Pike, Rockville, MD 20852. Persons who do not have access to ADAMS or who encounter problems in accessing the documents located in ADAMS, should contact the NRC PDR Reference staff by telephone at 1–800–397–4209 or (301) 415–4737, or by e-mail to *pdr@nrc.gov.* The PDR reproduction contractor will copy documents for a fee.

Dated at Rockville, Maryland, this 21st day of February, 2006.

For The Nuclear Regulatory Commission.

Stewart W. Brown,

Senior Project Manager, Licensing Section, Spent Fuel Project Office, Office of Nuclear Material Safety and Safeguards.

[FR Doc. E6–2792 Filed 2–27–06; 8:45 am]

BILLING CODE 7590–01–P

NUCLEAR REGULATORY COMMISSION

[Docket No. 040–00341]

Notice of Availability of Environmental Assessment and Finding of No Significant Impact for License Amendment for the Defense Logistics Agency, Defense National Stockpile Center Facility In Scotia, NY

AGENCY: Nuclear Regulatory Commission.

ACTION: Notice of Availability.

FOR FURTHER INFORMATION CONTACT: Betsy Ullrich, Commercial and R&D Branch, Division of Nuclear Materials Safety, Region I, 475 Allendale Road, King of Prussia, Pennsylvania, 19406 telephone (610) 337–5040, fax (610) 337–5269; or by e-mail: *exu@nrc.gov.*

SUPPLEMENTARY INFORMATION:

I. Introduction

The U.S. Nuclear Regulatory Commission (NRC) is considering the issuance of a license amendment to Defense Logistics Agency, Defense National Stockpile Center (DLA/DNSC) for Materials License No. STC–133, to authorize release of its facility in Scotia, New York for unrestricted use. NRC has prepared an Environmental Assessment (EA) in support of this proposed action in accordance with the requirements of 10 CFR Part 51. Based on the EA, the NRC has concluded that a Finding of No Significant Impact (FONSI) is appropriate. The amendment will be issued following the publication of this Notice.

II. EA Summary

The purpose of the proposed action is to authorize the release of the licensee's Scotia, New York facility for unrestricted use. DLA/DNSC was authorized by NRC from 1970 to use radioactive materials for storage and sampling purposes at the Scotia site. On January 8, 2005, DLA/DNSC requested that NRC release the facility for unrestricted use. DLA/DNSC has conducted surveys of the facility and provided information to the NRC to demonstrate that the site meets the license termination criteria in Subpart E of 10 CFR Part 20 for unrestricted release.

The NRC staff has prepared an EA in support of the license amendment. The facility was remediated and surveyed prior to the licensee requesting the license amendment. The NRC staff has reviewed the information and final status survey submitted by DLA/DNSC. Based on its review, the staff has determined that there are no additional remediation activities necessary to complete the proposed action. Therefore, the staff considered the impact of the residual radioactivity at the facility and concluded that since the residual radioactivity meets the requirements in Subpart E of 10 CFR part 20, a Finding of No Significant Impact is appropriate.

III. Finding of No Significant Impact

The staff has prepared the EA (summarized above) in support of the license amendment to release the facility for unrestricted use. The NRC staff has evaluated DLA/DNSC's request and the results of the surveys and has concluded that the completed action complies with the criteria in Subpart E of 10 CFR part 20. The staff has found that the radiological environmental impacts from the action are bounded by the impacts evaluated by NUREG–1496, Volumes 1–3, ''Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC–Licensed Facilities'' (ML042310492, ML042320379, and ML042330385). Additionally, no non-radiological or cumulative impacts were identified. On the basis of the EA, the NRC has concluded that there are no significant environmental impacts from the proposed action, and has determined not to prepare an environmental impact statement for the proposed action.

IV. Further Information

Documents related to this action, including the application for the license amendment and supporting documentation, are available electronically at the NRC's Electronic Reading Room at *http://www.nrc.gov/reading-rm/adams.html.* From this site, you can access the NRC's Agencywide Document Access and Management System (ADAMS), which provides text and image files of NRC's public documents. The ADAMS accession numbers for the documents related to this Notice are: Environmental Assessment [ML060520131]; Defense National Stockpile Center Final Status Survey Report, Scotia Depot, New York, Final, December 2004 [ADAMS Accession No. ML050340087]; letter dated August 16, 2005 [ML052310209]; and letter dated October 4, 2005 [ML052910324]. Persons who do not have access to ADAMS or who encounter problems in accessing the documents located in ADAMS, should contact the NRC PDR Reference staff by telephone at (800) 397–4209 or (301) 415–4737, or by e-mail to *pdr@nrc.gov.*

Documents related to operations conducted under this license not specifically referenced in this Notice may not be electronically available and/or may not be publicly available. Persons who have an interest in reviewing these documents should submit a request to NRC under the Freedom of Information Act (FOIA). Instructions for submitting a FOIA request can be found on the NRC's Web site at *http://www.nrc.gov/reading-rm/foia/foia-privacy.html.*

Dated at King of Prussia, Pennsylvania, this 21st day of February, 2006.

For the Nuclear Regulatory Commission.

James P. Dwyer,

Chief, Commercial and R&D Branch, Division of Nuclear Materials Safety, Region I.

[FR Doc. E6–2783 Filed 2–27–06; 8:45 am]

BILLING CODE 7590–01–P

NUCLEAR REGULATORY COMMISSION

[Docket No. 030–05222]

Notice of Availability of Environmental Assessment and Finding of No Significant Impact for License Amendment for The E. R. Squibb and Sons, Inc. Facility in Hamilton, NJ

AGENCY: Nuclear Regulatory Commission.

ACTION: Notice of availability.

FOR FURTHER INFORMATION CONTACT: Betsy Ullrich, Commercial and R&D Branch, Division of Nuclear Materials Safety, Region I, 475 Allendale Road, King of Prussia, Pennsylvania 19406, telephone (610) 337–5040, fax (610) 337–5269; or by e-mail: *exu@nrc.gov.*

SUPPLEMENTARY INFORMATION:

I. Introduction

The U.S. Nuclear Regulatory Commission (NRC) is considering the issuance of a license amendment to E. R. Squibb and Sons, Inc. (Squibb) for Materials License No. 29–00139–02, to authorize release of its facility in Hamilton, New Jersey, for unrestricted use. NRC has prepared an Environmental Assessment (EA) in support of this proposed action in accordance with the requirements of 10 CFR part 51. Based on the EA, the NRC

has concluded that a Finding of No Significant Impact (FONSI) is appropriate. The amendment will be issued following the publication of this Notice.

II. EA Summary

The purpose of the proposed action is to authorize the release of the licensee's Hamilton, New Jersey, facility for unrestricted use. Squibb was authorized by NRC from 1998 to use radioactive materials for research and development purposes at the site. On September 29, 2005, Squibb requested that NRC release the facility for unrestricted use. Squibb has conducted surveys of the facility and provided information to the NRC to demonstrate that the site meets the license termination criteria in subpart E of 10 CFR part 20 for unrestricted release.

The NRC staff has prepared an EA in support of the license amendment. The facility was remediated and surveyed prior to the licensee requesting the license amendment. The NRC staff has reviewed the information and final status survey submitted by Squibb. Based on its review, the staff has determined that there are no additional remediation activities necessary to complete the proposed action. Therefore, the staff considered the impact of the residual radioactivity at the facility and concluded that since the residual radioactivity meets the requirements in Subpart E of 10 CFR part 20, a Finding of No Significant Impact is appropriate.

III. Finding of No Significant Impact

The staff has prepared the EA (summarized above) in support of the license amendment to terminate the license and release the facility for unrestricted use. The NRC staff has evaluated Squibb's request and the results of the surveys and has concluded that the completed action complies with the criteria in subpart E of 10 CFR part 20. The staff has found that the radiological environmental impacts from the action are bounded by the impacts evaluated by NUREG–1496, Volumes 1–3, ''Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC–Licensed Facilities'' (ML042310492, ML042320379, and ML042330385). Additionally, no non-radiological or cumulative impacts were identified. On the basis of the EA, the NRC has concluded that there are no significant environmental impacts from the proposed action, and the license amendment does not warrant the preparation of an environmental impact statement for the proposed action. Accordingly, it has been determined that a Finding of No Significant Impact is appropriate.

IV. Further Information

The EA and other documents related to this action, including the application for the license amendment and supporting documentation, are available electronically at the NRC's Electronic Reading Room at *http://www.nrc.gov/reading-rm/adams.html.* From this site, you can access the NRC's Agencywide Document Access and Management System (ADAMS), which provides text and image files of NRC's public documents. The ADAMS accession numbers for the documents related to this Notice are: Environmental Assessment Related to Issuance of a License Amendment of U.S. Nuclear Regulatory Commission Materials License No. 29–00139–02, E. R. Squibb and Sons, Inc. in Hamilton, New Jersey [ADAMS Accession No. ML060520449]; Final Status Survey for Bristol Myers Clinical Research Center, Hamilton, New Jersey, dated August 8, 2005 [ML052510568]; and letter dated November 9, 2005 [ML053190315]. Persons who do not have access to ADAMS or who encounter problems in accessing the documents located in ADAMS, should contact the NRC PDR Reference staff by telephone at (800) 397–4209 or (301) 415–4737, or by e-mail to *pdr@nrc.gov.*

Documents related to operations conducted under this license not specifically referenced in this Notice may not be electronically available and/or may not be publicly available. Persons who have an interest in reviewing these documents should submit a request to NRC under the Freedom of Information Act (FOIA). Instructions for submitting a FOIA request can be found on the NRC's Web site at *http://www.nrc.gov/reading-rm/foia/foia-privacy.html.*

Dated at King of Prussia, Pennsylvania, this 21st day of February, 2006.

For the Nuclear Regulatory Commission.

James P. Dwyer,

Chief, Commercial and R&D Branch, Division of Nuclear Materials Safety, Region I.

[FR Doc. E6–2785 Filed 2–27–06; 8:45 am]

BILLING CODE 7590–01–P

NUCLEAR REGULATORY COMMISSION

Sunshine Act Meeting

DATE: Weeks of February 27, March 6, 13, 20, 27, April 3, 2006.

PLACE: Commissioners' Conference Room, 11555 Rockville Pike, Rockville, Maryland.

STATUS: Public and Closed.

MATTERS TO BE CONSIDERED:

Week of February 27, 2006

Monday, February 27, 2006

2:45 p.m. Affirmation Session (Public Meeting) (Tentative). a. Hydro Resources, Inc. (P.O. Box 777, Crownpoint, NM 87313)(in situ leach mining operation—concerning review of LBP–06–1. Partial initial Decision (Phase II Radiological Air Emissions Challenges To In Situ Leach Uranium Mining License). (Tentative).

Week of March 6, 2006—Tentative

There are no meetings scheduled for the Week of March 6, 2006.

Week of March 13, 2006—Tentative

Monday, March 13, 2006

1:30 p.m. Briefing on Office of Information Services (OIS) Programs, Performance, and Plans (Public Meeting). (*Contact:* Edward Baker, 301–415–8700).

This meeting will be Webcast live at the Web address—*http://www.nrc.gov.*

Wednesday, March 15, 2006

9:30 a.m. Briefing on Office of Nuclear Security and Incident Response (NSIR) Programs, Performance, and Plans (Public Meeting). (*Contact:* Evelyn S. Williams, 301–415–7011).

This meeting will be Webcast live at the Web address—*http://www.nrc.gov.*

1:30 p.m. Discussion of Security Issues (Closed—Ex. 1 & 3).

Thursday, March 16, 2006

9:30 a.m. Briefing on Office of Nuclear Reactor Regulation (NRR) Programs, Performance, and Plans (Public Meeting). (*Contact:* Cynthia Carpenter, 301–115–1275).

This meeting will be Webcast live at the Web address—*http://www.nrc.gov.*

Week of March 20, 2006—Tentative

There are no meetings scheduled for the Week of March 20, 2006.

Week of March 27, 2006—Tentative

There are no meetings scheduled for the Week of March 27, 2006.

Week of April 3, 2006—Tentative

There are no meetings scheduled for the Week of April 3, 2006

The schedule for Commission meetings is subject to change on short notice. To verify the status of meetings call (recording)—(301)–415–1292. Contact person for more

information: Michelle Schroll, 301–415–1662.

* * * * *

The NRC Commission Meeting Schedule can be found on the Internet at: *http://nrc.gov/what-we-do/policy-making/schedule.html.*

* * * * *

The NRC provides reasonable accommodation to individuals with disabilities where appropriate if you need a reasonable accommodation to participate in these public meetings, or need this meeting notice or the transcript or other information from the public meetings in another format (*e.g.,* braille, large print), please notify the NRC's Disability Program Coordinator, Deborah Chan, at 301–415–7041, TDD: 301–415–2100, or by e-mail at *DLC@nrc.gov.* Determinations on requests for reasonable accommodation will be made on a case-by-case basis.

* * * * *

This notice is distributed by mail to several hundred subscribers; if you no longer wish to receive it, or would like to be added to the distribution, please contact the Office of the Secretary, Washington, DC 20555 (301–415–1969). In addition, distribution of this meeting notice over the internet system is available. If you are interested in receiving this Commission meeting schedule electronically, please send an electronic message to *dkw@nrc.gov.*

Dated: February 23, 2006.

R. Michelle Schroll,

Office of the Secretary.

[FR Doc. 06–1908 Filed 2–24–06; 11:55 am]

BILLING CODE 7590–01–M

NUCLEAR REGULATORY COMMISSION

Biweekly Notice; Applications and Amendments to Facility Operating Licenses Involving No Significant Hazards Considerations

I. Background

Pursuant to section 189a(2) of the Atomic Energy Act of 1954, as amended (the Act), the U.S. Nuclear Regulatory Commission (the Commission or NRC staff) is publishing this regular biweekly notice. The Act requires the Commission publish notice of any amendments issued, or proposed to be issued and grants the Commission the authority to issue and make immediately effective any amendment to an operating license upon a determination by the Commission that such amendment involves no significant hazards consideration, notwithstanding the pendency before the Commission of a request for a hearing from any person.

This biweekly notice includes all notices of amendments issued, or proposed to be issued from February 3, 2006, to February 15, 2006. The last biweekly notice was published on February 14, 2006 (71 FR 7804).

Notice of Consideration of Issuance of Amendments to Facility Operating Licenses, Proposed No Significant Hazards Consideration Determination, and Opportunity for a Hearing

The Commission has made a proposed determination that the following amendment requests involve no significant hazards consideration. Under the Commission's regulations in 10 CFR 50.92, this means that operation of the facility in accordance with the proposed amendment would not (1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety. The basis for this proposed determination for each amendment request is shown below.

The Commission is seeking public comments on this proposed determination. Any comments received within 30 days after the date of publication of this notice will be considered in making any final determination. Within 60 days after the date of publication of this notice, the licensee may file a request for a hearing with respect to issuance of the amendment to the subject facility operating license and any person whose interest may be affected by this proceeding and who wishes to participate as a party in the proceeding must file a written request for a hearing and a petition for leave to intervene.

Normally, the Commission will not issue the amendment until the expiration of 60 days after the date of publication of this notice. The Commission may issue the license amendment before expiration of the 60-day period provided that its final determination is that the amendment involves no significant hazards consideration. In addition, the Commission may issue the amendment prior to the expiration of the 30-day comment period should circumstances change during the 30-day comment period such that failure to act in a timely way would result, for example in derating or shutdown of the facility. Should the Commission take action prior to the expiration of either the comment period or the notice period, it will publish in the **Federal Register** a notice of issuance. Should the Commission make a final No Significant Hazards Consideration Determination, any hearing will take place after issuance. The Commission expects that the need to take this action will occur very infrequently.

Written comments may be submitted by mail to the Chief, Rules and Directives Branch, Division of Administrative Services, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001, and should cite the publication date and page number of this **Federal Register** notice. Written comments may also be delivered to Room 6D22, Two White Flint North, 11545 Rockville Pike, Rockville, Maryland, from 7:30 a.m. to 4:15 p.m. Federal workdays. Copies of written comments received may be examined at the Commission's Public Document Room (PDR), located at One White Flint North, Public File Area O1F21, 11555 Rockville Pike (first floor), Rockville, Maryland. The filing of requests for a hearing and petitions for leave to intervene is discussed below.

Within 60 days after the date of publication of this notice, the licensee may file a request for a hearing with respect to issuance of the amendment to the subject facility operating license and any person whose interest may be affected by this proceeding and who wishes to participate as a party in the proceeding must file a written request for a hearing and a petition for leave to intervene. Requests for a hearing and a petition for leave to intervene shall be filed in accordance with the Commission's ''Rules of Practice for Domestic Licensing Proceedings'' in 10 CFR part 2. Interested persons should consult a current copy of 10 CFR 2.309, which is available at the Commission's PDR, located at One White Flint North, Public File Area 01F21, 11555 Rockville Pike (first floor), Rockville, Maryland. Publicly available records will be accessible from the Agencywide Documents Access and Management System's (ADAMS) Public Electronic Reading Room on the Internet at the NRC Web site, *http://www.nrc.gov/reading-rm/doc-collections/cfr/.* If a request for a hearing or petition for leave to intervene is filed within 60 days, the Commission or a presiding officer designated by the Commission or by the Chief Administrative Judge of the Atomic Safety and Licensing Board Panel, will rule on the request and/or petition; and the Secretary or the Chief Administrative Judge of the Atomic Safety and Licensing Board will issue a notice of a hearing or an appropriate order.

As required by 10 CFR 2.309, a petition for leave to intervene shall set forth with particularity the interest of the petitioner in the proceeding, and how that interest may be affected by the results of the proceeding. The petition should specifically explain the reasons why intervention should be permitted with particular reference to the following general requirements: (1) The name, address, and telephone number of the requestor or petitioner; (2) the nature of the requestor's/petitioner's right under the Act to be made a party to the proceeding; (3) the nature and extent of the requestor's/petitioner's property, financial, or other interest in the proceeding; and (4) the possible effect of any decision or order which may be entered in the proceeding on the requestor's/petitioner's interest. The petition must also set forth the specific contentions which the petitioner/requestor seeks to have litigated at the proceeding.

Each contention must consist of a specific statement of the issue of law or fact to be raised or controverted. In addition, the petitioner/requestor shall provide a brief explanation of the bases for the contention and a concise statement of the alleged facts or expert opinion which support the contention and on which the petitioner/requestor intends to rely in proving the contention at the hearing. The petitioner/requestor must also provide references to those specific sources and documents of which the petitioner is aware and on which the petitioner/requestor intends to rely to establish those facts or expert opinion. The petition must include sufficient information to show that a genuine dispute exists with the applicant on a material issue of law or fact. Contentions shall be limited to matters within the scope of the amendment under consideration. The contention must be one which, if proven, would entitle the petitioner/requestor to relief. A petitioner/requestor who fails to satisfy these requirements with respect to at least one contention will not be permitted to participate as a party.

Those permitted to intervene become parties to the proceeding, subject to any limitations in the order granting leave to intervene, and have the opportunity to participate fully in the conduct of the hearing.

If a hearing is requested, and the Commission has not made a final determination on the issue of no significant hazards consideration, the Commission will make a final determination on the issue of no significant hazards consideration. The final determination will serve to decide when the hearing is held. If the final determination is that the amendment request involves no significant hazards consideration, the Commission may issue the amendment and make it immediately effective, notwithstanding the request for a hearing. Any hearing held would take place after issuance of the amendment. If the final determination is that the amendment request involves a significant hazards consideration, any hearing held would take place before the issuance of any amendment.

A request for a hearing or a petition for leave to intervene must be filed by: (1) First class mail addressed to the Office of the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001, Attention: Rulemaking and Adjudications Staff; (2) courier, express mail, and expedited delivery services: Office of the Secretary, Sixteenth Floor, One White Flint North, 11555 Rockville Pike, Rockville, Maryland, 20852, Attention: Rulemaking and Adjudications Staff; (3) E-mail addressed to the Office of the Secretary, U.S. Nuclear Regulatory Commission, *HearingDocket@nrc.gov*; or (4) facsimile transmission addressed to the Office of the Secretary, U.S. Nuclear Regulatory Commission, Washington, DC, Attention: Rulemaking and Adjudications Staff at (301) 415–1101, verification number is (301) 415–1966. A copy of the request for hearing and petition for leave to intervene should also be sent to the Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001, and it is requested that copies be transmitted either by means of facsimile transmission to (301) 415–3725 or by email to *OGCMailCenter@nrc.gov.* A copy of the request for hearing and petition for leave to intervene should also be sent to the attorney for the licensee.

Nontimely requests and/or petitions and contentions will not be entertained absent a determination by the Commission or the presiding officer of the Atomic Safety and Licensing Board that the petition, request and/or the contentions should be granted based on a balancing of the factors specified in 10 CFR 2.309(a)(1)(i)–(viii).

For further details with respect to this action, see the application for amendment which is available for public inspection at the Commission's PDR, located at One White Flint North, Public File Area 01F21, 11555 Rockville Pike (first floor), Rockville, Maryland. Publicly available records will be accessible from the ADAMS Public Electronic Reading Room on the Internet at the NRC Web site, *http://www.nrc.gov/reading-rm/adams.html.* If you do not have access to ADAMS or if there are problems in accessing the documents located in ADAMS, contact the PDR Reference staff at 1 (800) 397–4209, (301) 415–4737 or by e-mail to *pdr@nrc.gov.*

Carolina Power & Light Company, Docket No. 50–261, H. B. Robinson Steam Electric Plant, Unit No. 2, Darlington County, South Carolina

Date of amendment request: November 30, 2005.

Description of amendment request: The proposed amendment would revise the frequency of the diesel generator automatic trips bypass surveillance requirement (SR) 3.8.1.11 from 18 months to 24 months.

Basis for proposed no significant hazards consideration determination: As required by 10 CFR 50.91(a), the licensee has provided its analysis of the issue of no significant hazards consideration, which is presented below:

1. Do the proposed changes involve a significant increase in the probability or consequences of an accident previously evaluated?

No. The proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated. The proposed change decreases the frequency of SR 3.8.1.11, verification of the DG [diesel generator] automatic trips bypass, from 18 months to 24 months. The DG automatic trips bypass circuitry is required for DG operability and reliability during emergency operation of the DG. The proposed test frequency will continue to assure that the DG will perform as required. Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated, because the factors that are used to determine the probability and consequences of accidents are not being affected.

2. Do the proposed changes create the possibility of a new or different kind of accident from any previously evaluated?

No. The proposed change does not create the possibility of a new or different kind of accident from any previously evaluated. There are no new or different accident initiators or sequences being created by the proposed Technical Specifications change. The required surveillance performed at the proposed frequency will continue to provide assurance that the trips bypass function is operable and is properly supporting operation of the associated DG. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Do the proposed changes involve a significant reduction in the margin of safety?

No. The proposed change does not involve a significant reduction in the margin of

safety. The proposed change will continue to ensure that the DG trips bypass function operates as designed. The functionality and operability of emergency power system is not being changed. Therefore, the proposed change does not involve a significant reduction in the margin of safety.

The NRC staff has reviewed the licensee's analysis and, based on this review, it appears that the three standards of 10 CFR 50.92(c) are satisfied. Therefore, the NRC staff proposes to determine that the amendment request involves no significant hazards consideration.

Attorney for licensee: David T. Conley, Associate General Counsel II—Legal Department, Progress Energy Service Company, LLC, Post Office Box 1551, Raleigh, North Carolina 27602.

NRC Branch Chief: Michael L. Marshall, Jr.

Dominion Nuclear Connecticut, Inc., Docket No. 50–336, Millstone Power Station, Unit No. 2, New London County, Connecticut

Date of amendment request: January 4, 2006.

Description of amendment request: The proposed amendment would change the Millstone Power Station, Unit No. 2 Technical Specification (TS) 3/4.3.3.8, ''Instrumentation, Accident Monitoring,'' to modify the description of the pressurizer power operated relief valves (PORVs) and pressurizer safety valves position indicators.

Basis for proposed no significant hazards consideration determination: As required by 10 CFR 50.91(a), the licensee has provided its analysis of the issue of no significant hazards consideration, which is presented below:

1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed amendment removes the wording ''Acoustic Monitor,'' which provides specific details related to system design, from items 4 and 6 of TS 3/4.3.3.8, Tables 3.3–11 and 4.3–7. The PORVs and Pressurizer Safety Valves position indicators (and the associated ''Acoustic Monitor'') provide only indications of valve position. They do not constitute a design feature that is an initial condition for a design basis accident or transient analysis. Furthermore, they do not affect the function of the system, equipment in the system or actuate to mitigate a design basis accident or transient. Therefore, the proposed changes do not increase the probability or consequences of an accident previously evaluated.

Additionally, the TS retains the requirement for the total and minimum channels required to be OPERABLE and to verify channel OPERABILITY at the designated frequencies. The PORVs and Pressurizer Safety Valves are equipped with positive position indication that meets the requirements of RG [Regulatory Guide] 1.97.

2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The proposed changes do not impact the capability of existing equipment to perform its intended functions. No system setpoints are being modified and no changes are being made to the method in which plant operations are conducted. No new failure modes that would impact accident analyses are introduced by the proposed changes. The proposed amendment does not introduce accident initiators or malfunctions that would cause a new or different kind of accident. Therefore, the proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No.

The proposed amendment removes the wording ''Acoustic Monitor'' from items 4 and 6 of TS 3/4.3.3.8, Table[s] 3.3–11 and 4.3–7. The proposed changes do not affect any of the assumptions used in the accident analysis, nor does it affect any operability requirements for equipment important to plant safety. Therefore, the margin of safety is not impacted by the proposed amendment.

The NRC staff has reviewed the licensee's analysis and, based on this review, it appears that the three standards of 10 CFR 50.92(c) are satisfied. Therefore, the NRC staff proposes to determine that the amendment request involves no significant hazards consideration.

Attorney for licensee: Lillian M. Cuoco, Senior Nuclear Counsel, Dominion Nuclear Connecticut, Inc., Rope Ferry Road, Waterford, CT 06385.

NRC Branch Chief: Darrell J. Roberts.

Nebraska Public Power District, Docket No. 50–298, Cooper Nuclear Station, Nemaha County, Nebraska

Date of amendment request: December 30, 2005.

Description of amendment request: The proposed amendment establishes a combined leakage rate limit for the sum of the four Main Steam line leakage rates that is equal to four times the current individual Main Steam Isolation Valve (MSIV) leakage rate limit.

Basis for proposed no significant hazards consideration determination: As required by 10 CFR 50.91(a), the licensee has provided its analysis of the issue of no significant hazards consideration, which is presented below:

1. Do the proposed changes involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed amendment does not involve a change to structures, systems, or components that would affect the probability of an accident previously evaluated in the Cooper Nuclear Station (CNS) Updated Safety Analysis Report (USAR). The proposed amendment results in no change in the radiological consequences of the design basis Loss-of-Coolant Accident (LOCA) as currently analyzed for CNS. That analysis was calculated for a combined Main Steam Isolation Valve (MSIV) leakage for determining acceptance to the regulatory limits for the offsite and Control Room radiation doses, as contained in 10 CFR 100 [Part 100 of Title 10 of the *Code of Federal Regulations*] and 10 CFR 50[,] Appendix A, General Design Criterion (GDC) 19. The aggregate Main Steam line leakage rate limit has no adverse effect on the environmental qualification of equipment important to safety, as provided for in 10 CFR 50.49.

Based on the above conclusions, this proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Do the proposed changes create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The proposed change does not modify the MSIVs or any other plant system or structure associated with this amendment and therefore, will not affect their capability to perform their design function. The combined total Main Steam line leakage rate is included in the current radiological analyses for the assessment of radiation exposure following an accident. This License Amendment Request revises the allowable leakage rate from a per valve limit to a total combined leakage rate limit for all four Main Steam lines but does not change the cumulative limit.

Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any previously analyzed.

3. Do the proposed changes involve a significant reduction in the margin of safety?

Response: No.

The leakage rate limit specified for the MSIVs is used to quantify the maximum amount of Secondary Containment bypass leakage assumed in the LOCA radiological analysis. Results of the analysis are evaluated against the dose limits contained in 10 CFR 50[,] Appendix A[,] GDC 19 and 10 CFR 100. The margin of safety in this context is considered to be the difference between the calculated dose exposures and the limits provided by GDC 19 and 10 CFR 100.

Therefore, since the proposed combined Main Steam line leakage rate limit is unchanged from the assumed maximum leakage rate for MSIVs, for the purpose of calculating [a] potential radiation dose, the margin of safety is not affected because the postulated radiation doses remain the same.

The NRC staff has reviewed the licensee's analysis and, based on this review, it appears that the three

standards of 10 CFR 50.92(c) are satisfied. Therefore, the NRC staff proposes to determine that the amendment request involves no significant hazards consideration.

Attorney for licensee: Mr. John C. McClure, Nebraska Public Power District, Post Office Box 499, Columbus, NE 68602–0499.

NRC Branch Chief: David Terao.

Nebraska Public Power District, Docket No. 50–298, Cooper Nuclear Station, Nemaha County, Nebraska

Date of amendment request: January 30, 2006.

Description of amendment request: The proposed change allows a delay time for entering a supported system Technical Specification (TS) when the inoperability is due solely to an inoperable snubber, if risk is assessed and managed consistent with the program in place for complying with the requirements of 10 CFR 50.65(a)(4). Limiting Condition for Operation (LCO) 3.0.8 is added to the TS to provide this allowance and define the requirements and limitations for its use.

This change was proposed by the industry's Technical Specification Task Force (TSTF) and is designated TSTF–372, Revision 4. The NRC staff issued a notice of opportunity for comment in the **Federal Register** on November 24, 2004 (69 FR 68412), on possible amendments concerning TSTF–372, including a model safety evaluation and model no significant hazards consideration (NSHC) determination, using the consolidated line item improvement process. The NRC staff subsequently issued a notice of availability of the models for referencing in license amendment applications in the **Federal Register** on May 4, 2005 (70 FR 23252). The licensee affirmed the applicability of the following NSHC determination in its application dated January 30, 2006.

Basis for proposed no significant hazards consideration determination: As required by 10 CFR 50.91(a), an analysis of the issue of no significant hazards consideration is presented below:

Criterion 1—The Proposed Change Does Not Involve a Significant Increase in the Probability or Consequences of an Accident Previously Evaluated.

The proposed change allows a delay time for entering a supported system TS when the inoperability is due solely to an inoperable snubber if risk is assessed and managed. The postulated seismic event requiring snubbers is a low-probability occurrence and the overall TS system safety function would still be available for the vast majority of anticipated challenges. Therefore, the probability of an accident previously evaluated is not significantly increased, if at all. The consequences of an accident while relying on allowance provided by proposed LCO 3.0.8 are no different than the consequences of an accident while relying on the TS required actions in effect without the allowance provided by proposed LCO 3.0.8. Therefore, the consequences of an accident previously evaluated are not significantly affected by this change. The addition of a requirement to assess and manage the risk introduced by this change will further minimize possible concerns. Therefore, this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

Criterion 2—The Proposed Change Does Not Create the Possibility of a New or Different Kind of Accident from any Previously Evaluated.

The proposed change does not involve a physical alteration of the plant (no new or different type of equipment will be installed). Allowing delay times for entering supported system TS when inoperability is due solely to inoperable snubbers, if risk is assessed and managed, will not introduce new failure modes or effects and will not, in the absence of other unrelated failures, lead to an accident whose consequences exceed the consequences of accidents previously evaluated. The addition of a requirement to assess and manage the risk introduced by this change will further minimize possible concerns. Thus, this change does not create the possibility of a new or different kind of accident from an accident previously evaluated.

Criterion 3—The Proposed Change Does Not Involve a Significant Reduction in a Margin of Safety.

The proposed change allows a delay time for entering a supported system TS when the inoperability is due solely to an inoperable snubber, if risk is assessed and managed. The postulated seismic event requiring snubbers is a low-probability occurrence and the overall TS system safety function would still be available for the vast majority of anticipated challenges. The risk impact of the proposed TS changes was assessed following the three-tiered approach recommended in Regulatory Guide 1.177. A bounding risk assessment was performed to justify the proposed TS changes. The proposed LCO 3.0.8 defines limitations on the use of the provision and includes a requirement for the licensee to assess and manage the risk associated with operation with an inoperable snubber. The net change to the margin of safety is insignificant. Therefore, this change does not involve a significant reduction in a margin of safety.

The NRC staff proposes to determine that the amendment request involves no significant hazards consideration.

Attorney for licensee: Mr. John C. McClure, Nebraska Public Power District, Post Office Box 499, Columbus, NE 68602–0499.

NRC Branch Chief: David Terao.

Nuclear Management Company, LLC, Docket Nos. 50–282 and 50–306, Prairie Island Nuclear Generating Plant, Units 1 and 2, Goodhue County, Minnesota

Date of amendment request: November 11, 2005.

Description of amendment request: The proposed amendments would revise Technical Specification (TS) 3.6.5, ''Containment Spray and Cooling Systems''; an existing Condition, two Surveillance Requirements, and add a new Condition which will allow continued plant operation with TS limitations when two Containment Cooling System fan coil units (FCUs), one in each train, are inoperable.

Basis for proposed no significant hazards consideration determination: As required by 10 CFR 50.91(a), the licensee has provided its analysis of the issue of no significant hazards consideration, which is presented below:

1. Do the proposed changes involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

This license amendment proposes to revise the Technical Specifications to allow plant operation to continue for a limited time period under Technical Specification controls with two fan coil units, one fan coil unit from each containment cooling train, providing the required cooling function. Analyses demonstrate that any two fan coil units, whether they are in the same train or from opposite trains, are sufficient to supply the required containment cooling following a design basis accident when the plant in the proper configuration as required by the proposed Technical Specifications.

The containment cooling system is required for accident mitigation and is not an accident initiator, thus revising the equipment required to provide the safety function does not involve a significant increase in the probability of an accident previously evaluated.

Since the proposed change continues to provide the post-accident containment cooling function under Technical Specification controls, this change does not involve an increase in the consequences of an accident. Thus this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Do the proposed changes create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

This license amendment proposes to revise the Technical Specifications to allow plant operation to continue for a limited time period under Technical Specification controls with two fan coil units, one fan coil unit from each containment cooling train, providing the required cooling function. Analyses demonstrate that any two fan coil units, whether they are in the same train or

from opposite trains, are sufficient to supply the required containment cooling following a design basis accident when the plant in the proper configuration as required by the proposed Technical Specifications.

The proposed licensing basis changes do not involve a change in the function or use of the containment cooling system. It does assure that the containment cooling function is provided during plant operations for post-accident mitigation. There are no new failure modes or mechanisms created through allowing different combinations of fan coil units to provide the cooling function as proposed by this Technical Specification change. There are no new accident precursors generated by providing the required cooling function with an operable fan coil unit from each train.

Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any previously evaluated.

3. Do the proposed changes involve a significant reduction in a margin of safety?

Response: No.

This license amendment proposes to revise the Technical Specifications to allow plant operation to continue for a limited time period under Technical Specification controls with two fan coil units, one fan coil unit from each containment cooling train, providing the required cooling function. Analyses demonstrate that any two fan coil units, whether they are in the same train or from opposite trains, are sufficient to supply the required containment cooling following a design basis accident when the plant in the proper configuration as required by the proposed Technical Specifications.

Current plant Technical Specifications allow plant operation to continue for 7 days with the containment cooling function provided by the two operable fan coil units of a single operable containment cooling train. This is acceptable because engineering analyses demonstrate that the two fan coil units of a single train can provide the required post-accident containment cooling.

Likewise, engineering analyses demonstrate that any two fan coil units from opposite containment cooling trains can also provide the required post-accident containment cooling if the cooling water flow to the other fan coil unit in each train is isolated. This license amendment request proposes Technical Specifications which will allow plant operation to continue for 7 days with the containment cooling function provided by two fan coils from opposite trains provided the cooling water flow to the other fan coil unit in each train is isolated. Thus, from a cooling capacity perspective, this proposed Technical Specification change does not involve a reduction in a margin of safety.

When inoperable plant systems are under Technical Specification controls that limit the time for inoperability, a single failure in addition to the inoperable equipment is not postulated. Therefore, whether two inoperable fan coil units are in the same train or opposite trains does not change the availability of the two remaining operable fan coil units. Thus from a Technical Specification perspective, this proposed Technical Specification change does not involve a reduction in a margin of safety.

Therefore, based on the considerations given above, the proposed changes do not involve a significant reduction in a margin of safety.

The NRC staff has reviewed the licensee's analysis and, based on this review, it appears that the three standards of 10 CFR 50.92(c) are satisfied. Therefore, the NRC staff proposes to determine that the amendment requests involve no significant hazards consideration.

Attorney for licensee: Jonathan Rogoff, Esquire, Vice President, Counsel & Secretary, Nuclear Management Company, LLC, 700 First Street, Hudson, WI 54016.

NRC Acting Branch Chief: Timothy J. Kobetz.

Omaha Public Power District, Docket No. 50–285, Fort Calhoun Station, Unit No. 1, Washington County, Nebraska

Date of amendment request: December 19, 2005.

Description of amendment request: The proposed change will revise Fort Calhoun Station, (FCS) Technical Specification 2.4, ''Containment Cooling,'' (and associated Bases) to reduce the required number of operable Containment Spray (CS) pumps from three to two in order to enhance net positive suction head (NPSH) margins. This change will be accomplished by disabling the containment spray actuation signal (CSAS) automatic start feature of CS pump SI–3C. This change will reduce the head loss across the containment sump strainers during the recirculation phase of a design-basis accident (DBA) by reducing flow rates, and will improve NPSH available ($NPSH_A$).

Basis for proposed no significant hazards consideration determination: As required by 10 CFR 50.91(a), the licensee has provided its analysis of the issue of no significant hazards consideration, which is presented below:

1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The Containment Spray (CS) system is not an initiator of any accident previously evaluated at the Fort Calhoun Station (FCS); the CS system is an accident mitigation system. The CS system's licensing basis functions are to limit the containment pressure rise and reduce the leakage of airborne radioactivity from the containment by providing a means for cooling the containment following a loss-of-coolant accident (LOCA) or main steam line break (MSLB) inside containment. The proposed change disables the CSAS automatic start feature of one of the three CS pumps.

The only FCS safety analysis that currently assumes three CS pumps operating to mitigate an accident is the Containment Pressure Analysis for a[n] MSLB inside containment. Even though this analysis assumes operation of all three CS pumps, it also shows that peak containment pressure occurs prior to the CS system starting, therefore, the CS system does not mitigate the peak pressure for a[n] MSLB. The reviews evaluated both existing AORs [analyses of record] and those analyses developed for the Steam Generator Replacement (RSG) project. The analysis developed for the RSG project that evaluates the Containment Pressure Analysis for MSLB inside containment was reviewed for the impact of reducing the number of operating CS pumps from three to two. This review determined that the RSG MSLB analysis will be acceptable and will continue to be bounded by the analysis currently documented in USAR. AOR peak pressure is unaffected by implementation of this proposed change. Therefore, the combination of the RSG project and this containment spray modification will not result in an increase in the currently documented peak containment pressure for an MSLB. Therefore, the evaluation for the MSLB event has determined that the containment pressure response is acceptable with less than three CS pumps operating.

The LOCA analysis source term is based on operation of minimum safeguards due to a worst-case single failure. The minimum safeguards configuration is unchanged by this modification. Following implementation of the proposed change at least one CS pump will be available to mitigate a LOCA as currently assumed in the analysis, therefore, the proposed change will have no adverse effect on the radiological consequences following a LOCA. The analyses that establish the radiological consequences for the site are based on a Large Break LOCA with a single CS pump in operation, therefore, single CS pump operation during a[n] MSLB inside containment is bounded by the LOCA analysis.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The proposed change will reduce the number of operable CS pumps from three to two; however, previous accident analyses will remain valid. No credible new failure mechanisms, malfunctions, or accident initiators not considered in the design and licensing basis have been created and none of the initial condition assumptions of any accident evaluated in the safety analysis are impacted.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No.

The containment building and associated penetrations are designed to withstand an internal pressure of 60 psig at 305 °F, including all thermal loads resulting from the temperature associated with this pressure, with a leakage rate of 0.1 percent by weight or less of the contained volume per 24 hours. The CS System and the Containment Fan Coolers are credited for maintaining containment pressure and temperatures within design limitations, and assure that the release of fission products to the environment following a design[-]basis accident will not exceed regulatory guidelines. The FCS licensing basis credits only one of the three CS pumps to limit the containment pressure to below the design value for a LOCA. Currently, the FCS licensing basis credits three CS pumps for a[n] MSLB, however, the CS system is not credited for limiting peak containment pressure for a[n] MSLB.

The EEQ [electrical equipment qualification] profile developed for the current plant configuration bounds those associated with the upcoming RSG modification. Both the proposed CS system changes and the RSG projects are scheduled for the same refueling outage. The thermal lag analysis of equipment performed using the current plant configuration demonstrated a large margin between the equipment evaluated during the accident versus the conditions under which it was tested. The RSG modification will further increase this margin. As part of the RSG effort the EEQ analysis will be revised to address RSG issues and will include the changes to containment spray. When the margins associated with the current analysis as well as increases in margin when the new analysis is implemented it is expected that the changes to the containment spray system will not produce an adverse result. All equipment will remain qualified to operate in the accident environment.

Additionally, the CFCs [containment fan coolers] operate independently of the CS system to remove heat from the containment atmosphere. The CFCs consist of two redundant trains; each train with one air cooling and filtering unit and one air cooling unit, for a total of four cooling units. Operation of the CFCs is credited in the MSLB containment pressure analysis. The CFCs are not impacted by this proposed change. During the MSLB containment spray takes place after the peak containment pressure occurs. Therefore, the licensing basis capabilities of the Containment Cooling System, which consists of the CS and CFCs, is not adversely affected by the proposed change; the ability to maintain containment peak pressure and temperature and long[-]term containment pressure and temperature will be maintained.

Particulate fission products that are released into the containment following a DBA are removed by the CS system for those events that result in CS actuation. The water spray strips radioactive particles from the atmosphere where they fall to the floor and are washed into the containment sump. The radiological consequences analysis credits CS system operation for removal of particulates from the containment atmosphere during a LOCA. The LOCA analysis source term is based on operation of minimum safeguards due to a worst-case single failure, and a presumption of core damage. Minimum safeguards corresponds to one CS pump and one CS header operation and take into account pump degradation, and instrument uncertainties. The analyses that establish the radiological consequences for the site are not impacted by the proposed modification. These analyses are based on a Large Break LOCA with a single CS pump in operation. Therefore, single CS pump operation bounds the plant configuration following the proposed modification.

The Large Break LOCA assumes that there will be three CS pumps operating when evaluating the effects of containment pressure on ECCS [emergency core cooling system] performance. The analysis assumes three CS pumps, which minimizes containment pressure, to conservatively evaluate ECCS performance in response to a LOCA. The use of two CS pumps versus three improves ECCS performance and thus increases margin to 10 CFR 50.46 limits on peak clad temperature.

In summary, following implementation of the proposed change:

- Peak containment pressure for analyzed DBAs will not be increased;
- The assumptions used in the environmental qualification of equipment exposed to the containment atmosphere following a DBA remaining bounding; and
- The radiological consequences for the bounding DBA remains unchanged.
- The currently calculated peak clad temperature following a LOCA remains bounded by existing analysis.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

The NRC staff has reviewed the licensee's analysis and, based on this review, it appears that the three standards of 10 CFR 50.92(c) are satisfied. Therefore, the NRC staff proposes to determine that the amendment request involves no significant hazards consideration.

Attorney for licensee: James R. Curtiss, Esq., Winston & Strawn, 1400 L Street, NW., Washington, DC 20005–3502.

NRC Branch Chief: David Terao.

Pacific Gas and Electric Company, Docket No. 50–323, Diablo Canyon Nuclear Power Plant, Unit No. 2, San Luis Obispo County, California

Date of amendment requests: January 13, 2006.

Description of amendment requests: The proposed amendment would revise Technical Specification 5.6.5, ''Core Operating Limits Report (COLR),'' by adding WCAP–16009–P–A, ''Realistic Large-Break LOCA [Loss-of-Coolant Accident] Evaluation Methodology Using the Automated Statistical Treatment of Uncertainty Method (ASTRUM),'' dated January 2005, as an approved analytical method for determining core operating limits for Unit 2.

Basis for proposed no significant hazards consideration determination: As required by 10 CFR 50.91(a), the licensee has provided its analysis of the issue of no significant hazards consideration, which is presented below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed change to allow the use of the best estimate loss-of-coolant accident (LOCA) analysis methodology using the automated statistical treatment of uncertainty methodology (ASTRUM) does not involve a physical alteration of any plant equipment or change operating practice at Unit 2 of Diablo Canyon Power Plant (DCPP). Therefore, there will be no increase in the probability of a LOCA. The consequences of a LOCA are not being increased.

The plant conditions assumed in the analysis are bounded by the design conditions for all equipment in Unit 2. That is, it is shown that the emergency core cooling system is designed so that its calculated cooling performance conforms to the criteria contained in 10 CFR [Title 10 of the Code of Federal Regulations, Section] 50.46, paragraph b. No other accident is potentially affected by this change.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different accident from any accident previously evaluated?

Response: No.

The proposed change would not result in any physical alteration to any Unit 2 system, and there would not be a change in the method by which any safety [-]related system performs its function. Analyses of transient events have confirmed that no transient event results in a new sequence of events that could lead to a new accident scenario. The parameters assumed in the analysis are within the design limits of existing plant equipment.

In addition, employing the ASTRUM methodology does not create any new failure modes that could lead to a different kind of accident. The design of all systems remains unchanged and no changes are being made to any reactor protection system or engineered safeguard features actuation setpoints.

Based on this review, it is concluded that no new accident scenarios, failure mechanisms or limiting single failures are introduced as a result of the proposed changes.

Therefore, the proposed change does not create the possibility of a new or different accident from any accident previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

It has been shown that the analytic technique used in the analysis realistically describes the expected behavior of the DCPP Unit 2 reactor system during a postulated LOCA. Uncertainties have been accounted for as required by 10 CFR 50.46. A sufficient number of LOCAs with different break sizes, different locations, and other variations in properties have been analyzed to provide assurance that the most severe postulated LOCAs were analyzed. The analysis has demonstrated that all acceptance criteria contained in 10 CFR 50.46[,] paragraph b continue to be satisfied.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

The NRC staff has reviewed the licensee's analysis and, based on this review, it appears that the three standards of 10 CFR 50.92(c) are satisfied. Therefore, the NRC staff proposes to determine that the amendment requests involve no significant hazards consideration.

Attorney for licensee: Richard F. Locke, Esq., Pacific Gas and Electric Company, P.O. Box 7442, San Francisco, California 94120.

NRC Branch Chief: David Terao.

Pacific Gas and Electric Co., Docket No. 50–133, Humboldt Bay Power Plant (HBPP), Unit 3 Humboldt County, California

Date of amendment request: January 19, 2006.

Description of amendment request: The licensee has proposed to revise the Technical Specifications (TS) to correct an editorial error in TS 3.1.2, ''Spent Fuel Pool Load Restrictions,'' and to change TS 5.2.2, ''Facility Staff,'' to allow the Unit 3 control room to be temporarily unmanned during emergency conditions that require personnel to evacuate buildings for their safety.

Basis for proposed no significant hazards consideration determination: As required by 10 CFR 50.91(a), the licensee has provided its analysis of the issue of no significant hazards consideration, which is presented below:

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed editorial change has no impact on probability or consequences of accidents. The following discussion applies to the proposed change related to control room evacuation.

Allowing plant personnel to not continuously man the control room has no impact on the probability of an accident from occurring, especially acts of nature such as earthquakes and tsunamis.

The HBPP DSAR, Appendix A, and NRC SER, Section 10, dated April 29, 1987, evaluate various accidents at HBPP. Because all fuel has been removed from the reactor vessel and stored in the spent fuel pool, the majority of accidents analyzed pertain to events that could only affect spent fuel or the spent fuel pool. All accidents affecting spent fuel or the spent fuel pool do not require operator action to protect the public health and safety or to maintain offsite radiological doses well within regulatory limits. In addition, NRC SER, Section 10.7, ''Impact of Tsunami Flooding,'' analyzes the impact of tsunami flooding. That analysis identifies a likely impact of the tsunami to be a release of the radwaste tank radionuclide contents to the bay and some damage to the reactor building. For both situations, no operator action is required to maintain offsite radiological doses well within regulatory limits.

Allowing the control room to be temporarily unmanned under emergency conditions does not create problems that could increase the consequences of an accident. The primary function of manning the control room is for an operator to observe and acknowledge alarms. Recovery actions to respond to damage to spent fuel, the spent fuel pool, or radwaste tanks are taken by personnel outside the control room. No recovery actions are required to be taken by the control room operator to respond to damage to spent fuel, the spent fuel pool, or radwaste tanks.

Evacuating occupied buildings, including the control room, during a tsunami, allows the control room operator to return to the control room after the tsunami and assess damage by observing indicators and alarms. Upon returning to the control room, the operator would be able to direct and monitor recovery efforts from the control room that may be necessary to bring plant parameters within required specifications.

If an operator remains in the control room during a tsunami and becomes injured, that operator would be unable to direct and monitor recovery efforts. Under this scenario, other plant personnel who evacuated to higher ground onsite within the OCA would eventually return to the plant, including the control room, and perform any required recovery functions. Therefore, consequences of a tsunami are not increased by not continually manning the control room during the event.

2. Does the change create the possibility of a new or different kind of accident from any accident evaluated?

Response: No.

The proposed editorial change has no impact on accidents. The following discussion applies to the proposed change related to control room evacuation.

As discussed in the response to question 1 above, none of the analyzed accidents require operator action to keep offsite radiological doses well within regulatory limits. In addition, allowing plant personnel to not continuously man the control room after an emergency situation has occurred, has no impact on the possibility of a new or different kind of accident from occurring. If the plant is evacuated, no work activities will be performed in the plant. With the plant in SAFSTOR and no work being performed, there are no actions required to be taken by personnel manning the control room.

3. Does the change involve a significant reduction in a margin of safety?

Response: The proposed editorial change has no impact on margin of safety. The following discussion applies to the proposed change related to control room evacuation.

NRC SER Section 10.8, ''Accident Analysis Conclusions,'' summarizes the consequences from accidents in terms of offsite radiological doses. SER Section 10.8 includes the statement, ''The (NRC) staff has determined that offsite radiological consequences due to a tsunami are within acceptable dose guideline values.'' As discussed in the response to question 1 above, none of the analyzed accidents require operator action to keep offsite radiological doses well within regulatory limits. Therefore, temporarily not manning the control room during an emergency will have no impact on the margin of safety.

The NRC staff has reviewed the licensee's analysis and, based upon the staff's review of the licensee's analyses as well as the staff's own evaluation, the staff concludes that the three standards of 10 CFR 50.92(c) are satisfied. Therefore, the NRC staff proposes to determine that the amendment request involves no significant hazards consideration.

Attorney for licensee: Richard F. Locke, Esquire, Pacific Gas and Electric Company, P.O. Box 7442, San Francisco, California 94120.

NRC Section Chief: Claudia Craig.

STP Nuclear Operating Company, Docket Nos. 50–498 and 50–499, South Texas Project, Units 1 and 2, Matagorda County, Texas

Date of amendment request: January 31, 2006.

Description of amendment request: The amendments would revise Technical Specification (TS) 3.8.3.1, ''Onsite Power Distribution-Operating,'' to extend the allowed outage time (AOT) for an inoperable Class 1E vital 120-volt alternating current inverter. The TS currently provides an AOT of 24 hours to restore an inoperable inverter. Based on risk-informed assessment, the amendments would extend the AOT to 7 days.

Basis for proposed no significant hazards consideration determination: As required by 10 CFR 50.91(a), the licensee has provided its analysis of the issue of no significant hazards consideration, which is presented below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed formatting changes to TS 3.8.3.1 Action b and the change to the AOT

for an inoperable inverter to be extended from 24 hours to 7 days do not alter any plant equipment or operating practices in such a manner that the probability of an accident is increased. The proposed changes will not alter assumptions relative to the mitigation of an accident or transient event.

An evaluation was performed to determine the risk significance of the proposed change to the AOT. The risk evaluation concludes that the ΔCDF [core damage frequency] and ΔLERF [large early release frequency] associated with the proposed changes are 1.88E–07 and 2.05E–09, respectively, which are characterized as ''very small changes'' by RG [Regulatory Guide] 1.174. The ICCDP [incremental conditional core damage probability] and ICLERP [incremental conditional large early release probability] associated with the proposed change are 3.63E–07 and 1.08E–08, respectively, which are within the acceptance criteria in RG 1.177. Therefore, the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The proposed changes do not involve a physical alteration of the plant (no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

Margin of safety is associated with confidence in the ability of the fission product barriers (i.e., fuel and fuel cladding, reactor coolant pressure boundary, and containment structure) to limit the level of radiation dose to the public. The proposed change to TS 3.8.3.1 to allow the AOT for an inoperable inverter to be extended from 24 hours to 7 days has been evaluated for its effect on plant safety. The risk-informed evaluation concludes that the ΔCDF and ΔLERF associated with the proposed change are 1.88E–07 and 2.05E–09, respectively, which are characterized as ''very small changes'' by RG 1.174. The ICCDP and ICLERP associated with the proposed change are 3.63E–07 and 1.08E–08, respectively, which are within the acceptance criteria in RG 1.177. The proposed changes to the formatting of TS 3.8.3.1 Action b are administrative only and have no impact on margin of safety. Therefore, the proposed changes do not involve a significant reduction in the margin of safety.

The NRC staff has reviewed the licensee's analysis and, based on this review, it appears that the standards of 10 CFR 50.92(c) are satisfied. Therefore, the NRC staff proposes to determine that the request for amendments involves no significant hazards consideration.

Attorney for licensee: A. H. Gutterman, Esq., Morgan, Lewis & Bockius, 1111 Pennsylvania Avenue, NW., Washington, DC 20004.

NRC Branch Chief: David Terao.

Tennessee Valley Authority (TVA), Docket No. 50–390, Watts Bar Nuclear Plant, Unit 1 (WBN) Rhea County, Tennessee

Date of amendment request: December 14, 2005 (TS–05–07).

Description of amendment request: The proposed amendment would revise Technical Specification Section 5.7.2.19, ''Containment Leakage Rate Testing Program,'' to allow a one time, 5-year extension to the current 10-year test interval for the performance-based leakage rate test program for 10 CFR Part 50, Appendix J, Type A tests.

Basis for proposed no significant hazards consideration determination: As required by 10 CFR 50.91(a), the licensee has provided its analysis of the issue of no significant hazards consideration, which is presented below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed change for extending Type A test frequency does not significantly increase the probability of an accident previously evaluated since the change is not a modification to plant systems, nor a change to plant operation that could initiate an accident.

TVA performed an evaluation of the risk significance for the proposed increase to the WBN Unit 1 Type A test frequency. The results of the TVA risk evaluation indicates that the increase in Large Early Release Frequency (LERF) remains below the level of risk significance defined in the NRC Regulatory Guide 1.174, ''An Approach for Using Probabilistic Risk Assessment In Risk-Informed Decisions On Plant-Specific Changes to the Licensing Basis.'' TVA's evaluation indicates that the calculated increase in frequency for all releases (small, large, early and late) and the increase in radiation dose to the population are also non-risk significant.

The proposed test interval extension does not involve a significant increase in the consequences of an accident. Research documented in NUREG–1493, ''Performance-Based Containment Leakage-Test Program,'' determined that generically, very few potential containment leakage paths fail to be identified by Type A tests. An analysis of 144 Type A test results, including 23 failures, found that no failures were due to containment liner breach. The NUREG concluded that reducing the Type A test frequency to once per 20 years would lead to an imperceptible increase in risk. Furthermore, the NUREG concluded that Type B and C testing provides assurance that containment leakage from penetration leak paths (*i.e.*, valves, flanges, containment air-locks) identify any leakage that would otherwise be detected by the Type A tests.

In addition to the NUREG conclusions, TVA's American Society of Mechanical Engineers (ASME) IWE program performs containment inspections in order to detect evidence of degradation that may either affect the containment structural integrity or leak tightness.

Therefore, the proposed extension of the Type A test interval does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The proposed change to extend the Type A test interval does not create the possibility of a new or different type of accident because there are no physical changes made to the plant or plant equipment governing normal plant operation. There are no changes to the operation of the plant that would introduce a new failure mode creating the possibility of a new or different kind of accident. Therefore, the proposed extension does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

The proposed change to extend the Type A test interval will not significantly reduce the margin of safety. A generic study documented in NUREG–1493 indicates that extending the Type A leak test interval to 20 years would result in an imperceptible increase in risk to the public. The NUREG also found that, generically, the containment leakage rate contributes a very small amount to the individual risk and that the decrease in the Type A test frequency would have a minimal effect on risk because most potential leakage paths are detected by Type C testing.

Previous Type A leakage tests conducted on WBN Unit 1 indicate that leakage from containment have been less than the 10 CFR 50, Appendix J leakage limit of 1.0 L_a. A review of the previous Type A test results indicate a stable trend with an increase of less than 15 percent of L_a, well below the 1.0 L_a leakage limit.

Therefore, these test results, in conjunction with the research findings from NUREG–1493, provide assurance that the proposed extension to the Type A test interval does not involve a significant reduction in a margin of safety.

The NRC staff has reviewed the licensee's analysis and, based on this review, it appears that the three standards of 10 CFR 50.92(c) are satisfied. Therefore, the NRC staff proposes to determine that the amendment request involves no significant hazards consideration.

Attorney for licensee: General Counsel, Tennessee Valley Authority, 400 West Summit Hill Drive, ET 11A, Knoxville, Tennessee 37902.

NRC Branch Chief: Michael L. Marshall, Jr.

Union Electric Company, Docket No. 50–483, Callaway Plant, Unit 1, Callaway County, Missouri

Date of application request: August 26, 2005, as supplemented by letter dated December 16, 2005.

Description of amendment request: The amendment would authorize changes to the Final Safety Analysis Report (FSAR) for the Callaway Plant, Unit 1, that would revise the methodology for the reactor coolant system (RCS) leak detection instrumentation. This revision would clarify the requirements of the containment atmosphere gaseous radioactivity monitor with regard to the RCS leak detection capability and would justify that the monitor can be considered operable in compliance with Limiting Condition for Operation 3.4.15, in Technical Specification (TS) 3.4.15, ''RCS Leakage Detection Instrumentation,'' during all applicable reactor modes. There are no proposed changes to the TS.

Basis for proposed no significant hazards consideration determination: As required by 10 CFR 50.91(a), the licensee has provided its analysis of the issue of no significant hazards consideration, which is presented below:

1. The proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed change has been evaluated and determined to not increase the probability or consequences of an accident previously evaluated. The proposed change does not make hardware changes and does not alter the configuration of any plant system, structure, or component (SSC). The proposed change only clarifies the design and OPERABILITY requirements for the containment atmosphere gaseous radioactivity monitor[s] and identifies the capabilities of the containment atmosphere gaseous radioactivity monitors at low RCS [radio]activity levels. The containment radiation monitors are not initiators of any accident; therefore, the probability of occurrence of an accident is not increased. The FSAR and TS will continue to require diverse means of [RCS] leakage detection equipment, thus ensuring that leakage due to cracks [in the RCS] would continue to be identified prior to propagating to the point of a [RCS] pipe break. Therefore, the consequences of an accident [previously evaluated] are not increased.

2. The proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed change does not involve the use or installation of new equipment and the currently installed equipment will not be operated in a new or different manner. No new or different system interactions are created and no new processes are introduced. The proposed changes will not introduce any new failure mechanisms, malfunctions, or accident initiators not already considered in the design and licensing bas[i]s [for the Callaway Plant]. The proposed change does not affect any SSC associated with an accident initiator. Based on this evaluation, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. The proposed change does not involve a significant reduction in a margin of safety.

The proposed change does not alter any RCS leakage detection components. The proposed change only clarifies the design and OPERABILITY requirements for the containment atmosphere gaseous radioactivity monitor[s] and identifies the capabilities of the containment atmosphere gaseous radioactivity monitors at low RCS [radio]activity levels. This change is required since the level of radioactivity in the Callaway Plant reactor coolant has become much lower than what was assumed in the FSAR [when the plant was licensed] and the gaseous channel [(monitor)] can no longer promptly detect a small RCS leak under all operating conditions. The proposed amendment continues to require diverse means of [RCS] leakage detection equipment with [the] capability to promptly detect RCS leakage. Although not required by TS, additional diverse means of leakage detection capability are available as described in the FSAR Section 5.2.5. Early detection of [RCS] leakage, as the potential indicator of a crack(s) in the RCS pressure boundary, will thus continue to be in place so that such a condition is known and appropriate actions taken well before any such crack would propagate to a more severe condition. Based on this evaluation, the proposed change does not involve a significant reduction in a margin of safety.

The NRC staff has reviewed the licensee's analysis and, based on this review, it appears that the three standards of 10 CFR 50.92(c) are satisfied. Therefore, the NRC staff proposes to determine that the amendment request involves no significant hazards consideration.

Attorney for licensee: John O'Neill, Esq., Shaw, Pittman, Potts & Trowbridge, 2300 N Street, NW., Washington, DC 20037.

NRC Branch Chief: David Terao.

Wolf Creek Nuclear Operating Corporation, Docket No. 50–482, Wolf Creek Generating Station, Coffey County, Kansas

Date of amendment request: February 1, 2006.

Description of amendment request: The amendment would revise the Inservice Testing Program in Section 5.5.8 of the Administrative Controls, Programs and Manuals, section of the Technical Specifications (TSs). The licensee is adopting NRC-approved Technical Specification Task Force (TSTF) 479, Revision 0, ''Changes to Reflect Revision of 10 CFR 50.55a.''

Basis for proposed no significant hazards consideration determination: As required by 10 CFR 50.91(a), the licensee has provided its analysis of the issue of no significant hazards consideration, which is presented below:

(1) Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed change revises TS 5.5.8, ''Inservice Testing Program,'' for consistency with the requirements of 10 CFR 50.55a(f) regarding the inservice testing of pumps and valves. The proposed change incorporates revisions to the ASME [American Society of Mechanical Engineers] Code [for Operation and Maintenance of Nuclear Power Plants] that result in a net improvement in the measures for testing pumps and valves.

The proposed change does not impact any accident initiators or analyzed events or assumed mitigation of accident or transient events. They do not involve the addition or removal of any equipment, or any design changes to the facility. Therefore, the proposed change does not represent a significant increase in the probability or consequences of an accident previously evaluated.

(2) Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The proposed change revises TS 5.5.8, ''Inservice Testing Program,'' for consistency with the requirements of 10 CFR 50.55a(f) regarding the inservice testing of pumps and valves. The proposed change incorporates revisions to the ASME Code that result in a net improvement in the measures for testing pumps and valves.

The proposed change does not involve a modification to the physical configuration of the plant (*i.e.*, no new equipment will be installed) or change in the methods governing normal plant operation. The proposed change will not impose any new or different requirements or introduce a new accident initiator, accident precursor, or malfunction mechanism. Additionally, there is no change in the types or increases in the amounts of any effluent that may be released off-site and there is no increase in individual or cumulative occupational exposure. Therefore, this proposed change does not create the possibility of an accident of a different kind than previously evaluated.

(3) Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

The proposed change revises TS 5.5.8, ''Inservice Testing Program,'' for consistency with the requirements of 10 CFR 50.55a(f) regarding the inservice testing of pumps and valves. The proposed change incorporates revisions to the ASME Code that result in a net improvement in the measures for testing pumps and valves. The safety function of the affected pumps and valves will be

maintained. Therefore, this proposed change does not involve a significant reduction in a margin of safety.

The NRC staff has reviewed the licensee's analysis and, based on this review, it appears that the three standards of 10 CFR 50.92(c) are satisfied. Therefore, the NRC staff proposes to determine that the amendment request involves no significant hazards consideration.

Attorney for licensee: Jay Silberg, Esq., Shaw, Pittman, Potts and Trowbridge, 2300 N Street, NW., Washington, DC 20037.

NRC Branch Chief: David Terao.

Wolf Creek Nuclear Operating Corporation, Docket No. 50–482, Wolf Creek Generating Station, Coffey County, Kansas

Date of amendment request: February 7, 2006.

Description of amendment request: The amendment would add Surveillance Requirement (SR) 3.3.1.16, to verify the reactor trip system response time, to Function 3.a, power range neutron flux—high positive rate trip function, in Table 3.3.1–1, ''Reactor Trip System Instrumentation,'' of the Technical Specifications (TSs).

Basis for proposed no significant hazards consideration determination: As required by 10 CFR 50.91(a), the licensee has provided its analysis of the issue of no significant hazards consideration, which is presented below:

(1) Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

Overall protection system performance will remain within the bounds of the accident analysis since there are no hardware changes. The design of the Reactor Trip System (RTS) instrumentation, specifically the positive [neutron] flux rate trip (PFRT) function, will be unaffected. The reactor protection system will continue to function in a manner consistent with the plant design basis. All design, material, and construction standards that were applicable prior to the request [(*i.e.*, this amendment application)] are maintained.

The proposed change imposes additional surveillance requirements to assure safety related structures, systems, and components are verified to be consistent with the [plant] safety analysis and licensing basis. In this specific case, a response time verification requirement will be added to the PFRT Function [in TS Table 3.3.1–1].

The proposed [change] will not modify any system interface. The proposed [change] will not affect the probability of any event initiators. There will be no degradation in the performance of or an increase in the number of challenges imposed on safety-related equipment assumed to function during an accident situation. There will be no change to normal plant operating parameters or accident mitigation performance. The proposed [change] will not alter any assumptions or change any mitigation actions in the radiological consequence evaluations in the Updated Safety Analysis Report (USAR) [for Wolf Creek Generating Station].

The proposed [change does] not adversely affect accident initiators or precursors nor alter the design assumptions, conditions, or configuration of the facility or the manner in which the plant is operated or maintained. The proposed [change does] not alter or prevent the ability of structures, systems, and components (SSCs) from performing their intended function to mitigate the consequences of an initiating event within the assumed acceptance limits. The proposed [change does] not affect the source term, containment isolation, or radiological release assumptions used in evaluating the radiological consequences of an accident previously evaluated. The proposed [change is] consistent with the safety analysis assumptions and resultant consequences.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

(2) Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

There are no hardware changes nor are there any changes in the method by which any safety related plant system performs its safety function. This change will not affect the normal method of plant operation or change any operating parameters. No performance requirements will be affected; however, the proposed change does impose additional surveillance requirements. The additional requirements are consistent with assumptions made in the safety analysis and licensing basis.

No new accident scenarios, transient precursors, failure mechanisms, or limiting single failures are introduced as a result of [the change]. There will be no adverse effect or challenges imposed on any safety-related system as a result of [the change].

Therefore, the proposed change does not create the possibility of a new or different [kind of] accident from any accident previously evaluated.

(3) Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

The proposed [change does] not affect the acceptance criteria for any analyzed event nor is there a change to any Safety Analysis Limit (SAL). There will be no effect on the manner in which safety limits, limiting safety system settings, or limiting conditions for operation are determined nor will there be any effect on those plant systems necessary to assure the accomplishment of protection functions. There will be no impact on the overpower limit, DNBR [departure from nucleate boiling ratio] limit, F_Q [heat flux hot channel factor], $F\Delta H$ [nuclear enthalpy rise hot channel factor], LOCA PCT [loss-of-coolant accident peak cladding temperature], peak local power density, or any other margin of safety. The radiological dose consequence acceptance criteria listed in the [NRC] Standard Review Plan [NUREG–0800] will continue to be met.

The safety analysis limits assumed in the transient and accident analyses are unchanged. None of the acceptance criteria for any accident analysis is changed. The imposition of additional surveillance requirements increases the margin of safety by assuring that the affected safety analysis assumptions on equipment response time are verified on a periodic frequency. Therefore, the proposed change does not involve a significant reduction in a margin of safety.

The NRC staff has reviewed the licensee's analysis and, based on this review, it appears that the three standards of 10 CFR 50.92(c) are satisfied. Therefore, the NRC staff proposes to determine that the amendment request involves no significant hazards consideration.

Attorney for licensee: Jay Silberg, Esq., Shaw, Pittman, Potts and Trowbridge, 2300 N Street, NW., Washington, DC 20037.

NRC Branch Chief: David Terao.

Notice of Issuance of Amendments to Facility Operating Licenses

During the period since publication of the last biweekly notice, the Commission has issued the following amendments. The Commission has determined for each of these amendments that the application complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment.

Notice of Consideration of Issuance of Amendment to Facility Operating License, Proposed No Significant Hazards Consideration Determination, and Opportunity for A Hearing in connection with these actions was published in the **Federal Register** as indicated.

Unless otherwise indicated, the Commission has determined that these amendments satisfy the criteria for categorical exclusion in accordance with 10 CFR 51.22. Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared for these amendments. If the Commission has prepared an environmental assessment under the special circumstances provision in 10 CFR 51.12(b) and has made a determination based on that assessment, it is so indicated.

For further details with respect to the action see (1) The applications for amendment, (2) the amendment, and (3) the Commission's related letter, Safety Evaluation and/or Environmental Assessment as indicated. All of these items are available for public inspection at the Commission's Public Document Room (PDR), located at One White Flint North, Public File Area 01F21, 11555 Rockville Pike (first floor), Rockville, Maryland.

Publicly available records will be accessible from the Agencywide Documents Access and Management Systems (ADAMS) Public Electronic Reading Room on the Internet at the NRC Web site, *http://www.nrc.gov/reading-rm/adams.html.* If you do not have access to ADAMS or if there are problems in accessing the documents located in ADAMS, contact the PDR Reference staff at 1 (800) 397–4209, (301) 415–4737 or by e-mail to *pdr@nrc.gov.*

Carolina Power & Light Company, Docket Nos. 50–325 and 50–324, Brunswick Steam Electric Plant, Units 1 and 2, Brunswick County, North Carolina

Date of application for amendments: August 11, 2005.

Brief Description of amendments: The amendments revise Technical Specification (TS) 5.5.12, ''Primary Containment Leakage Rate Testing Program,'' by removing an exception that allows for compensation of flow meter instrument inaccuracies in accordance with ANSI/ANS–56.8–1987 rather than ANSI/ANS–56.8–1994.

Date of issuance: February 8, 2006.

Effective date: Date of issuance to be implemented within 60 days.

Amendment Nos.: 238 and 266.

Facility Operating License Nos. DPR–71 and DPR–62: Amendments change the TS.

Date of initial notice in ***Federal Register:*** September 13, 2005 (70 FR 54087).

The Commission's related evaluation of the amendments is contained in a Safety Evaluation dated February 8, 2006.

No significant hazards consideration comments received: No.

Entergy Nuclear Operations, Inc., Docket Nos. 50–247 and 50–286, Indian Point Nuclear Generating Unit Nos. 2 and 3, Westchester County, New York

Date of application for amendment: June 8, 2005.

Brief description of amendment: The proposed changes would add Limiting Condition for Operation 3.0.8 to address conditions where one or more snubbers are unable to perform their associated support function.

Date of issuance: February 13, 2006.

Effective date: As of the date of issuance, and shall be implemented within 60 days.

Amendment Nos.: 245 and 229.

Facility Operating License Nos. DPR–26 and DPR–64: The amendment revised the Technical Specifications.

Date of initial notice in ***Federal Register:*** August 16, 2005 (70 FR 48203).

The Commission's related evaluation of the amendment is contained in a Safety Evaluation dated February 13, 2006.

No significant hazards consideration comments received: No.

Exelon Generation Company, LLC, Docket Nos. 50–373 and 50–374, LaSalle County Station, Units 1 and 2, LaSalle County, Illinois

Date of application for amendments: March 7, 2005, as supplemented by letter dated December 5, 2005.

Brief description of amendments: The amendments will add two Nuclear Regulatory Commission (NRC) approved topical report references to the list of analytical methods in Technical Specification 5.6.5, ''Core Operating Limits Report,'' that can be used to determine core operating limits.

Date of issuance: February 1, 2006.

Effective date: As of the date of issuance and shall be implemented within 90 days.

Amendment Nos.: 174 and 160.

Facility Operating License Nos. NPF–11 and NPF–18: The amendments revised the Technical Specifications.

Date of initial notice in ***Federal Register:*** August 16, 2005 (70 FR 48205).

The supplemental letter contained clarifying information and did not change the initial no significant hazards consideration determination and did not expand the scope of the original **Federal Register** notice.

The Commission's related evaluation of the amendment is contained in a Safety Evaluation dated February 1, 2006.

No significant hazards consideration comments received: No.

Exelon Generation Company, LLC, Docket Nos. 50–254 and 50–265, Quad Cities Nuclear Power Station, Units 1 and 2, Rock Island County, Illinois

Date of application for amendments: December 17, 2004.

Brief description of amendments: The amendments revised the Appendix B, Environmental Protection Plan (non-radiological), of the Quad Cities Station Renewed Facility Operating Licenses.

Date of issuance: February 2, 2006.

Effective date: As of the date of issuance and shall be implemented within 60 days.

Amendment Nos.: 229 and 224.

Facility Operating License Nos. DPR–29 and DPR–30: The amendments revised the Environmental Protection Plan.

Date of initial notice in ***Federal Register:*** April 12, 2005 (70 FR 19115).

The Commission's related evaluation of the amendments is contained in a Safety Evaluation dated February 2, 2006.

No significant hazards consideration comments received: No.

FirstEnergy Nuclear Operating Company, et al., Docket No. 50–334, Beaver Valley Power Station, Unit No. 1 (BVPS–1), Beaver County, Pennsylvania

Date of application for amendment: April 13, 2005, as supplemented by letters dated August 26, October 28 and 31, November 18, and December 6 and 16, 2005.

Brief description of amendment: The amendment revised the Technical Specifications (TSs) to allow replacement of the BVPS–1 steam generators (SGs). These changes include revising the fuel assembly-specific departure from nucleate boiling ratios and correlations, modifying the Overtemperature ΔT and Overpower ΔT equations, revising the SG water level low-low and high-high setpoints, revising the SG secondary side level in Modes 4 and 5, revising the SG TSs to reflect the replacement SGs and remove TS requirements that are no longer applicable to the new SGs, revising the required charging pump discharge pressure for reactor coolant pump seal injection flow, raising the accumulator pressure, and adding WCAP–14565–P–A (VIPRE) and WCAP–15025–P–A (WRB–2M) Topical Reports to the list of NRC-approved methodologies listed in TS 6.9.5. The amendment also approves an expanded selective alternate source term methodology implementation in accordance with Regulatory Guide 1.183, ''Alternate Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors,'' and approves use of the 1979 ANS Decay Heat + 2σ model for mass and energy releases for a main steam line break outside containment.

Date of issuance: February 9, 2005.

Effective date: As of its date of issuance and shall be implemented prior to entry into Mode 4 upon startup from refueling outage 1R17 which begins on or about February 10, 2006.

Amendment No: 273.

Facility Operating License No. DPR–66: The Amendment revised the Technical Specifications.

*Date of initial notice in **Federal Register:*** June 21, 2005 (70 FR 35737). The supplements dated August 26, October 28 and 31, November 18, and December 6 and 16, 2005, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the staff's original proposed no significant hazards consideration determination as published in the **Federal Register**.

The Commission's related evaluation of the amendment is contained in a Safety Evaluation dated February 9, 2006.

No significant hazards consideration comments received: No.

FirstEnergy Nuclear Operating Company, et al., Docket Nos. 50–334 and 50–412, Beaver Valley Power Station, Unit Nos. 1 and 2 (BVPS–1 and 2), Beaver County, Pennsylvania

Date of application for amendments: October 4, 2004, as supplemented July 8, and November 14, 2005.

Brief description of amendments: These amendments approved application of the Westinghouse best-estimate loss-of-coolant accident (LOCA) analysis methodology to BVPS–1 and 2 for large-break LOCA analysis.

Date of issuance: February 6, 2006.

Effective date: These license amendments are effective as of the date of issuance and shall be implemented for BVPS–1, prior to Mode 4 entry during startup from refueling outage 1R17 which begins on or about February 10, 2006, and for BVPS–2, prior to Mode 4 entry during startup from refueling outage 2R12 which begins October 2006.

Amendment Nos.: 272 and 154.

Facility Operating License Nos. DPR–66 and NPF–73: Amendments revised the Technical Specifications.

*Date of initial notice in **Federal Register:*** December 7, 2004 (69 FR 70718). The supplements dated July 8, and November 14, 2005, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the Nuclear Regulatory Commission staff's original proposed no significant hazards consideration determination as published in the **Federal Register**.

The Commission's related evaluation of the amendments is contained in a Safety Evaluation dated February 6, 2006.

No significant hazards consideration comments received: No.

Indiana Michigan Power Company, Docket Nos. 50–315 and 50–316, Donald C. Cook Nuclear Plant, Units 1 and 2, Berrien County, Michigan

Date of application for amendment: August 10, 2005.

Brief description of amendment: The amendments deleted the power range neutron flux high negative rate trip function from Table 3.3.1–1, ''Reactor Trip System Instrumentation.''

Date of issuance: February 10, 2006.

Effective date: As of the date of issuance and shall be implemented within 30 days.

Amendment No.: 293, 275.

Facility Operating License No. DPR–58: Amendment revises the Technical Specifications.

*Date of initial notice in **Federal Register:*** December 6, 2005 (70 FR 72674). The Commission's related evaluation of the amendment is contained in a Safety Evaluation dated February 10, 2006.

No significant hazards consideration comments received: No.

PSEG Nuclear LLC, Docket No. 50–354, Hope Creek Generating Station, Salem County, New Jersey

Date of application for amendment: June 7, 2004, as supplemented by letters dated February 18, May 20, June 16, July 8, August 3, September 23, and November 16, 2005, and February 6, 2006.

Brief description of amendment: The amendment revised the Technical Specifications (TSs) to reflect an expanded operating domain resulting from the implementation of the Average Power Range Monitor, Rod Block Monitor TSs/Maximum Extended Load Line Limit Analysis (ARTS/MELLLA).

Date of issuance: February 8, 2006.

Effective date: As of the date of issuance, to be implemented within 120 days.

Amendment No.: 163.

Facility Operating License No. NPF–57: This amendment revised the TSs.

*Date of initial notice in **Federal Register:*** September 14, 2004 (69 FR 55471). The supplements dated February 18, May 20, June 16, July 8, August 3, September 23, and November 16, 2005, and February 6, 2006, provided clarifying information that did not change the initial proposed no significant hazards consideration determination or expand the application beyond the scope of the original **Federal Register** notice.

The Commission's related evaluation of the amendment is contained in a Safety Evaluation dated February 8, 2006.

No significant hazards consideration comments received: No.

Nuclear Management Company, LLC, Docket Nos. 50–282 and 50–306, Prairie Island Nuclear Generating Plant, Units 1 and 2, Goodhue County, Minnesota

Date of application for amendments: February 1, 2005, supplemented by letters dated February 22, September 16, December 2, 2005, and January 5, 2006.

Brief description of amendments: The amendments revise the spent fuel pool (SFP) criticality analysis methodology and technical specifications governing the storage of irradiated fuel in the SFP. The licensee's amendment request stated that subcritical conditions would be maintained in the SFP under the revised technical specification storage requirements.

Date of issuance: February 5, 2006.

Effective date: As of the date of issuance and shall be implemented within 90 days.

Amendment Nos.: 172, 162.

Facility Operating License Nos. DPR–42 and DPR–60: Amendments revised the Technical Specifications.

*Date of initial notice in **Federal Register:*** March 15, 2005, (70 FR 12748). The supplemental letters contained clarifying information and did not change the initial no significant hazards consideration determination and did not expand the scope of the original **Federal Register** notice. The Commission's related evaluation of the amendments is contained in a Safety Evaluation dated February 5, 2006.

No significant hazards consideration comments received: No.

Southern Nuclear Operating Company, Inc., Docket Nos. 50–348 and 50–364, Joseph M. Farley Nuclear Plant, Units 1 and 2, Houston County, Alabama

Date of amendments request: January 19, 2005, as supplemented on June 9 (two letters) and November 18, 2005.

Brief Description of amendments: The amendment authorizes revision of the Updated Final Safety Analysis Report (UFSAR) to reflect the utilization of fire-rated electrical Mineral Insulated cables in lieu of Appendix R, Section III.G.2 1-hour rated fire barriers.

Date of issuance: February 13, 2006.

Effective date: As of the date of issuance, to be incorporated into the UFSAR at the time of its next update.

Amendment No.: 162.

Renewed Facility Operating License Nos. NPF–2 and NPF–8: Amendment authorizes revision to the UFSAR.

*Date of initial notice in **Federal Register:*** April 26, 2005 (70 FR 21464). The supplemental letters provided clarifying information that was within

the scope of the initial notice and did not change the initial proposed no significant hazards consideration determination. The Commission's related evaluation of the amendments is contained in a Safety Evaluation dated February 13, 2006.

No significant hazards consideration comments received: No.

Notice of Issuance of Amendments to Facility Operating Licenses and Final Determination of No Significant Hazards Consideration and Opportunity for a Hearing (Exigent Public Announcement or Emergency Circumstances)

During the period since publication of the last biweekly notice, the Commission has issued the following amendments. The Commission has determined for each of these amendments that the application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment.

Because of exigent or emergency circumstances associated with the date the amendment was needed, there was not time for the Commission to publish, for public comment before issuance, its usual Notice of Consideration of Issuance of Amendment, Proposed No Significant Hazards Consideration Determination, and Opportunity for a Hearing.

For exigent circumstances, the Commission has either issued a **Federal Register** notice providing opportunity for public comment or has used local media to provide notice to the public in the area surrounding a licensee's facility of the licensee's application and of the Commission's proposed determination of no significant hazards consideration. The Commission has provided a reasonable opportunity for the public to comment, using its best efforts to make available to the public means of communication for the public to respond quickly, and in the case of telephone comments, the comments have been recorded or transcribed as appropriate and the licensee has been informed of the public comments.

In circumstances where failure to act in a timely way would have resulted, for example, in derating or shutdown of a nuclear power plant or in prevention of either resumption of operation or of increase in power output up to the plant's licensed power level, the Commission may not have had an opportunity to provide for public comment on its no significant hazards consideration determination. In such case, the license amendment has been issued without opportunity for comment. If there has been some time for public comment but less than 30 days, the Commission may provide an opportunity for public comment. If comments have been requested, it is so stated. In either event, the State has been consulted by telephone whenever possible.

Under its regulations, the Commission may issue and make an amendment immediately effective, notwithstanding the pendency before it of a request for a hearing from any person, in advance of the holding and completion of any required hearing, where it has determined that no significant hazards consideration is involved.

The Commission has applied the standards of 10 CFR 50.92 and has made a final determination that the amendment involves no significant hazards consideration. The basis for this determination is contained in the documents related to this action. Accordingly, the amendments have been issued and made effective as indicated.

Unless otherwise indicated, the Commission has determined that these amendments satisfy the criteria for categorical exclusion in accordance with 10 CFR 51.22. Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared for these amendments. If the Commission has prepared an environmental assessment under the special circumstances provision in 10 CFR 51.12(b) and has made a determination based on that assessment, it is so indicated.

For further details with respect to the action see (1) The application for amendment, (2) the amendment to Facility Operating License, and (3) the Commission's related letter, Safety Evaluation and/or Environmental Assessment, as indicated. All of these items are available for public inspection at the Commission's Public Document Room (PDR), located at One White Flint North, Public File Area 01F21, 11555 Rockville Pike (first floor), Rockville, Maryland. Publicly available records will be accessible from the Agencywide Documents Access and Management System's (ADAMS) Public Electronic Reading Room on the Internet at the NRC Web site, *http://www.nrc.gov/reading-rm/adams.html.* If you do not have access to ADAMS or if there are problems in accessing the documents located in ADAMS, contact the PDR Reference staff at 1 (800) 397–4209, (301) 415–4737 or by e-mail to *pdr@nrc.gov.*

The Commission is also offering an opportunity for a hearing with respect to the issuance of the amendment. Within 60 days after the date of publication of this notice, the licensee may file a request for a hearing with respect to issuance of the amendment to the subject facility operating license and any person whose interest may be affected by this proceeding and who wishes to participate as a party in the proceeding must file a written request for a hearing and a petition for leave to intervene. Requests for a hearing and a petition for leave to intervene shall be filed in accordance with the Commission's ''Rules of Practice for Domestic Licensing Proceedings'' in 10 CFR part 2. Interested persons should consult a current copy of 10 CFR 2.309, which is available at the Commission's PDR, located at One White Flint North, Public File Area 01F21, 11555 Rockville Pike (first floor), Rockville, Maryland, and electronically on the Internet at the NRC Web site, *http://www.nrc.gov/reading-rm/doc-collections/cfr/.* If there are problems in accessing the document, contact the PDR Reference staff at 1 (800) 397–4209, (301) 415–4737, or by e-mail to *pdr@nrc.gov.* If a request for a hearing or petition for leave to intervene is filed by the above date, the Commission or a presiding officer designated by the Commission or by the Chief Administrative Judge of the Atomic Safety and Licensing Board Panel, will rule on the request and/or petition; and the Secretary or the Chief Administrative Judge of the Atomic Safety and Licensing Board will issue a notice of a hearing or an appropriate order.

As required by 10 CFR 2.309, a petition for leave to intervene shall set forth with particularity the interest of the petitioner in the proceeding, and how that interest may be affected by the results of the proceeding. The petition should specifically explain the reasons why intervention should be permitted with particular reference to the following general requirements: (1) The name, address, and telephone number of the requestor or petitioner; (2) the nature of the requestor's/petitioner's right under the Act to be made a party to the proceeding; (3) the nature and extent of the requestor's/petitioner's property, financial, or other interest in the proceeding; and (4) the possible effect of any decision or order which may be entered in the proceeding on the requestor's/petitioner's interest. The petition must also identify the specific contentions which the petitioner/

requestor seeks to have litigated at the proceeding.

Each contention must consist of a specific statement of the issue of law or fact to be raised or controverted. In addition, the petitioner/requestor shall provide a brief explanation of the bases for the contention and a concise statement of the alleged facts or expert opinion which support the contention and on which the petitioner intends to rely in proving the contention at the hearing. The petitioner must also provide references to those specific sources and documents of which the petitioner is aware and on which the petitioner intends to rely to establish those facts or expert opinion. The petition must include sufficient information to show that a genuine dispute exists with the applicant on a material issue of law or fact.[1] Contentions shall be limited to matters within the scope of the amendment under consideration. The contention must be one which, if proven, would entitle the petitioner to relief. A petitioner/requestor who fails to satisfy these requirements with respect to at least one contention will not be permitted to participate as a party.

Each contention shall be given a separate numeric or alpha designation within one of the following groups:

1. *Technical*—primarily concerns/issues relating to technical and/or health and safety matters discussed or referenced in the applications.

2. *Environmental*—primarily concerns/issues relating to matters discussed or referenced in the environmental analysis for the applications.

3. *Miscellaneous*—does not fall into one of the categories outlined above.

As specified in 10 CFR 2.309, if two or more petitioners/requestors seek to co-sponsor a contention, the petitioners/requestors shall jointly designate a representative who shall have the authority to act for the petitioners/requestors with respect to that contention. If a petitioner/requestor seeks to adopt the contention of another sponsoring petitioner/requestor, the petitioner/requestor who seeks to adopt the contention must either agree that the sponsoring petitioner/requestor shall act as the representative with respect to that contention, or jointly designate with the sponsoring petitioner/requestor a representative who shall have the authority to act for the petitioners/requestors with respect to that contention.

Those permitted to intervene become parties to the proceeding, subject to any limitations in the order granting leave to intervene, and have the opportunity to participate fully in the conduct of the hearing. Since the Commission has made a final determination that the amendment involves no significant hazards consideration, if a hearing is requested, it will not stay the effectiveness of the amendment. Any hearing held would take place while the amendment is in effect.

A request for a hearing or a petition for leave to intervene must be filed by: (1) First class mail addressed to the Office of the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001, Attention: Rulemaking and Adjudications Staff; (2) courier, express mail, and expedited delivery services: Office of the Secretary, Sixteenth Floor, One White Flint North, 11555 Rockville Pike, Rockville, Maryland, 20852, Attention: Rulemaking and Adjudications Staff; (3) E-mail addressed to the Office of the Secretary, U.S. Nuclear Regulatory Commission, *HearingDocket@nrc.gov;* or (4) facsimile transmission addressed to the Office of the Secretary, U.S. Nuclear Regulatory Commission, Washington, DC, Attention: Rulemakings and Adjudications Staff at (301) 415–1101, verification number is (301) 415–1966. A copy of the request for hearing and petition for leave to intervene should also be sent to the Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001, and it is requested that copies be transmitted either by means of facsimile transmission to (301) 415–3725 or by e-mail to *OGCMailCenter@nrc.gov*. A copy of the request for hearing and petition for leave to intervene should also be sent to the attorney for the licensee.

Nontimely requests and/or petitions and contentions will not be entertained absent a determination by the Commission or the presiding officer or the Atomic Safety and Licensing Board that the petition, request and/or the contentions should be granted based on a balancing of the factors specified in 10 CFR 2.309(a)(1)(i)–(viii).

Detroit Edison Company, Docket No. 50–341, Fermi 2, Monroe County, Michigan

Date of amendment request: February 5, 2006, as supplemented February 5, 2006.

Description of amendment request: The amendment revised Technical Specification 3.8.1, ''AC Sources—Operating,'' to extend the allowed outage time for Emergency Diesel Generator 12 from seven days to 14 days for one specific incident.

Date of issuance: February 6, 2006.

Effective date: As of the date of issuance and shall be implemented immediately.

Amendment No.: 171.

Facility Operating License No. 50–341: Amendment revised the Technical Specifications.

Public comments requested as to proposed no significant hazards consideration (NSHC): No. The Commission's related evaluation of the amendment, finding of emergency circumstances, state consultation, and final NSHC determination are contained in a safety evaluation dated February 6, 2006.

Attorney for licensee: David G. Pettinari, Legal Department, 688 WCB, Detroit Edison Company, 2000 2nd Avenue, Detroit, Michigan 48226–1279.

NRC Branch Chief: Timothy J. Kobetz, Acting.

Dated at Rockville, Maryland, this 16th day of February, 2006.

For the Nuclear Regulatory Commission.

Catherine Haney,

Director, Division of Operating Reactor Licensing, Office of Nuclear Reactor Regulation.

[FR Doc. 06–1737 Filed 2–27–06; 8:45 am]

BILLING CODE 7590–01–P

[1] To the extent that the applications contain attachments and supporting documents that are not publicly available because they are asserted to contain safeguards or proprietary information, petitioners desiring access to this information should contact the applicant or applicant's counsel and discuss the need for a protective order.

POSTAL RATE COMMISSION

Briefings on International Mail and FY 2005 Cost and Revenue Analysis

AGENCY: Postal Rate Commission.

ACTION: Notice of briefings.

SUMMARY: The Commission will host two briefings on March 1, 2006. One will address a study of postal volume growth in developing countries. The other will address the effect of certain data collection design changes on a major Postal Service annual financial report. These briefings will provide an open forum for the presentation of information of interest to the postal community and the general public.

SUPPLEMENTARY INFORMATION: The first briefing will be presented by an economist in the Universal Postal Union's International Bureau, who will address the preliminary results of a study of factors that contribute to postal volume growth in developing countries. This briefing will also address the reasons why factors that affect postal volume growth in industrialized

countries do not seem to have much effect in developing countries. This briefing will begin at 10 a.m. in the Commission's hearing room.

The second briefing will be presented by Postal Service Headquarters personnel. It will explain the impact of extensive changes in the design of the Service's In-Office Cost System data collection effort on the most recent (fiscal year 2005) Cost and Revenue Analysis. This briefing will begin at 2 p.m. in the Commission's hearing room.

DATES: March 1, 2006.

ADDRESSES: Postal Rate Commission, 901 New York Ave., NW., Suite 200, Washington, DC 20288–0001.

FOR FURTHER INFORMATION CONTACT: Stephen L. Sharfman, General Counsel, 202–789–6820.

Steven W. Williams,

Secretary.

[FR Doc. 06–1857 Filed 2–27–06; 8:45 am]

BILLING CODE 7710–FW–M

SECURITIES AND EXCHANGE COMMISSION

Notice of Meeting; Sunshine Act

Notice is hereby given, pursuant to the provisions of the Government in the Sunshine Act, Pub. L. 94–409, that the Securities and Exchange Commission will hold the following meeting during the week of February 27, 2006:

A closed meeting will be held on Thursday, March 2, 2006 at 2 p.m.

Commissioners, Counsel to the Commissioners, the Secretary to the Commission, and recording secretaries will attend the closed meeting. Certain staff members who have an interest in the matters may also be present.

The General Counsel of the Commission, or his designee, has certified that, in his opinion, one or more of the exemptions set forth in 5 U.S.C. 552b(c)(3), (5), (6), (7), (9)(B), and (10) and 17 CFR 200.402(a)(3), (5), (6), (7), 9(ii) and (10) permit consideration of the scheduled matters at the closed meeting.

Commissioner Atkins, as duty officer, voted to consider the items listed for the closed meeting in closed session.

The subject matter of the closed meeting scheduled for Thursday, March 2, 2006 will be:

Formal orders of investigations;
Institution and settlement of injunctive actions; and
Institution and settlement of administrative proceedings of an enforcement nature.

At times, changes in Commission priorities require alterations in the scheduling of meeting items.

For further information and to ascertain what, if any, matters have been added, deleted or postponed, please contact:

The Office of the Secretary at (202) 551–5400.

Dated: February 23, 2006.

Nancy M. Morris,

Secretary.

[FR Doc. 06–1906 Filed 2–24–06; 11:12 am]

BILLING CODE 8010–01–P

SECURITIES AND EXCHANGE COMMISSION

[Release No. 34–53341; File No. SR–Amex–2006–15]

Self-Regulatory Organizations; American Stock Exchange LLC; Notice of Filing and Immediate Effectiveness of Proposed Rule Change to Increase the Options Marketing Fee Applicable to Certain Types of Equity Options

February 21, 2006.

Pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 (''Act''),[1] and Rule 19b–4 thereunder,[2] notice is hereby given that on February 15, 2006, the American Stock Exchange LLC (''Amex'' or ''Exchange'') filed with the Securities and Exchange Commission (''Commission'') the proposed rule change as described in Items I, II and III below, which Items have been prepared by the Amex. The Amex has designated this proposal as one establishing or changing a due, fee, or other charge imposed by a self-regulatory organization pursuant to Section 19(b)(3)(A)(ii) of the Act[3] and Rule 19–4(f)(2) thereunder,[4] which renders the proposal effective upon filing with the Commission. The Commission is publishing this notice to solicit comments on the proposed rule change from interested persons.

I. Self-Regulatory Organization's Statement of the Terms of Substance of the Proposed Rule Change

The Exchange proposes to increase the options marketing fee applicable to certain equity options. The text of the proposed rule change is available on the Amex's Web site at *http://www.amex.com,* at the principal office of the Exchange, and at the Commission's Public Reference Room.

[1] 15 U.S.C. 78s(b)(1).

[2] 17 CFR 240.19b–4.

[3] 15 U.S.C. 78s(b)(3)(A)(ii).

[4] 17 CFR 240.19b–4(f)(2).

II. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

In its filing with the Commission, the Amex included statements concerning the purpose of, and basis for, the proposed rule change and discussed any comments it received on the proposal. The text of these statements may be examined at the places specified in Item IV below. The Exchange has prepared summaries, set forth in Sections A, B, and C below, of the most significant aspects of such statements.

A. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

1. Purpose

In June 2003, the Exchange re-instated its options marketing fee of $0.40 per contract on the transactions of specialists and registered options traders (''ROTs'') in equity options.[5] Currently, the options marketing fee is eligible to be assessed on all equity options transactions (including options on exchange-traded funds and trust issued receipts). The Exchange now proposes to amend the equity options marketing fee to increase the fee from the current level of $0.40 to $0.75 per contract (except for SPDR options, which will continue to remain subject to the current fee level of $1.00 per contract).[6] The Exchange also proposes to revise the equity options marketing fee by limiting its assessment to customer orders that are from payment accepting firms with whom a specialist has negotiated a payment for order flow arrangement and that are executed electronically (*i.e.*, through the Exchange's ANTE system).[7] The current equity options marketing fee is assessed on all executed customer orders (whether electronically or manually executed) of payment accepting firms. This revision further limits the assessment of the marketing fee to electronic executions.

The Exchange represents that it has no role with respect to the negotiations between specialists and payment accepting firms. The Exchange states that it collects and administers the payment of the fee collected on those transactions for which the specialist has

[5] *See* Securities Exchange Act Release No. 48053 (June 17, 2003), 68 FR 37880 (June 25, 2003).

[6] *See* Securities Exchange Act Release No. 51685 (May 11, 2005), 70 FR 28587 (May 18, 2005).

[7] Telephone conversation between Caroline McCaffery, Assistant General Counsel, Amex, and Hong Anh Tran, Special Counsel, Division of Market Regulation, on February 17, 2006.

advised the Exchange that it has negotiated with a payment accepting firm to pay for the firm's order flow. Included in this general administrative support, the Exchange tracks the number of qualified orders sent by a payment accepting firm, bills specialists and ROTs through their clearing firms and issues payments to payment accepting firms to reflect the collection and payment of the marketing fee. The Exchange rebates to specialists and ROTs, on a quarterly basis, the amount of marketing fees collected that have not been paid to order flow providers.

The Exchange further states that the specialists are solely responsible, but are not required, to negotiate payment for order flow agreements with payment accepting firms and are responsible for any arrangements made with the payment accepting firms. The specialists will use the funds that are collected from a particular post on the Exchange to market for those specific products traded at that particular post on the Exchange. So long as it is within the above described parameters, the specific terms governing the orders that qualify for payment and the amount of any payments are determined by the specialists in their discretion.

The Exchange asserts that the proposal is equitable as required by Section 6(b)(4) of the Act.[8] In connection with the revision to the equity options marketing fee, the Exchange notes that increasing the fee from $0.40 to $0.75 per contract (except for SPDR options, which will continue to remain subject to the current fee level of $1.00 per contract) and limiting assessment to the electronic executions of customer orders from payment accepting firms is reasonable given the competitive pressure to attract options order flow. In addition, the Exchange submits that those trading crowds that benefit from a payment for order flow arrangement negotiated by the specialist should contribute to the success of the particular products. Accordingly, the Exchange believes that the proposal is an equitable allocation of reasonable fees among Exchange members.

2. Statutory Basis

The Exchange believes that the proposed rule change is consistent with Section 6(b) of the Act,[9] in general, and furthers the objectives of Section 6(b)(4),[10] in particular, in that it is designed to provide for the equitable allocation of reasonable dues, fees, and other charges among its members and issuers and other persons using facilities.

B. Self-Regulatory Organization's Statement on Burden on Competition

The Exchange believes that the proposed rule change will not impose any burden on competition that is not necessary or appropriate in furtherance of the purposes of the Act.

C. Self-Regulatory Organization's Statement on Comments on the Proposed Rule Change Received From Members, Participants, or Others

The Exchange has neither solicited nor received comments on the proposed rule change. The Amex has not received any unsolicited written comments from members or other interested parties.

III. Date of Effectiveness of the Proposed Rule Change and Timing for Commission Action

The foregoing proposed rule change has become effective pursuant to Section 19(b)(3)(A)(ii) of the Act,[11] and paragraph (f)(2) of Rule 19b–4 thereunder[12] because it establishes or changes a due, fee, or other charge. At any time within 60 days of the filing of the proposed rule change, the Commission may summarily abrogate such rule change if it appears to the Commission that such action is necessary or appropriate in the public interest, for the protection of investors, or otherwise in furtherance of the purposes of the Act.

IV. Solicitation of Comments

Interested persons are invited to submit written data, views, and arguments concerning the foregoing, including whether the proposed rule change is consistent with the Act. Comments may be submitted by any of the following methods:

Electronic Comments

- Use the Commission's Internet comment form (*http://www.sec.gov/rules/sro.shtml*); or
- Send an e-mail to *rule-comments@sec.gov.* Please include File Number SR–Amex–2006–15 on the subject line.

Paper Comments

- Send paper comments in triplicate to Nancy M. Morris, Secretary, Securities and Exchange Commission, 100 F Street, NE., Washington, DC 20549–1090.

All submissions should refer to File Number SR–Amex–2006–15. This file number should be included on the subject line if e-mail is used. To help the Commission process and review your comments more efficiently, please use only one method. The Commission will post all comments on the Commission's Internet Web site (*http://www.sec.gov/rules/sro.shtml*). Copies of the submission, all subsequent amendments, all written statements with respect to the proposed rule change that are filed with the Commission, and all written communications relating to the proposed rule change between the Commission and any person, other than those that may be withheld from the public in accordance with the provisions of 5 U.S.C. 552, will be available for inspection and copying in the Commission's Public Reference Room. Copies of such filing also will be available for inspection and copying at the Amex. All comments received will be posted without change; the Commission does not edit personal identifying information from submissions. You should submit only information that you wish to make available publicly. All submissions should refer to File Number SR–Amex–2006–15 and should be submitted on or before March 21, 2006.

For the Commission, by the Division of Market Regulation, pursuant to delegated authority.[13]

Nancy M. Morris,

Secretary.

[FR Doc. E6–2752 Filed 2–27–06; 8:45 am]

BILLING CODE 8010–01–P

[8] Section 6(b)(4) of the Act, 15 U.S.C. 78f(b)(4), states that the rules of a national securities exchange provide for the equitable allocation of reasonable dues, fees and other charges among its members and issuers and other persons using its facilities.

[9] 15 U.S.C. 78f(b).

[10] 15 U.S.C. 78f(b)(4).

[11] 15 U.S.C. 78s(b)(3)(A)(ii).

[12] 17 CFR 240.19b–4(f)(2).

[13] 17 CFR 200.30–3(a)(12).

SECURITIES AND EXCHANGE COMMISSION

[Release No. 34–53342; File No. SR–CBOE–2006–08]

Self-Regulatory Organizations; Chicago Board Options Exchange, Incorporated; Notice of Filing and Order Granting Accelerated Approval of Proposed Rule Change Relating to Volatility Indexes

February 21, 2006.

Pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 (''Act''),[1] and Rule 19b–4 thereunder,[2] notice is hereby given that on January 20, 2006, the Chicago Board Options Exchange, Incorporated (''CBOE'' or

[1] 15 U.S.C. 78s(b)(1).

[2] 17 CFR 240.19b–4.

''Exchange'') filed with the Securities and Exchange Commission (''Commission'') the proposed rule change as described in Items I and II below, which Items have been prepared by the CBOE. The Commission is publishing this notice to solicit comments on the proposed rule change from interested persons.

I. Self-Regulatory Organization's Statement of the Terms of Substance of the Proposed Rule Change

CBOE proposes to revise the manner in which the expiration dates for each volatility-based index is determined. The description of this proposed rule filing is available for viewing on CBOE's Web site (*http://www.cboe.com*), at the CBOE's Office of the Secretary, and at the Commission's public reference room.

II. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

In its filing with the Commission, the CBOE included statements concerning the purpose of and basis for the proposed rule change and discussed any comments it received on the proposed rule change. The text of these statements may be examined at the places specified in Item IV below. The CBOE has prepared summaries, set forth in Sections A, B, and C below, of the most significant aspects of such statements.

A. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

1. Purpose

The purpose of this rule filing is to revise the methodology for determining the expiration dates for options on certain volatility-based indexes that are approved for listing and trading on the Exchange. The Commission previously approved for the Exchange to list and trade options and increased-value options on certain volatility-based securities indexes; specifically, the CBOE Volatility Index (''VIX''), the CBOE Nasdaq 100® Volatility Index (''VXN''), and the CBOE Dow Jones Industrial Average® Volatility Index (''VXD'') (collectively ''volatility indexes).[3] Each volatility index, generally, uses the quotes of certain index option series (such as the S&P 500 index) to derive a measure of the volatility of the U.S. equity market. The volatility indexes provide investors with up-to-the-minute market estimates of expected volatility by extracting implied volatilities from real-time index option quotes.

All volatility index options contracts were originally designed to expire on the Wednesday immediately prior to the third Friday of the month that immediately precedes the month in which the options used in the calculation of that index expire. This method was chosen to provide an exercise schedule that is similar to the manner in which most other option contracts expire (*i.e.*, the third Friday of the month). Under this method, during any rolling twelve month period, in four of those twelve months, options on any volatility index would not expire exactly thirty days prior to the expiration of the options on the index on which that volatility index is based. To illustrate, under the current methodology, an option on the March 2006 VXN would expire on Wednesday, March 16, 2006 because that is the Wednesday immediately prior to the third Friday of March 2006. However, March 16, 2006 is 37 days prior to the date on which options on the Nasdaq 100 Index (''NDX'') expire.

CBOE proposes to revise the methodology by having all volatility index options expire on the ''Wednesday that is thirty days prior to the third Friday of the calendar month immediately following the expiring month.'' This revised approach will provide consistency in the expiration of options on all volatility indexes by ensuring that every volatility index option will expire exactly thirty days prior to the date on which the index that the volatility index is based.[4] To illustrate how this new methodology will work using the March 2006 VXN example above, the April 2006 NDX option will expire on Friday, April 21, 2006 and the March 2006 VXN option would expire on Wednesday March 22, 2006, which is exactly 30 days prior to the expiration of the NDX April options. Even though the March 2006 VXN option does not expire during the normal expiration week for all other options, the Exchange believes it is more important that the volatility index options expire consistent with the 30-day volatility measurement period.

The Exchange represents that it will provide public disclosures and notifications to its members and the investing public of this change.[5] The Exchange states that this proposal does not affect the rule text of any existing Exchange rule.[6]

2. Statutory Basis

The Exchange believes the proposed rule change is consistent with the Act[7] and the rules and regulations under the Act applicable to a national securities exchange and, in particular, the requirements of Section 6(b) of the Act.[8] Specifically, the Exchange believes the proposed rule change is consistent with the requirements of Section 6(b)(5) of Act[9] that the rules of an exchange be designed to promote just and equitable principles of trade, to prevent fraudulent and manipulative acts and, in general, to protect investors and the public interest.

B. Self-Regulatory Organization's Statement on Burden on Competition

CBOE does not believe that the proposed rule change will impose any burden on competition not necessary or appropriate in furtherance of the purposes of the Act.

C. Self-Regulatory Organization's Statement on Comments on the Proposed Rule Change Received From Members, Participants, or Others

The Exchange neither received nor solicited written comments on the proposal.

III. Solicitation of Comments

Interested persons are invited to submit written data, views, and arguments concerning the foregoing, including whether the proposed rule change is consistent with the Act. Comments may be submitted by any of the following methods:

[3] *See* Securities Exchange Act Release No. 49563 (April 14, 2004); 69 FR 21589 (April 21, 2004) (order approving SR–CBOE–2003–40, which allowed CBOE to trade options on the VIX, VXN, and VXD); *see also* Securities Exchange Act Release No. 49698 (May 13, 2004); 69 FR 29152 (May 20, 2004) (order approving SR–CBOE–2004–09, which allowed CBOE to trade increased-value options on the VIX, VXN, and VXD).

[4] CBOE states that the revised expiration date calculation methodology for options on certain volatility indexes is consistent with the way in which expiration dates for futures on volatility indexes are calculated. Telephone conversation between James Flynn, Attorney, CBOE, and Florence Harmon, Senior Special Counsel, and Geoffrey Pemble, Special Counsel, Division of Market Regulation, Commission, on February 9, 2006.

[5] CBOE will issue an information circular to its members to notify them of the changes to the options expiration date calculation methodology contained in this proposed rule change. Telephone conversation between James Flynn, Attorney, CBOE, and Florence Harmon, Senior Special Counsel, and Geoffrey Pemble, Special Counsel, Division of Market Regulation, Commission, on February 9, 2006.

[6] The original rule filing that allowed CBOE to list volatility-based index options included an exhibit attached to the rule filing, which provided, among other contract characteristics, a description of how the expiration date would be determined. That description was not included in the rule text. *See* note 1, *supra.*

[7] 15 U.S.C. 78a *et seq.*

[8] 15 U.S.C. 78(f)(b).

[9] 15 U.S.C. 78f(b)(5).

Electronic Comments

- Use the Commission's Internet comment form (*http://www.sec.gov/rules/sro.shtml*); or
- Send an e-mail to *rule-comments@sec.gov*. Please include File Number SR–CBOE–2006–08 on the subject line.

Paper Comments

- Send paper comments in triplicate to Nancy M. Morris, Secretary, Securities and Exchange Commission, 100 F Street, NE., Washington, DC 20549–1090.

All submissions should refer to File Number SR–CBOE–2006–08. This file number should be included on the subject line if e-mail is used. To help the Commission process and review your comments more efficiently, please use only one method. The Commission will post all comments on the Commission's Internet Web site (*http://www.sec.gov/rules/sro.shtml*). Copies of the submission, all subsequent amendments, all written statements with respect to the proposed rule change that are filed with the Commission, and all written communications relating to the proposed rule change between the Commission and any person, other than those that may be withheld from the public in accordance with the provisions of 5 U.S.C. 552, will be available for inspection and copying in the Commission's Public Reference Room. Copies of such filing also will be available for inspection and copying at the principal office of the CBOE. All comments received will be posted without change; the Commission does not edit personal identifying information from submissions. You should submit only information that you wish to make available publicly. All submissions should refer to File Number SR–CBOE–2006–08 and should be submitted on or before March 21, 2006.

IV. Commission's Findings and Order Granting Accelerated Approval of the Proposed Rule Change

After careful review, the Commission finds that the proposed rule change is consistent with the requirements of the Act and the rules and regulations thereunder applicable to a national securities exchange.[10] In particular, the Commission finds that the proposed rule change is consistent with Section 6(b)(5) of the Act,[11] which requires, among other things, that the rules of a national securities exchange be designed to prevent fraudulent and manipulative acts and practices, to promote just and equitable principles of trade, to remove impediments to and perfect the mechanism of a free and open market and a national market system and, in general, to protect investors and the public interest.

The Commission believes that CBOE's proposal to revise the methodology for determining the expiration dates for options on certain volatility-based indexes so that such options expire on the ''Wednesday that is thirty days prior to the third Friday of the calendar month immediately following the expiring month'' is appropriate. As noted by CBOE above, this revised approach will provide consistency in the expiration of options on all volatility indexes by ensuring that every volatility index option will expire exactly thirty days prior to the date on which the index that the volatility index is based, rather than the prior approach under which such options would not expire exactly thirty days prior to the expiration of the options on the index on which that volatility index is based in four of the months in any rolling twelve-month period.

The Exchange has requested accelerated approval of the proposed rule change.[12] The Commission finds good cause for approving the proposed rule change prior to the 30th day after the date of publication of the notice of filing in the **Federal Register**. The proposal is intended to ensure consistency in expiration dates for options on all volatility indexes approved for listing and trading on CBOE with the expiration of the options on the underlying indexes. The Commission does not believe that the Exchange's proposal raises any novel regulatory issues. Therefore, the Commission finds good cause, consistent with Section 19(b)(2) of the Act,[13] to approve the proposed rule change, as amended, on an accelerated basis.

V. Conclusion

It is therefore ordered, pursuant to Section 19(b)(2) of the Act,[14] that the proposed rule change (SR–CBOE–2006–08) is hereby approved on an accelerated basis.

For the Commission, by the Division of Market Regulation, pursuant to delegated authority.[15]

Nancy M. Morris,

Secretary.

[FR Doc. E6–2767 Filed 2–27–06; 8:45 am]

BILLING CODE 8010–01–P

[10] In approving this proposal, the Commission has considered the proposed rule's impact on efficiency, competition, and capital formation. 15 U.S.C. 78c(f).

[11] 15 U.S.C. 78f(b)(5).

[12] Telephone conversation between James Flynn, Attorney, CBOE, and Florence Harmon, Senior Special Counsel, and Geoffrey Pemble, Special Counsel, Division of Market Regulation, Commission, on February 9, 2006.

[13] 15 U.S.C. 78s(b)(2).

[14] *Id.*

[15] 17 CFR 200.30–3(a)(12).

SECURITIES AND EXCHANGE COMMISSION

[Release No. 34–53329; File No. SR–ISE–2006–05]

Self-Regulatory Organizations; International Stock Exchange, Inc.; Notice of Filing and Immediate Effectiveness of a Proposed Rule Change and Amendment No. 1 Thereto Relating to Fee Changes

February 16, 2006.

Pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 (''Act''),[1] and Rule 19b–4 thereunder,[2] notice is hereby given that on January 20, 2006, the International Securities Exchange, Inc. (''ISE'' or ''Exchange'') filed with the Securities and Exchange Commission (''Commission'') the proposed rule change as described in Items I, II and III below, which items have been prepared by ISE. On February 9, 2006, ISE submitted Amendment No. 1 to the proposed rule change.[3] ISE has designated the proposed rule change as one establishing or changing a due, fee, or other charge, pursuant to Section 19(b)(3)(A)(ii) of the Act[4] and Rule 19b–4(f)(2) thereunder,[5] which renders the proposal effective upon filing with the Commission. The Commission is publishing this notice to solicit comments on the proposed rule change, as amended, from interested persons.

I. Self-Regulatory Organization's Statement of the Terms of Substance of the Proposed Rule Change

ISE is proposing to amend its Schedule of Fees to establish fees for

[1] 15 U.S.C. 78s(b)(1).

[2] 17 CFR 240.19b–4.

[3] In Amendment No. 1, the Exchange revised its Schedule of Fees to clarify ambiguities and correct misstatements therein, and discussed those changes in the purpose section of the proposal. Specifically, in Amendment No. 1, the Exchange removed the misstatement that a $0.10 surcharge is applied to all Premium Products (as defined herein) and instead provided a list of the specific Premium Products that are subject to the surcharge. Amendment No. 1 also clarified that the fee pilot program expiring on July 31, 2006 applies exclusively to Linkage orders.

[4] 15 U.S.C. 78s(b)(3)(A)(ii).

[5] 17 CFR 240.19b–4(f)(2).

transactions in options on 11 Premium Products[6]. The proposed rule change, as amended, also seeks to make certain technical and clarifying changes to the original filing as well as to clean up the Schedule of Fees to eliminate confusion regarding fees charged by the Exchange.

The text of the proposed rule change is available on ISE's Web site at *http://www.iseoptions.com,* at the Office of the Secretary at ISE, and at the Commission's Public Reference Room.

II. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

In its filing with the Commission, the Exchange included statements concerning the purpose of, and basis for, the proposed rule change, as amended, and discussed any comments it received on the proposal. The text of these statements may be examined at the places specified in Item IV below. The Exchange has prepared summaries, set forth in Sections A, B, and C below, of the most significant aspects of such statements.

A. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

1. Purpose

The Exchange is proposing to amend its Schedule of Fees to establish fees for transactions in options on the following Premium Products: iShares Dow Jones U.S. Real Estate Index Fund (''IYR''),[7] iShares MSCI Japan Index Fund (''EWJ''),[8] Biotech HOLDRS (''BBH''), Internet HOLDRS (''HHH''), Pharmaceutical HOLDRS (''PPH''), Regional Bank HOLDRS (''RKH''), Retail HOLDRS (''RTH''), Software HOLDRS (''SWH''), Enterra Energy Trust (''EENC''), Fording Canadian Coal Trust (''FDG''), and Enerplus Resources Fund (''ERF''). Specifically, the Exchange is proposing to adopt an execution fee and a comparison fee for all transactions in options on IYR, EWJ, BBH, HHH, PPH, RKH, RTH, SWH, EENC, FDG, and ERF.[9] The amount of the execution fee and comparison fee for products covered by this filing would be $0.15 and $0.03 per contract, respectively, for all Public Customer Orders[10] and Firm Proprietary orders. The amount of the execution fee and comparison fee for all Market Maker transactions would be equal to the execution fee and comparison fee currently charged by the Exchange for Market Maker transactions in equity options[11]. The Exchange believes the proposed rule change will further the Exchange's goal of introducing new products to the marketplace that are competitively priced. Additionally, the Exchange proposes to remove NYC, NY and XLU from the list of Premium Products on the Schedule of Fees. These products have been delisted and no longer trade on the Exchange.

Furthermore, the proposed rule change makes certain technical and clarifying changes to ISE's Schedule of Fees. Specifically, under the Execution Fees section of the Schedule of Fees, the Exchange seeks to replace the general reference to a surcharge for options on Premium Products with a list of the specific Premium Products for which there is a surcharge charged by the Exchange.[12] Also, under the Execution Fees section of the Schedule of Fees, for purposes of eliminating ambiguity and confusion, the Exchange proposes to move the parenthetical regarding the Linkage pilot program under ''Firm Proprietary'' to the Notes section.

2. Statutory Basis

The Exchange believes that the statutory basis for the proposal is the requirement under Section 6(b)(4) of the Act[13] that an exchange have an equitable allocation of reasonable dues, fees, and other charges among its members and other persons using its facilities.

B. Self-Regulatory Organization's Statement on Burden on Competition

ISE does not believe that the proposed rule change, as amended, does not impose any burden on competition that is not necessary or appropriate in furtherance of the purposes of the Act.

C. Self-Regulatory Organization's Statement on Comments on the Proposed Rule Change Received From Members, Participants, or Others

The Exchange has not solicited, and does not intend to solicit, comments on this proposed rule change, as amended. The Exchange has not received any unsolicited written comments from members or other interested parties.

III. Date of Effectiveness of the Proposed Rule Change and Timing for Commission Action

The foregoing rule change, as amended, has become effective pursuant to Section 19(b)(3)(A)(ii) of the Act[14] and subparagraph (f)(2) of Rule 19b–4 thereunder[15] because it establishes or changes a due, fee, or other charge. At any time within 60 days of the filing of the proposed rule change, the Commission may summarily abrogate such rule change if it appears to the Commission that such action is necessary or appropriate in the public interest, for the protection of investors, or otherwise in furtherance of the purposes of the Act.[16]

[6] ''Premium Products'' are defined in the Schedule of Fees as the products enumerated therein.

[7] iShares® is a registered trademark of Barclays Global Investors, N.A. (''BGI''), a wholly owned subsidiary of Barclays Bank PLC. ''Dow Jones'' and ''Dow Jones U.S. Real Estate Index Fund'' are servicemarks of Dow Jones & Company, Inc. (''Dow Jones'') and have been licensed for use for certain purposes by BGI. All other trademarks and servicemarks are the property of their respective owners. The Dow Jones U.S. Real Estate Index Fund (''IYR'') is not sponsored, endorsed, issued, sold or promoted by Dow Jones. No company has licensed or authorized ISE to (i) engage in the creation, listing, provision of a market for trading, marketing, and promotion of options on IYR or (ii) to use and refer to any trademark of BGI or Dow Jones in connection with the listing, provision of a market for trading, marketing, and promotion of options on IYR or with making disclosures concerning options on IYR under any applicable Federal or state laws, rules or regulations, and do not sponsor, endorse, or promote such activity by ISE. ISE is not affiliated in any manner with any of the companies above.

[8] iShares(r) is a registered trademark of Barclays Global Investors, N.A. (''BGI''), a wholly owned subsidiary of Barclays Bank PLC. ''MSCI Japan Index'' is a servicemark of Morgan Stanley Capital International (''MSCI'') and has been licensed for use for certain purposes by BGI. All other trademarks and servicemarks are the property of their respective owners. The MSCI Japan Index Fund (''EWJ'') is not sponsored, endorsed, issued, sold or promoted by MSCI. No company has licensed or authorized ISE to (i) engage in the creation, listing, provision of a market for trading, marketing, and promotion of options on EWJ or (ii) to use and refer to any trademark of BGI or MSCI in connection with the listing, provision of a market for trading, marketing, and promotion of options on EWJ or with making disclosures concerning options on EWJ under any applicable Federal or state laws, rules or regulations, and do not sponsor, endorse, or promote such activity by ISE. ISE is not affiliated in any manner with any of the companies above.

[9] These fees will be charged to Exchange members. Under a pilot program that is set to expire on July 31, 2006, these fees will also be charged to Linkage Orders (as defined in ISE Rule 1900).

[10] Public Customer Order is defined in ISE Rule 100(a)(33) as an order for the account of a Public Customer. Public Customer is defined in ISE Rule 100(a)(32) as a person that is not a broker or dealer in securities.

[11] The execution fee is currently between $0.21 and $0.12 per contract side, depending on the Exchange Average Daily Volume, and the comparison fee is currently $0.03 per contract side.

[12] Prior to this proposed rule change, the Exchange's Schedule of Fees improperly reflected that all Premium Products were subject to a surcharge of $0.10 per contract/side.

[13] 15 U.S.C. 78f(b)(4).

[14] 15 U.S.C. 78s(b)(3)(A)(ii).

[15] 17 CFR 240.19b–4(f)(2).

[16] The effective date of the original proposed rule change is January 20, 2006, the date of the original filing, and the effective date of Amendment No. 1 is February 9, 2006, the filing date of the amendment. For purposes of calculating the 60-day abrogation period within which the Commission may summarily abrogate the proposed rule change, as amended, under Section 19(b)(3)(C) of the Act,

Continued

IV. Solicitation of Comments

Interested persons are invited to submit written data, views, and arguments concerning the foregoing, including whether the proposed rule change, as amended, is consistent with the Act. Comments may be submitted by any of the following methods:

Electronic Comments

- Use the Commission's Internet comment form (*http://www.sec.gov/rules/sro.shtml*); or
- Send an e-mail to *rule-comments@sec.gov*. Please include File Number SR–ISE–2006–05 on the subject line.

Paper Comments

- Send paper comments in triplicate to Nancy M. Morris, Secretary, Securities and Exchange Commission, 100 F Street, NE., Washington, DC 20549–1090.

All submissions should refer to File Number SR–ISE–2006–05. This file number should be included on the subject line if e-mail is used. To help the Commission process and review your comments more efficiently, please use only one method. The Commission will post all comments on the Commission's Internet Web site (*http://www.sec.gov/rules/sro.shtml*). Copies of the submission, all subsequent amendments, all written statements with respect to the proposed rule change that are filed with the Commission, and all written communications relating to the proposed rule change between the Commission and any person, other than those that may be withheld from the public in accordance with the provisions of 5 U.S.C. 552, will be available for inspection and copying in the Commission's Public Reference Room. Copies of such filing also will be available for inspection and copying at the principal office of ISE. All comments received will be posted without change; the Commission does not edit personal identifying information from submissions. You should submit only information that you wish to make available publicly. All submissions should refer to File Number SR–ISE–2006–05 and should be submitted on or before March 21, 2006.

the Commission considers the period to commence on February 9, 2006, the date on which the Exchange submitted Amendment No. 1. *See* 15 U.S.C. 78s(b)(3)(C).

For the Commission, by the Division of Market Regulation, pursuant to delegated authority.[17]

Nancy M. Morris,

Secretary.

[FR Doc. E6–2751 Filed 2–27–06; 8:45 am]

BILLING CODE 8010–01–P

[17] 17 CFR 200.30–3(a)(12).

SECURITIES AND EXCHANGE COMMISSION

[Release No. 34–53333; File No. SR–NASD–2006–011]

Self-Regulatory Organizations; National Association of Securities Dealers, Inc.; Notice of Filing of Proposed Rule Change and Amendment No. 1 Thereto Relating to Principal Pre-Use Approval of Member Correspondence to 25 or More Existing Retail Customers Within a 30 Calendar-Day Period

February 17, 2006.

Pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 (''Act''),[1] and Rule 19b–4 thereunder,[2] notice is hereby given that on January 27, 2006, the National Association of Securities Dealers, Inc. (''NASD'') filed with the Securities and Exchange Commission (''SEC'' or ''Commission'') the proposed rule change as described in Items I, II, and III below, which Items have been prepared by NASD. On February 13, 2006, NASD filed Amendment No. 1 to the proposed rule change.[3] The Commission is publishing this notice to solicit comments on the proposed rule change, as amended, from interested persons.

I. Self-Regulatory Organization's Statement of the Terms of Substance of the Proposed Rule Change

NASD is proposing to amend NASD Rule 2211 to require principal pre-use approval of member correspondence to 25 or more existing retail customers within a 30 calendar-day period. Below is the text of the proposed rule change. Proposed new language is italicized; proposed deletions are in [brackets].

2211. Institutional Sales Material and Correspondence

(a) No Change.

(b) Approval and Recordkeeping

(1) Registered Principal Approval

(A) Correspondence. Correspondence need not be approved by a registered principal prior to use, [but] *unless such correspondence is distributed to 25 or more existing retail customers within any 30 calendar-day period and is not solely and exclusively clerical or ministerial in nature. All correspondence* is subject to the supervision and review requirements of Rule 3010(d).

(B) No Change.

(2) No Change.

(c) through (e) No Change.

* * * * *

[1] 15 U.S.C. 78s(b)(1).

[2] 17 CFR 240.19b–4.

[3] Amendment No. 1 to SR–NASD–2006–011 replaced and superseded the original rule filing filed on January 27, 2006 in its entirety.

II. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

In its filing with the Commission, NASD included statements concerning the purpose of and basis for the proposed rule change and discussed any comments it received on the proposed rule change. The text of these statements may be examined at the places specified in Item IV below. NASD has prepared summaries, set forth in Sections A, B, and C below, of the most significant aspects of such statements.

A. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

1. Purpose

Definition of ''Correspondence''

In 2003, the SEC approved as part of NASD's modernization of its advertising rules the creation of new Rule 2211, which included an amended definition of ''correspondence.'' The amended definition of correspondence includes any written letter or electronic mail message distributed by a firm to one or more of its existing retail customers and to fewer than 25 prospective retail customers within a 30 calendar-day period.[4] Previously, ''correspondence'' included any written or electronic communication prepared for delivery to a single current or prospective customer, and not for dissemination to multiple customers or the general public.

The definition of correspondence is significant in several respects. Firms generally are not required to have a registered principal approve correspondence prior to use, nor are they required to file correspondence with the NASD Advertising Regulation

[4] NASD has clarified that, for purposes of its rules governing member communications with the public, NASD views instant messaging in the same manner in which it views traditional electronic mail messages. Accordingly, instant messaging may qualify as correspondence or sales literature, depending upon the facts and circumstances. *See Notice to Members* 03–33 (July 2003).

Department (''Department'').[5] In addition, correspondence is subject to fewer content restrictions than advertisements and sales literature.

NASD amended the definition in order to provide firms with more flexibility regarding the supervision of certain e-mails and form letters. However, NASD understands that many firms continue to require registered principal pre-use approval of some correspondence.

NASD has found that some member correspondence to multiple existing customers raises the same regulatory concerns as member advertisements and sales literature, despite the fact that it is not required to be filed with NASD or approved by a principal prior to use. In contrast, had these types of form letters been sent to at least 25 *prospective* retail customers, such correspondence would have required both registered principal pre-use approval and filing with the Department. As a result, NASD believes it no longer should apply the principal pre-use approval requirement differently to non-clerical correspondence sent to prospective and existing retail customers.

Proposed Amendment

NASD is proposing to amend Rule 2211 to require registered principal pre-use approval of any non-clerical correspondence sent to 25 or more existing retail customers within any 30 calendar-day period. Non-clerical correspondence with such a wide distribution often will constitute a solicitation to purchase or sell a security or to use a brokerage service. Registered principal pre-use approval would better ensure that this material complies with applicable standards of the advertising rules before reaching current or prospective customers. Since many firms already require registered principal pre-use approval of such correspondence, NASD believes the benefits of the proposed requirement outweigh any additional burden on members.

NASD does not propose to require that this correspondence be filed with the Department or that it be subject to all of the content standards of the advertising rules. NASD recognizes that correspondence with existing retail customers may not require the same level of investor protection as correspondence to prospective retail customers. Of course, a firm may choose to file this correspondence with the Department to better ensure that it complies with applicable standards, particularly when the correspondence promotes the firm's products or services.

NASD will announce the effective date of the proposed rule change in a Notice to Members to be published no later than 30 days following Commission approval. The effective date will be 90 days following publication of the *Notice to Members* announcing Commission approval.

2. Statutory Basis

NASD believes that the proposed rule change is consistent with the provisions of Section 15A(b)(6) of the Act,[6] which requires, among other things, that NASD rules must be designed to prevent fraudulent and manipulative acts and practices, to promote just and equitable principles of trade, and, in general, to protect investors and the public interest. NASD believes that requiring that a principal approve prior to use any non-clerical correspondence that is sent to 25 or more existing retail customers will protect investors and the public interest. In particular, this proposed rule change will help prevent fraudulent or misleading communications from reaching a widespread retail audience by requiring principals to review non-clerical correspondence sent to a large number of investors prior to use.

B. Self-Regulatory Organization's Statement on Burden on Competition

NASD does not believe that the proposed rule change will result in any burden on competition that is not necessary or appropriate in furtherance of the purposes of the Act.

C. Self-Regulatory Organization's Statement on Comments on the Proposed Rule Change Received from Members, Participants, or Others

The proposed rule change was published for comment in NASD *Notice to Members* 05–27 (April 2005). NASD received eleven comments in response to the *Notice*.[7]

There were two primary comments on the proposal. First, several commenters inquired as to what type of principal registration would be required to approve correspondence prior to use. Second, a number of commenters argued that the proposal should not require principal pre-use approval for correspondence that is solely clerical or ministerial in nature.[8] There were also a number of other miscellaneous questions and comments regarding the proposal.

Principal Qualifications

The proposed rule would require a registered principal to approve prior to use any correspondence that is distributed to 25 or more existing retail customers within any 30 calendar-day period. *Notice to Members* 05–27 did not indicate, however, whether a particular principal registration would be required in order to fulfill this duty. ARM, Edward Jones and UBS inquired as to whether, among other principal exams, a Limited Principal—General Securities Sales Supervisor (formerly Series 8 and now Series 9/10) could perform this function under the proposed rule. In particular, ARM and UBS noted that NASD does not accept the General Securities Sales Supervisor exam as satisfying the principal qualification requirement for approval of advertisements under Rule 2210.[9]

Commenters also noted that while branch managers often possess only the General Securities Sales Supervisors principal registration and are not registered as General Securities Principals (Series 24), they typically supervise correspondence as required by Rule 3010. Commenters argued that a branch manager is best qualified to supervise correspondence at the branch office level and that to require these branch managers to obtain a General Securities Principal registration would be enormously burdensome.

NASD agrees that the General Securities Sales Supervisor registration category is sufficient to meet the proposal's requirements for pre-use

[5] NASD Rule 3010(d)(2) requires each member to develop written procedures that are appropriate to its business, size, structure, and customers for the review of incoming and outgoing correspondence with the public relating to its investment banking or securities business. Where such procedures do not require review of all correspondence prior to use or distribution, they must include provision for the education and training of associated persons as to the firm's procedures governing correspondence, documentation of such education and training, and surveillance and follow-up to ensure that such procedures are implemented and adhered to.

[6] 15 U.S.C. 78*o*–3(b)(6).

[7] Letter from Association of Registration Management (''ARM'') dated May 25, 2005; Letter from Cutter & Company, Inc. (''Cutter''), dated May 27, 2005; Letter from Frank Dealy dated April 21, 2005; Letter from Edward D. Jones & Co., LP (''Edward Jones''), dated May 27, 2005; Letter from the Financial Services Institute (''FSI'') dated May 27, 2005; Letter from Fintegra, LLC (''Fintegra''), dated April 14, 2005; Letter from Investment Company Institute (''ICI'') dated May 27, 2005; Letter from Jefferson Pilot Securities Corporation (''Jefferson Pilot'') dated May 27, 2005; Letter from Krieger–Campbell, Incorporated (''Krieger–Campbell'') dated May 20, 2005; Letter from UBS Financial Services Inc. (''UBS'') dated May 27, 2005; and Letter from Wulff, Hansen & Co. (''Wulff Hansen'') dated April 14, 2005.

[8] The version of the proposed rule change that was published for comment in *Notice to Members* 05–27 did not contain an exception from the principal pre-use approval requirement for correspondence that is solely and exclusively clerical or ministerial in nature.

[9] *See* Rule 1022(g)(2)(C)(iii).

approval of correspondence sent to 25 or more existing retail customers within a 30 calendar-day period. NASD already interprets Rule 3010 to permit General Securities Sales Supervisors to supervise correspondence in accordance with that rule's provisions. Accordingly, NASD would interpret the proposed rule change to permit a General Securities Sales Supervisor (formerly Series 8 and now Series 9/10) to approve correspondence prior to use.

Administrative and Clerical Correspondence

Edward Jones and Wulff Hansen both commented that, if NASD intends to go forward with the proposal, the principal pre-use approval requirement should not apply to correspondence that is solely of an administrative, service or clerical nature. Similarly, the FSI and Jefferson Pilot argue that the principal pre-use approval requirements should not apply to correspondence unless it contains a recommendation to buy or sell a security or service. In support of this change, commenters argued that there is little need for heightened investor protection measures when correspondence concerns such matters as reorganization notices, stock dividend details, notices of office closings or extended hours, and the like. Edward Jones pointed out that the New York Stock Exchange employs a content-oriented definition of ''sales literature.''[10] Wulff Hansen also noted that NASD Rule 1060 does not require registration for persons associated with a member whose functions are solely and exclusively clerical and ministerial.

NASD agrees that correspondence the content of which is solely clerical or ministerial does not raise the same investor protection issues as correspondence that is non-administrative in nature, such as correspondence that promotes a member product or service. Accordingly, NASD has modified the proposed rule language to exclude from the principal pre-use approval requirement correspondence that is solely and exclusively clerical or ministerial in nature.

Other Comments

The ICI supported the proposal on the ground that it strikes a reasonable regulatory balance by requiring principal approval for some correspondence without placing an undue burden on members by requiring the filing of correspondence with the Department. Fintegra noted that it supports the proposal as long as members are not required to file correspondence with NASD. NASD confirms that the proposal would not impose new filing requirements for correspondence.

Cutter noted that NASD has taken the position under Rule 2711 that a communication that is distributed to 15 or more persons and includes an analysis of equity securities of individual companies or industries, and that provides information reasonably sufficient upon which to base an investment decision, is deemed to be a research report. Cutter argued that, if the proposed principal pre-use approval requirement is adopted, the numerical thresholds for determining when principal pre-use approval is required under Rule 2211 and when a communication is deemed a research report under Rule 2711 should be the same (*i.e.*, 25 or more persons).

While NASD recognizes different numerical thresholds for different rules may present a compliance challenge, Rule 2211 serves a different purpose than Rule 2711. In addition, the 15-person threshold under Rule 2711 was derived from SEC Regulation Analyst Certification, which also deals with research reports. Moreover, NASD has not proposed to amend Rule 2711 as part of this rule filing.

Cutter, the FSI and Jefferson Pilot all commented that, if there is a problem with misleading correspondence to retail customers, a better approach would be to require heightened supervision for firms that have a history of correspondence compliance problems. The FSI argued that the burdens that the proposal would impose on members do not justify its adoption. Similarly, Krieger-Campbell commented that the proposal could have unintended consequences, such as holding up member communications regarding a Regulation D private placement offering. Additionally, Edward Jones and Jefferson Pilot argued that the current correspondence definition has not been in place long enough to justify requiring principal pre-use approval for correspondence sent to 25 or more existing retail customers.

While NASD recognizes that there are other possible approaches to address potentially misleading correspondence and that the proposal may impose additional compliance costs on some members, NASD believes that requiring principal pre-use approval of correspondence sent to 25 or more existing retail customers is a more proactive and effective means of preventing the distribution of potentially misleading correspondence to large numbers of customers. In addition, the current rule and the heightened supervision approach do not address the investor protection dichotomy that exists between current and prospective retail customers.

The FSI and Jefferson Pilot argued that the proposal would inhibit the transmission of time-sensitive e-mails to existing retail customers, such as those alerting customers of significant market news. NASD believes that these types of communications, which often urge customers to buy or sell securities on a short-term basis, are precisely the types of communications that require principal review. Accordingly, NASD does not favor amending the proposal for this reason.

The FSI also states in its comment letter that ''NASD staff has advised the Institute that they will not interpret the proposed rule as written'' and instead will apply the rule only to form letters and other correspondence with identical content sent by one or more registered representatives in the same office. This comment is misguided. The rule proposal is intended to apply to any non-clerical correspondence, including emails, sent to 25 or more existing customers over a 30-calendar-day period, and NASD intends to enforce the rule accordingly if approved in its current form.

III. Date of Effectiveness of the Proposed Rule Change and Timing for Commission Action

Within 35 days of the date of publication of this notice in the **Federal Register** or within such longer period (i) as the Commission may designate up to 90 days of such date if it finds such longer period to be appropriate and publishes its reasons for so finding or (ii) as to which NASD consents, the Commission will:

(A) By order approve such proposed rule change, or

(B) Institute proceedings to determine whether the proposed rule change should be disapproved.

IV. Solicitation of Comments

Interested persons are invited to submit written data, views and arguments concerning the foregoing, including whether the proposed rule change, as amended, is consistent with the Act. Comments may be submitted by any of the following methods:

[10] *See* NYSE Rule 472.10(5) (defining sales literature as any written or electronic communication ''discussing or promoting the products, services, and facilities offered by a member or member organization'').

Electronic Comments

- Use the Commission's Internet comment form (*http://www.sec.gov/rules/sro.shtml*); or
- Send an e-mail to *rule-comments@sec.gov.* Please include File Number SR–NASD–2006–011 on the subject line.

Paper Comments

- Send paper comments in triplicate to Nancy M. Morris, Secretary, Securities and Exchange Commission, 100 F Street, NE., Washington, DC 20549–1090.

All submissions should refer to File Number SR–NASD–2006–011. This file number should be included on the subject line if e-mail is used. To help the Commission process and review your comments more efficiently, please use only one method. The Commission will post all comments on the Commission's Internet Web site (*http://www.sec.gov/rules/sro.shtml*). Copies of the submission, all subsequent amendments, all written statements with respect to the proposed rule change that are filed with the Commission, and all written communications relating to the proposed rule change between the Commission and any person, other than those that may be withheld from the public in accordance with the provisions of 5 U.S.C. 552, will be available for inspection and copying in the Commission's Public Reference Room. Copies of such filing also will be available for inspection and copying at the principal office of NASD. All comments received will be posted without change; the Commission does not edit personal identifying information from submissions. You should submit only information that you wish to make available publicly. All submissions should refer to File Number SR–NASD–2006–011 and should be submitted on or before March 21, 2006.

For the Commission, by the Division of Market Regulation, pursuant to delegated authority.[11]

Nancy M. Morris,

Secretary.

[FR Doc. E6–2766 Filed 2–27–06; 8:45 am]

BILLING CODE 8010–01–P

[11] 17 CFR 200.30–3(a)(12).

DEPARTMENT OF STATE

[Public Notice 5331]

Certification Pursuant to Section 583 of the Foreign Operations, Export Financing, and Related Programs Appropriations Act, FY 2006, (Pub.L. 109–102)

Pursuant to the authority vested in me under Section 583 of the Foreign Operations, Export Financing, and Related Programs Appropriations Act, FY 2006, (Pub.L. 109–102), I hereby certify that application of the restriction in such section to a country or countries is contrary to the national interest of the United States.

This certification shall be reported to the Congress and published in the **Federal Register**.

Dated: February 2, 2006.

Condoleezza Rice,

Secretary of State, Department of State.

[FR Doc. E6–2780 Filed 2–27–06; 8:45 am]

BILLING CODE 4710–08–P

OFFICE OF THE UNITED STATES TRADE REPRESENTATIVE

Termination of Sanctions Imposed on Certain Member States of the European Communities Pursuant to Title VII of the Omnibus Trade and Competitiveness Act of 1988

AGENCY: Office of the United States Trade Representative.

ACTION: Termination of sanctions imposed on certain Member States of the European Communities pursuant to Title VII of the Omnibus Trade and Competitiveness Act of 1988.

SUMMARY: The United States Trade Representative has determined to terminate sanctions imposed on certain EC Member States (Austria, Belgium, Denmark, Finland, France, Ireland, Italy, Luxembourg, the Netherlands, Sweden, and the United Kingdom).

This determination is based on assurances from the European Communities that EC telecommunications operators are no longer subject to discriminatory requirements, and that purchasing by EC telecommunications operators are now based solely on commercial considerations, not EC procurement rules. The termination of sanctions is effective on March 1, 2006.

FOR FURTHER INFORMATION CONTACT: Jean Heilman Grier, Senior Procurement Negotiator, Office of the United States Trade Representative, (202) 395–9476 or *Jean_Grier@ustr.eop.gov.*

Determination Relating to Sanctions Imposed Under Title VII of the Omnibus Trade and Competitiveness Act of 1988

On May 28, 1993, the United States imposed sanctions on certain Member States of the European Communities (EC) under Title VII of the Omnibus Trade and Competitiveness Act of 1988 (19 U.S.C. 2515, as amended) for maintaining, in government procurement of telecommunications goods, a significant and persistent pattern or practice of discrimination against U.S. products or services that results in identifiable harm to U.S. businesses (58 FR 31136). In June 1993, the EC imposed equivalent countermeasures against the United States.

On March 10, 1994, then-USTR Michael Kantor terminated the sanctions against the Federal Republic of Germany based on a determination that Germany had eliminated the discrimination identified under Title VII (59 FR 11360). The sanctions currently apply to 11 EC Member States: Austria, Belgium, Denmark, Finland, France, Ireland, Italy, Luxembourg, the Netherlands, Sweden, and the United Kingdom.

On March 31, 2004, the European Communities adopted new EC Directives on Government Procurement, which formally exclude telecommunications operators from their scope. I have received official assurances from the EC that the purchasing by EC telecommunications operators is no longer subject to EC procurement rules, but to purely commercial considerations, and that the EC will also remove its countermeasures against the United States.

Pursuant to the authority vested in me by the President of the United States in Presidential Determination No. 93–16, I have determined that the EC Member States referenced above have eliminated the discrimination identified under Title VII and have therefore terminated sanctions effective on March 1, 2006.

Rob Portman,

United States Trade Representative.

[FR Doc. E6–2810 Filed 2–27–06; 8:45 am]

BILLING CODE 3190–W6–P

OFFICE OF THE UNITED STATES TRADE REPRESENTATIVE

Revised Fiscal Year 2006 Tariff-rate Quota Allocations for Raw Cane Sugar and Refined Sugar

AGENCY: Office of the United States Trade Representative.

ACTION: Notice.

SUMMARY: The Office of the United States Trade Representative (USTR) is providing notice of additional country-by-country allocations of the in-quota quantity of the tariff-rate quotas for imported raw cane sugar and refined sugar for the period October 1, 2005 through September 30, 2006 (FY 2006). In addition, USTR is providing notice of country-by-country re-allocations of the FY 2006 in-quota quantity of the tariff-rate quota for imported raw cane sugar.

DATES: *Effective Date:* February 28, 2006.

ADDRESSES: Inquiries may be mailed or delivered to Jason Hafemeister, Deputy Assistant U.S. Trade Representative, Office of Agricultural Affairs, Office of the United States Trade Representative, 600 17th Street, NW., Washington, DC 20508.

FOR FURTHER INFORMATION CONTACT: Jason Hafemeister, Office of Agricultural Affairs, telephone: 202–395–6127 or facsimile: 202–395–4579.

SUPPLEMENTARY INFORMATION: Pursuant to Additional U.S. Note 5 to chapter 17 of the Harmonized Tariff Schedule of the United States (HTS), the United States maintains a tariff-rate quota for imports of raw cane sugar and refined sugar.

Section 404(d)(3) of the Uruguay Round Agreements Act (19 U.S.C. 3601(d)(3)) authorizes the President to allocate the in-quota quantity of a tariff-rate quota for any agricultural product among supplying countries or customs areas. The President delegated this authority to the United States Trade Representative under Presidential Proclamation 6763 (60 FR 1007).

On February 2, 2006, the Secretary of Agriculture increased the in-quota quantity of the tariff-rate quota for raw cane sugar for FY 2006 by 226,796 metric tons * raw value. USTR is allocating this increased quantity. Further, USTR is re-allocating 35,126 metric tons raw value of the FY 2006 tariff-rate quota allocations that will not be used by certain countries. The total quantity of the raw sugar allocations (*i.e.*, the additional allocation and the re-allocation) of 261,922 metric tons raw value is being allocated to the following countries:

FY 2006 ADDITIONAL AND RE-ALLOCATIONS

Country	Metric tons raw value
Argentina	15,461
Australia	29,844
Belize	3,955
Bolivia	2,877
Brazil	52,138
Colombia	8,630
Costa Rica	5,394
Ecuador	3,955
El Salvador	9,349
Guatemala	17,259
Guyana	4,315
Honduras	3,596
Jamaica	3,955
Malawi	3,596
Mauritius	4,315
Mozambique	4,674
Nicaragua	7,551
Panama	10,428
Peru	14,742
Philippines	30,000
South Africa	8,270
Swaziland	5,753
Thailand	5,034
Trinidad & Tobago	2,517
Zimbabwe	4,315

These allocations are based on the countries' historical shipments to the United States, excluding countries that are unable to ship additional sugar. The allocations of the raw cane sugar tariff-rate quota to countries that are net importers of sugar are conditioned on receipt of the appropriate verifications of origin. All other country raw cane sugar allocations, other than for those countries that are unable to ship additional sugar, remain unchanged from those announced on August 30, 2005 and December 9, 2005.

On February 2, 2006, the Secretary of Agriculture increased the in-quota quantity of the tariff-rate quota for refined sugar for FY 2006 by 226,796 metric tons raw value, none of which is for specialty sugars. A total of 25,000 metric tons raw value is being allocated to Canada and 59,349 metric tons raw value is being allocated to Mexico. The remaining 142,447 metric tons raw value of the in-quota quantity may be supplied by any country on a first-come, first-served basis, subject to any other provision of law. The certificate of quota eligibility is required for sugar entering under the tariff-rate quota for refined sugar that is the product of a country that has been allocated a share of the tariff-rate quota for refined sugar.

Rob Portman,

United States Trade Representative.

[FR Doc. E6–2737 Filed 2–27–06; 8:45 am]

BILLING CODE 3190–W6–P

* Conversion factor: 1 metric ton = 1.10231125 short tons.

DEPARTMENT OF THE TREASURY

Submission for OMB Review; Comment Request

February 22, 2006.

The Department of the Treasury has submitted the following public information collection requirement(s) to OMB for review and clearance under the Paperwork Reduction Act of 1995, Public Law 104–13. Copies of the submission(s) may be obtained by calling the Treasury Bureau Clearance Officer listed. Comments regarding this information collection should be addressed to the OMB reviewer listed and to the Treasury Department Clearance Officer, Department of the Treasury, Room 11000, 1750 Pennsylvania Avenue, NW., Washington, DC 20220.

Dates: Written comments should be received on or before March 30, 2006 to be assured of consideration.

Bureau of Public Debt

OMB Number: 1535–0013.
Type of Review: Extension.
Title: Claim for Lost, Stolen or Destroyed U.S. Savings Bonds and Supplemental Statement for U.S. Securities.
Form: BPD PD F 1048 and 2243.
Description: Used by owner or others having knowledge to request substitute securities or payment of lost, stolen or destroyed securities.
Respondents: Individuals or households.
Estimated Total Burden Hours: 26,400 hours.

OMB Number: 1535–0036.
Type of Review: Extension.
Title: Application by Voluntary Guardian of Incapacitated Owner of United States Savings Bonds/Notes.
Form: BPD PD F 2513.
Description: Used by voluntary guardian of incapacitated bond owner(s) to establish right of act on behalf of owner.
Respondents: Individuals or households.
Estimated Total Burden Hours: 26,600 hours.

OMB Number: 1535–0064.
Type of Review: Extension.
Title: Description of United States Savings Bonds Series HH/H and Description of United States Bonds/Notes.
Form: BPD PD F 1980 and 2490.
Description: Used by owner of United Savings Bonds/Notes to describe their holdings.
Respondents: Individuals or households.
Estimated Total Burden Hours: 2,400 hours.

OMB Number: 1535–0136.

Type of Review: Extension.

Title: Application for Refund of Purchase Price of United States Savings Bonds for Organizations.

Form: BPD PD F 5410.

Description: Used by an organization to request refund of purchase price of United States Savings Bonds.

Respondents: Business of other for-profit and Not-for-profit institutions.

Estimated Total Burden Hours: 300 hours.

Clearance Officer: Vicki S. Thorpe, (304) 480–8150, Bureau of the Public Debt, 200 Third Street, Parkersburg, West Virginia 26106.

OMB Reviewer: Alexander T. Hunt, (202) 395–7316, Office of Management and Budget, Room 10235, New Executive Office Building, Washington, DC 20503.

Michael A. Robinson,

Treasury PRA Clearance Officer.

[FR Doc. E6–2765 Filed 2–27–06; 8:45 am]

BILLING CODE 4810–39–P

U.S.-CHINA ECONOMIC AND SECURITY REVIEW COMMISSION

Notice of Open Public Hearing

AGENCY: U.S.-China Economic and Security Review Commission.

ACTION: Notice of open public hearing.

SUMMARY: Notice is hereby given of the following hearing of the U.S.-China Economic and Security Review Commission.

Name: Larry M. Wortzel, Chairman of the U.S.-China Economic and Security Review Commission.

The Commission is mandated by Congress to investigate, assess, evaluate and report to Congress annually on ''regional economic and security impacts.'' The mandate specifically charges the Commission to evaluate ''The triangular economic and security relationship among the United States, Taipei and the People's Republic of China (including the military modernization and force deployments of the People's Republic of China aimed at Taipei).'' Pursuant to this mandate, the Commission will be holding a public hearing in Washington, DC on March 16–17, 2006.

Background

This event is the third in a series of public hearings the Commission will hold during its 2006 report cycle to collect input from leading experts in academia, business, industry, government and the public on the impact of the economic and national security implications of the U.S. growing bilateral trade and economic relationship with China. The March 16–17 hearing is being conducted to obtain commentary about issues connected to China's military modernization efforts and export control issues. Information on upcoming hearings, as well as transcripts of past Commission hearings, can be obtained from the USCC Web site *http://www.uscc.gov.*

The March 16 hearing will address ''China's Military Modernization'' and will be Co-chaired by Vice Chairman Carolyn Bartholomew and Commissioner Thomas Donnelly. The March 17 hearing will address ''Export Control Issues'' and will be Co-chaired by Commissioners Fred Thompson and William A. Reinsch.

Purpose of Hearing

The hearing is designed to assist the Commission in fulfilling its mandate by identifying and assessing the key military modernization efforts being undertaken by China, evaluating the modernization of China's defense industries, assessing the quality and quantity of military assistance China is receiving from foreign sources, and reviewing and evaluating the efficacy of U.S. and European export controls on the transfer of military equipment and dual-use technologies to China. Invited witnesses include congressional members, administration officials, and U.S. industry representatives.

Copies of the hearing agenda will be made available on the Commission's Web site *http://www.uscc.gov.* Any interested party may file a written statement by March 17, 2006, by mailing to the contact below.

Date and Time: Thursday, March 16, 2006, 8:30 a.m. to 4 pm, and Friday, March 17, 2006, 8:30 a.m. to Noon Eastern Standard Time. A detailed agenda for the hearing will be posted to the Commission's Web site at *http://www.uscc.gov* in the near future.

ADDRESSES: The hearing will be held on Capitol Hill (the exact location will be announced soon). Public seating is limited to about 50 people on a first come, first served basis. Advance reservations are not required.

FOR FURTHER INFORMATION CONTACT: Any member of the public wishing further information concerning the hearing should contact Kathy Michels, Associate Director for the U.S.-China Economic and Security Review Commission, 444 North Capitol Street, NW., Suite 602, Washington, DC 20001; phone 202–624–1409, or via e-mail at *kmichels@uscc.gov.*

Authority: Congress created the U.S.-China Economic and Security Review Commission in 2000 in the National Defense Authorization Act (Pub. L. 106–398 as amended by Division P of the Consolidated Appropriations Resolution, 2003 (Pub. L. 108–7), as amended by Public Law 109–108 (November 22, 2005).

Dated: February 22, 2006.

Kathleen J. Michels,

Associate Director, U.S.-China Economic and Security Review Commission.

[FR Doc. E6–2758 Filed 2–27–06; 8:45 am]

BILLING CODE 1137–00–P

DEPARTMENT OF VETERANS AFFAIRS

Advisory Committee on Homeless Veterans; Notice of Meeting

The Department of Veterans Affairs (VA) gives notice under Public Law 92–463 (Federal Advisory Committee Act) that a meeting of the Advisory Committee on Homeless Veterans will be held March 30–31, 2006. The Committee will meet from 8 a.m. to 4:30 p.m. on March 30, 2006, and from 8 a.m. to 12 p.m. on March 31, 2006, in the Learning Skill Center at the Maryland Center for Veterans Education and Training, 301 North High Street, Baltimore, MD. The meeting is open to the public.

The purpose of the Committee is to advise the Secretary of Veterans Affairs with an ongoing assessment of the effectiveness of the policies, organizational structures, and services of the Department in assisting homeless veterans. The Committee shall assemble and review information relating to the needs of homeless veterans and provide ongoing advice on the most appropriate means of providing assistance to homeless veterans. The Committee will make recommendations to the Secretary regarding such activities.

On March 30 and 31, the Committee will receive reports from program experts, assess the availability of health care and benefit services, receive reports from other federal departments and advocacy groups and review other initiatives designed to assist veterans who are homeless. The Committee will review the 2005 annual report responses, and draft the 2006 annual report.

Those wishing to attend the meeting should contact Mr. Pete Dougherty, Designated Federal Officer, at (202) 273–5764. No time will be allocated for receiving oral presentations during the public meeting. However, the Committee will accept written comments from interested parties on

issues affecting homeless veterans. Such comments should be referred to the Committee at the following address: Advisory Committee on Homeless Veterans, Homeless Veterans Programs Office (075D), U.S. Department of Veterans Affairs, 810 Vermont Avenue, NW., Washington, DC 20420.

Dated: February 22, 2006.

By direction of the Secretary.

E. Philip Riggin,

Committee Management Officer.

[FR Doc. 06–1868 Filed 2–27–06; 8:45 am]

BILLING CODE 8320–01–M

Corrections

Federal Register

Vol. 71, No. 39

Tuesday, February 28, 2006

This section of the FEDERAL REGISTER contains editorial corrections of previously published Presidential, Rule, Proposed Rule, and Notice documents. These corrections are prepared by the Office of the Federal Register. Agency prepared corrections are issued as signed documents and appear in the appropriate document categories elsewhere in the issue.

DEPARTMENT OF ENERGY

Office of Energy Efficiency and Renewable Energy

Federal Energy Management Program; Standard for Premium Energy Efficient Electric Motors for Federal Acquisition

Corrections

In notice document 06–1363 beginning on page 7749 in the issue of Tuesday, February 14, 2006, make the following corrections:

1. On page 7750, in Table 1, in the fourth column, in the fifth entry, ''85.5'' should read ''86.5''.

2. On the same page, in the same table, in the fifth column, in the 18th entry, ''95.0'' should read ''95.8''.

[FR Doc. C6–1363 Filed 2–27–06; 8:45 am]

BILLING CODE 1505–01–D

Federal Register

Tuesday,
February 28, 2006

Part II

Department of Labor

Occupational Safety and Health Administration

29 CFR Parts 1910, 1915, et al.
Occupational Exposure to Hexavalent Chromium; Final Rule

DEPARTMENT OF LABOR

Occupational Safety and Health Administration

29 CFR Parts 1910, 1915, 1917, 1918, and 1926

[Docket No. H054A]

RIN 1218–AB45

Occupational Exposure to Hexavalent Chromium

AGENCY: Occupational Safety and Health Administration (OSHA), Department of Labor.

ACTION: Final rule.

SUMMARY: The Occupational Safety and Health Administration (OSHA) is amending the existing standard which limits occupational exposure to hexavalent chromium (Cr(VI)). OSHA has determined based upon the best evidence currently available that at the current permissible exposure limit (PEL) for Cr(VI), workers face a significant risk to material impairment of their health. The evidence in the record for this rulemaking indicates that workers exposed to Cr(VI) are at an increased risk of developing lung cancer. The record also indicates that occupational exposure to Cr(VI) may result in asthma, and damage to the nasal epithelia and skin.

The final rule establishes an 8-hour time-weighted average (TWA) exposure limit of 5 micrograms of Cr(VI) per cubic meter of air (5 μg/m^3). This is a considerable reduction from the previous PEL of 1 milligram per 10 cubic meters of air (1 mg/10 m^3, or 100 μg/m^3) reported as CrO_3, which is equivalent to a limit of 52 μg/m^3 as Cr(VI). The final rule also contains ancillary provisions for worker protection such as requirements for exposure determination, preferred exposure control methods, including a compliance alternative for a small sector for which the new PEL is infeasible, respiratory protection, protective clothing and equipment, hygiene areas and practices, medical surveillance, recordkeeping, and start-up dates that include four years for the implementation of engineering controls to meet the PEL.

The final standard separately regulates general industry, construction, and shipyards in order to tailor requirements to the unique circumstances found in each of these sectors.

The PEL established by this rule reduces the significant risk posed to workers by occupational exposure to Cr(VI) to the maximum extent that is technologically and economically feasible.

DATES: This final rule becomes effective on May 30, 2006. Start-up dates for specific provisions are set in § 1910.1026(n) for general industry; § 1915.1026(l) for shipyards; and § 1926.1126(l) for construction. However, affected parties do not have to comply with the information collection requirements in the final rule until the Department of Labor publishes in the **Federal Register** the control numbers assigned by the Office of Management and Budget (OMB). Publication of the control numbers notifies the public that OMB has approved these information collection requirements under the Paperwork Reduction Act of 1995.

ADDRESSES: In compliance with 28 U.S.C. 2112(a), the Agency designates the Associate Solicitor for Occupational Safety and Health, Office of the Solicitor, Room S–4004, U.S. Department of Labor, 200 Constitution Avenue, NW., Washington, DC 20210, as the recipient of petitions for review of these standards.

FOR FURTHER INFORMATION CONTACT: Mr. Kevin Ropp, Director, OSHA Office of Communications, Room N–3647, U.S. Department of Labor, 200 Constitution Avenue, NW., Washington, DC 20210; telephone (202) 693–1999.

SUPPLEMENTARY INFORMATION: The following table of contents lays out the structure of the preamble to the final standards. This preamble contains a detailed description of OSHA's legal obligations, the analyses and rationale supporting the Agency's determination, including a summary of and response to comments and data submitted during the rulemaking.

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(m) Recordkeeping
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XVI. Authority and Signature
XVII. Final Standards

I. General

This final rule establishes a permissible exposure limit (PEL) of 5 micrograms of Cr(VI) per cubic meter of air (5 μg/m^3) as an 8-hour time-weighted average for all Cr(VI) compounds. After consideration of all comments and evidence submitted during this rulemaking, OSHA has made a final determination that a PEL of 5 μg/m^3 is necessary to reduce the significant health risks posed by occupational exposures to Cr(VI); it is the lowest level that is technologically and economically feasible for industries impacted by this rule. A full explanation of OSHA's rationale for establishing this PEL is presented in the following preamble sections: V (Health Effects), VI (Quantitative Risk Assessment), VII (Significance of Risk), VIII (Summary of the Final Economic Analysis and Regulatory Flexibility Analysis), and XV (Summary and Explanation of the Standard, paragraph (c), Permissible Exposure Limit).

OSHA is establishing three separate standards covering occupational exposures to Cr(VI) for: general industry (29 CFR 1910.1026); shipyards (29 CFR 1915.1026), and construction (29 CFR 1926.1126). In addition to the PEL, these three standards include ancillary provisions for exposure determination, methods of compliance, respiratory protection, protective work clothing and equipment, hygiene areas and practices, medical surveillance, communication of Cr(VI) hazards to employees, recordkeeping, and compliance dates. The general industry standard has additional provisions for regulated areas and housekeeping. The Summary and Explanation section of this preamble (Section XV, paragraphs (d) through (n)) includes a full discussion of the basis for including these provisions in the final standards.

Several major changes were made to the October 4, 2004 proposed rule as a result of OSHA's analysis of comments and data received during the comment periods and public hearings. The major changes are summarized below and are fully discussed in the Summary and Explanation section of this preamble (Section XV)

Scope. As proposed, the standards apply to occupational exposures to Cr(VI) in all forms and compounds with limited exceptions. OSHA has made a final determination to exclude from coverage of these final standards exposures that occur in the application of pesticides containing Cr(VI) (e.g., the treatment of wood with preservatives). These exposures are already covered by the Environmental Protection Agency. OSHA is also excluding exposures to portland cement and exposures in work settings where the employer has objective data demonstrating that a material containing chromium or a specific process, operation, or activity involving chromium cannot release dusts, fumes, or mists of Cr(VI) in concentrations at or above 0.5 μg/m^3 under any expected conditions of use. OSHA believes that the weight of evidence in this rulemaking demonstrates that the primary risk in these two exposure scenarios can be effectively addressed through existing OSHA standards for personal protective equipment, hygiene, hazard communication and the PELs for portland cement or particulates not otherwise regulated (PNOR).

Permissible Exposure Limit. OSHA proposed a PEL of 1 μg/m^3 but has now determined that a PEL 5 μg/m^3 is the lowest level that is technologically and economically feasible.

Exposure Determination. OSHA did not include a provision for exposure determination in the proposed shipyard and construction standards, reasoning that the obligation to meet the proposed PEL would implicitly necessitate performance-based monitoring by the employer to ensure compliance with the PEL. However, OSHA was convinced by arguments presented during the rulemaking that an explicit requirement for exposure determination is necessary to ensure that employee exposures are adequately characterized. Therefore OSHA has included a provision for exposure determination for general industry, shipyards and construction in the final rule. In order to provide additional flexibility in characterizing employee exposures, OSHA is allowing employers to choose between a scheduled monitoring option and a performance-based option for making exposure determinations.

Methods of Compliance. Under the proposed rule employers were to use engineering and work practice controls to achieve the proposed PEL unless the employer could demonstrate such controls are not feasible. In the final rule, OSHA has retained this exception but has added a provision that only requires employers to use engineering and work practice controls to reduce or maintain employee exposures to 25 μg/m^3 when painting aircraft or large aircraft parts in the aerospace industry to the extent such controls are feasible. The employer must then supplement those engineering controls with respiratory protection to achieve the PEL. As discussed more fully in the Summary of the Final Economic Analysis and Regulatory Flexibility Analysis (Section VIII) and the Summary and Explanation (Section XV) OSHA has determined that this is the lowest level achievable through the use of engineering and work practice controls alone for these limited operations.

Housekeeping. In the proposed rule, cleaning methods such as shoveling, sweeping, and brushing were prohibited unless they were the only effective means available to clean surfaces contaminated with Cr(VI). The final standard has modified this prohibition to make clear only *dry* shoveling, sweeping and brushing are prohibited so that effective wet shoveling, sweeping, and brushing would be allowed. OSHA is also adding a provision that allows the use of compressed air to remove Cr(VI) when no alternative method is feasible.

Medical Surveillance. As proposed and continued in these final standards, medical surveillance is required to be provided to employees experiencing signs or symptoms of the adverse health effects associated with Cr(VI) exposure or exposed in an emergency. In addition, for general industry, employees exposed above the PEL for 30 or more days a year were to be provided medical surveillance. In the final standard, OSHA has changed the trigger for medical surveillance to exposure above the action level (instead of the PEL) for 30 days a year to take into account the existing risks at the new PEL. This provision has also been extended to the standards for shipyards and construction since those employers now will be required to perform an exposure determination and thus will be able to determine which employees are exposed above the action level 30 or more days a year.

Communication of Hazards. In the proposed standard, OSHA specified the sign for the demarcation of regulated areas in general industry and the label for contaminated work clothing or equipment and Cr(VI) contaminated waste and debris. The proposed standard also listed the various elements to be covered for employee training. In order to simplify requirements under this section of the final standard and reduce confusion between this standard and the Hazard Communication Standard, OSHA has removed the requirement for special signs and labels and the specification of employee training elements. Instead, the final standard requires that signs, labels and training be in accordance with the Hazard Communication Standard (29 CFR 1910.1200). The only additional training elements required in the final rule are those related specifically to the contents of the final Cr(VI) standards. While the final standards have removed language in the communication of hazards provisions to make them more consistent with OSHA's existing Hazard Communication Standard, the employers obligation to mark regulated areas (where regulated areas are required), to label Cr(VI) contaminated clothing and wastes, and to train on the hazards of Cr(VI) have not changed.

Recordkeeping. In the proposed standards for shipyards and construction there were no recordkeeping requirements for exposure records since there was not a requirement for exposure determination. The final standard now requires exposure determination for shipyards and construction and therefore, OSHA has also added provisions for exposure records to be maintained in these final standards. In keeping with its intent to be consistent with the Hazard Communication Standard, OSHA has removed the requirement for training records in the final standards.

Dates. In the proposed standard, the effective date of the standard was 60 days after the publication date; the start-up date for all provisions except engineering controls was 90 days after the effective date; and the start-up date for engineering controls was two years after the effective date. OSHA believes that it is appropriate to allow additional time for employers, particularly small employers, to meet the requirements of the final rule. The effective and start-up dates have been extended as follows: the effective date for the final rule is changed to 90 days after the publication date; the start-up date for all provisions except engineering controls is changed to 180 days after the effective date for employers with 20 or more employees; the start-up date for all provisions except engineering controls is changed to one year after the effective date for employers with 19 or fewer employees; and the start-up date for engineering controls is changed to four years after the effective date for all employers.

II. Pertinent Legal Authority

The purpose of the Occupational Safety and Health Act, 29 U.S.C. 651 *et seq.* (''the Act'') is to,

> * * * assure so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources. 29 U.S.C. 651(b).

To achieve this goal Congress authorized the Secretary of Labor (the Secretary) to promulgate and enforce occupational safety and health standards. 29 U.S.C. 654(b) (requiring employers to comply with OSHA standards), 655(a) (authorizing summary adoption of existing consensus and federal standards within two years of the Act's enactment), and 655(b) (authorizing promulgation, modification or revocation of standards pursuant to notice and comment).

The Act provides that in promulgating health standards dealing with toxic materials or harmful physical agents, such as this standard regulating occupational exposure to Cr(VI), the Secretary,

> * * * shall set the standard which most adequately assures, to the extent feasible, on the basis of the best available evidence that no employee will suffer material impairment of health or functional capacity even if such employee has regular exposure to the hazard dealt with by such standard for the period of his working life. 29 U.S.C. § 655(b)(5).

The Supreme Court has held that before the Secretary can promulgate any permanent health or safety standard, she must make a threshold finding that significant risk is present and that such risk can be eliminated or lessened by a change in practices. *Industrial Union Dept., AFL–CIO* v. *American Petroleum Institute*, 448 U.S. 607, 641–42 (1980) (plurality opinion) (''The Benzene case''). The Court further observed that what constitutes ''significant risk'' is ''not a mathematical straitjacket'' and must be ''based largely on policy considerations.'' The Benzene case, 448 U.S. at 655. The Court gave the example that if,

> * * * the odds are one in a billion that a person will die from cancer * * * the risk clearly could not be considered significant. On the other hand, if the odds are one in one thousand that regular inhalation of gasoline vapors that are 2% benzene will be fatal, a reasonable person might well consider the risk significant. * * * *Id.*

OSHA standards must be both technologically and economically feasible. *United Steelworkers* v. *Marshall*, 647 F.2d 1189, 1264 (D.C. Cir. 1980) (''The Lead I case''). The Supreme Court has defined feasibility as ''capable of being done.'' *American Textile Mfrs. Inst.* v. *Donovan*, 425 U.S. 490, 509 (1981) (''The Cotton dust case''). The courts have further clarified that a standard is technologically feasible if OSHA proves a reasonable possibility,

> * * * within the limits of the best available evidence * * * that the typical firm will be able to develop and install engineering and work practice controls that can meet the PEL in most of its operations. *See* The Lead I case, 647 F.2d at 1272.

With respect to economic feasibility, the courts have held that a standard is feasible if it does not threaten massive dislocation to or imperil the existence of the industry. *See* The Lead case, 647 F.2d at 1265. A court must examine the cost of compliance with an OSHA standard ''in relation to the financial health and profitability of the industry and the likely effect of such costs on unit consumer prices.'' *Id.*

> [The] practical question is whether the standard threatens the competitive stability of an industry, * * * or whether any intra-industry or inter-industry discrimination in the standard might wreck such stability or lead to undue concentration. *Id.* (*citing Industrial Union Dept., AFL–CIO* v. *Hodgson*, 499 F.2d 467 (D.C. Cir. 1974)).

The courts have further observed that granting companies reasonable time to comply with new PEL's may enhance economic feasibility. *Id.* While a standard must be economically feasible, the Supreme Court has held that a cost-benefit analysis of health standards is not required by the Act because a feasibility analysis is. The Cotton dust case, 453 U.S. at 509. Finally, unlike safety standards, health standards must eliminate risk or reduce it to the maximum extent that is technologically and economically feasible. See *International Union, United Automobile, Aerospace & Agricultural Implement Workers of America, UAW* v. *OSHA*, 938 F.2d 1310, 1313 (D.C. Cir. 1991); Control of Hazardous Energy Sources (Lockout/Tagout), Final rule; supplemental statement of reasons, (58 FR 16612, March 30, 1993).

III. Events Leading to the Final Standard

OSHA's previous standards for workplace exposure to Cr(VI) were adopted in 1971, pursuant to section 6(a) of the Act, from a 1943 American National Standards Institute (ANSI) recommendation originally established to control irritation and damage to nasal

tissues (36 FR at 10466, 5/29/71; Ex. 20–3). OSHA's general industry standard set a permissible exposure limit (PEL) of 1 mg chromium trioxide per 10 m^3 air in the workplace (1 mg/10 m^3 CrO_3) as a ceiling concentration, which corresponds to a concentration of 52 μg/m^3 Cr(VI). A separate rule promulgated for the construction industry set an eight-hour time-weighted-average PEL of 1 mg/10 m^3 CrO_3, also equivalent to 52 μg/m^3 Cr(VI), adopted from the American Conference of Governmental Industrial Hygienists (ACGIH) 1970 Threshold Limit Value (TLV) (36 FR at 7340, 4/17/71).

Following the ANSI standard of 1943, other occupational and public health organizations evaluated Cr(VI) as a workplace and environmental hazard and formulated recommendations to control exposure. The ACGIH first recommended control of workplace exposures to chromium in 1946, recommending a time-weighted average Maximum Allowable Concentration (later called a Threshold Limit Value) of 100 μg/m^3 for chromic acid and chromates as Cr_2O_3 (Ex. 5–37), and later classified certain Cr(VI) compounds as class A1 (confirmed human) carcinogens in 1974. In 1975, the NIOSH Criteria for a Recommended Standard recommended that occupational exposure to Cr(VI) compounds should be limited to a 10-hour TWA of 1 μg/m^3, except for some forms of Cr(VI) then believed to be noncarcinogenic (Ex. 3–92). The National Toxicology Program's First Annual Report on Carcinogens identified calcium chromate, chromium chromate, strontium chromate, and zinc chromate as carcinogens in 1980 (Ex. 35–157).

During the 1980s, regulatory and standards organizations came to recognize Cr(VI) compounds in general as carcinogens. The Environmental Protection Agency (EPA) Health Assessment Document of 1984 stated that,

> * * * using the IARC [International Agency for Research on Cancer] classification scheme, the level of evidence available for the combined animal and human data would place hexavalent chromium (Cr VI) compounds into Group 1, meaning that there is decisive evidence for the carcinogenicity of those compounds in humans (Ex. 19–1, p. 7–107).

In 1988 IARC evaluated the available evidence regarding Cr(VI) carcinogenicity, concluding in 1990 that

> * * * [t]here is sufficient evidence in humans for the carcinogenicity of chromium[VI] compounds as encountered in the chromate production, chromate pigment production and chromium plating industries, [and] sufficient evidence in experimental animals for the carcinogenicity of calcium chromate, zinc chromates, strontium chromate and lead chromates (Ex. 18–3, p. 213).

In September 1988, NIOSH advised OSHA to consider all Cr(VI) compounds as potential occupational carcinogens (Ex. 31–22–22). ACGIH now classifies water-insoluble and water-soluble Cr(IV) compounds as class A1 carcinogens (Ex. 35–207). Current ACGIH standards include specific 8-hour time-weighted average TLVs for calcium chromate (1 μg/m^3), lead chromate (12 μg/m^3), strontium chromate (0.5 μg/m^3), and zinc chromates (10 μg/m^3), and generic TLVs for water soluble (50 μg/m^3) and insoluble (10 μg/m^3) forms of hexavalent chromium not otherwise classified, all measured as chromium (Ex. 35–207).

In July 1993, OSHA was petitioned for an emergency temporary standard to reduce occupational exposures to Cr(VI) compounds (Ex. 1). The Oil, Chemical, and Atomic Workers International Union (OCAW) and Public Citizen's Health Research Group (Public Citizen), citing evidence that occupational exposure to Cr(VI) increases workers' risk of lung cancer, petitioned OSHA to promulgate an emergency temporary standard to lower the PEL for Cr(VI) compounds to 0.5 μg/m^3 as an eight-hour time-weighted average (TWA). Upon review of the petition, OSHA agreed that there was evidence of increased cancer risk from exposure to Cr(VI) at the existing PEL, but found that the available data did not show the ''grave danger'' required to support an emergency temporary standard (Ex. 1–C). The Agency therefore denied the request for an emergency temporary standard, but initiated Section 6(b)(5) rulemaking and began performing preliminary analyses relevant to the rule.

In 1997, Public Citizen petitioned the United States Court of Appeals for the Third Circuit to compel OSHA to complete rulemaking lowering the standard for occupational exposure to Cr(VI). The Court denied Public Citizen's request, concluding that there was no unreasonable delay and dismissed the suit. *Oil, Chemical and Atomic Workers Union and Public Citizen Health Research Group* v. *OSHA*, 145 F.3d 120 (3rd Cir. 1998). Afterwards, the Agency continued its data collection and analytic efforts on Cr(VI) (Ex. 35–208, p. 3). In 2002, Public Citizen again petitioned the Court to compel OSHA to commence rulemaking to lower the Cr(VI) standard (Ex. 31–24–1). Meanwhile on August 22, 2002, OSHA published a Request for Information on Cr(VI) to solicit additional information on key issues related to controlling exposures to Cr(VI) (FR 67 at 54389), and on December 4, 2002 announced its intent to proceed with developing a proposed standard (Ex. 35–306). On December 24, 2002, the Court granted Public Citizen's petition, and ordered the Agency to proceed expeditiously with a Cr(VI) standard. *See Public Citizen Health Research Group* v. *Chao*, 314 F.3d 143 (3rd Cir. 2002)). In a subsequent order, the Court established a compressed schedule for completion of the rulemaking, with deadlines of October 4, 2004 for publication of a proposed standard and January 18, 2006 for publication of a final standard (Ex. 35–304).

In 2003, as required by the Small Business Regulatory Enforcement Act (SBREFA), OSHA initiated SBREFA proceedings, seeking the advice of small business representatives on the proposed rule. The SBREFA panel, including representatives from OSHA, the Small Business Administration (SBA), and the Office of Management and Budget (OMB), was convened on December 23, 2003. The panel conferred with representatives from small entities in chemical, alloy, and pigment manufacturing, electroplating, welding, aerospace, concrete, shipbuilding, masonry, and construction on March 16–17, 2004, and delivered its final report to OSHA on April 20, 2004. The Panel's report, including comments from the small entity representatives (SERS) and recommendations to OSHA for the proposed rule, is available in the Cr(VI) rulemaking docket (Ex. 34). The SBREFA Panel made recommendations on a variety of subjects. The most important recommendations with respect to alternatives that OSHA should consider included: A higher PEL than the PEL of 1; excluding cement from the scope of the standard; the use of SECALs for some industries; different PELS for different Hexavalent chromium compounds; a multi-year phase-in to the standards; and further consideration to approaches suited to the special conditions of the maritime and construction industries. OSHA has adapted many of these recommendations: The PEL is now 5; cement has been excluded from the scope of the standard; a compliance alternative, similar to a SECAL, has been used in aerospace industry; the standard allows four years to phase in engineering controls; and a new performance based monitoring approach for all industries, among other changes, all of which should make it easier for all

industries with changing work place conditions to meet the standard in a cost effective way. A full discussion of all of the recommendations, and OSHA's responses to them, is provided in Section VIII of this Preamble.

In addition to undertaking SBREFA proceedings, in early 2004, OSHA provided the Advisory Committee on Construction Safety and Health (ACCSH) and the Maritime Advisory Committee on Occupational Safety and Health (MACOSH) with copies of the draft proposed rule for review. OSHA representatives met with ACCSH in February 2004 and May 2004 to discuss the rulemaking and receive their comments and recommendations. On February 13, 2004, ACCSH recommended that portland cement should be included within the scope of the proposed standard (Ex. 35–307, pp. 288–293) and that identical PELs should be set for construction, maritime, and general industry (Ex. 35–307, pp. 293–297). On May 18, 2004, ACCSH recommended that the construction industry should be included in the current rulemaking, and affirmed its earlier recommendation regarding portland cement. OSHA representatives met with MACOSH in March 2004. On March 3, 2004, MACOSH collected and forwarded additional exposure monitoring data to OSHA to help the Agency better evaluate exposures to Cr(VI) in shipyards (Ex. 35–309, p. 208). MACOSH also recommended a separate Cr(VI) standard for the maritime industry, arguing that maritime involves different exposures and requires different means of exposure control than general industry and construction (Ex. 35–309, p. 227).

In accordance with the Court's rulemaking schedule, OSHA published the proposed standard for hexavalent chromium on October 4, 2004 (69 FR at 59306). The proposal included a notice of public hearing in Washington, DC (69 FR at 59306, 59445–59446). The notice also invited interested persons to submit comments on the proposal until January 3, 2005. In the proposal, OSHA solicited public input on 65 issues regarding the human health risks of Cr(VI) exposure, the impact of the proposed rule on Cr(VI) users, and other issues of particular interest to the Agency (69 FR at 59306–59312).

OSHA convened the public hearing on February 1, 2005, with Administrative Law Judges John M. Vittone and Thomas M. Burke presiding. At the conclusion of the hearing on February 15, 2005, Judge Burke set a deadline of March 21, 2005, for the submission of post hearing comments, additional information and data relevant to the rulemaking, and a deadline of April 20, 2005, for the submission of additional written comments, arguments, summations, and briefs. A wide range of employees, employers, union representatives, trade associations, government agencies and other interested parties participated in the public hearing or contributed written comments. Issues raised in their comments and testimony are addressed in the relevant sections of this preamble (*e.g.*, comments on the risk assessment are discussed in section VI; comments on the benefits analysis in section VIII). On December 22, 2005, OSHA filed a motion with the U.S. Court of Appeals for the Third Circuit requesting an extension of the court-mandated deadline for the publication of the final rule by six weeks, to February 28, 2006 (Ex. 48–13). The Court granted the request on January 17, 2006 (Ex. 48–15).

As mandated by the Act, the final standard on occupational exposure to hexavalent chromium is based on careful consideration of the entire record of this proceeding, including materials discussed or relied upon in the proposal, the record of the hearing, and all written comments and exhibits received.

OSHA has developed separate final standards for general industry, shipyards, and the construction industry. The Agency has concluded that excess exposure to Cr(VI) in any form poses a significant risk of material impairment to the health of workers, by causing or contributing to adverse health effects including lung cancer, non-cancer respiratory effects, and dermal effects. OSHA determined that the TWA PEL should not be set above 5 $\mu g/m^3$ based on the evidence in the record and its own quantitative risk assessment. The TWA PEL of 5 $\mu g/m^3$ reduces the significant risk posed to workers by occupational exposure to Cr(VI) to the maximum extent that is technologically and economically feasible. (See discussion of the PEL in Section XV below.)

IV. Chemical Properties and Industrial Uses

Chromium is a metal that exists in several oxidation or valence states, ranging from chromium (−II) to chromium (+VI). The elemental valence state, chromium (0), does not occur in nature. Chromium compounds are very stable in the trivalent state and occur naturally in this state in ores such as ferrochromite, or chromite ore ($FeCr_2O_4$). The hexavalent, Cr(VI) or chromate, is the second most stable state. It rarely occurs naturally; most Cr(VI) compounds are man made.

Chromium compounds in higher valence states are able to undergo ''reduction'' to lower valence states; chromium compounds in lower valence states are able to undergo ''oxidation'' to higher valence states. Thus, Cr(VI) compounds can be reduced to Cr(III) in the presence of oxidizable organic matter. Chromium can also be reduced in the presence of inorganic chemicals such as iron.

Chromium does exist in less stable oxidation (valence) states such as Cr(II), Cr(IV), and Cr(V). Anhydrous Cr(II) salts are relatively stable, but the divalent state (II, or chromous) is generally relatively unstable and is readily oxidized to the trivalent (III or chromic) state. Compounds in valence states such as (IV) and (V) usually require special handling procedures as a result of their instability. Cr(IV) oxide (CrO_2) is used in magnetic recording and storage devices, but very few other Cr(IV) compounds have industrial use. Evidence exists that both Cr(IV) and Cr(V) are formed as transient intermediates in the reduction of Cr(VI) to Cr(III) in the body.

Chromium (III) is also an essential nutrient that plays a role in glucose, fat, and protein metabolism by causing the action of insulin to be more effective. Chromium picolinate, a trivalent form of chromium combined with picolinic acid, is used as a dietary supplement, because it is claimed to speed metabolism.

Elemental chromium and the chromium compounds in their different valence states have various physical and chemical properties, including differing solubilities. Most chromium species are solid. Elemental chromium is a steel gray solid, with high melting and boiling points (1857 °C and 2672 °C, respectively), and is insoluble in water and common organic solvents. Chromium (III) chloride is a violet or purple solid, with high melting and sublimation points (1150 °C and 1300 °C, respectively), and is slightly soluble in hot water and insoluble in common organic solvents. Ferrochromite is a brown-black solid; chromium (III) oxide is a green solid; and chromium (III) sulfate is a violet or red solid, insoluble in water and slightly soluble in ethanol. Chromium (III) picolinate is a ruby red crystal soluble in water (1 part per million at 25 °C). Chromium (IV) oxide is a brown-black solid that decomposes at 300 °C and is insoluble in water.

Cr(VI) compounds have mostly lemon yellow to orange to dark red hues. They are typically crystalline, granular, or powdery although one compound (chromyl chloride) exists in liquid form. For example, chromyl chloride is a dark

red liquid that decomposes into chromate ion and hydrochloric acid in water. Chromic acids are dark red crystals that are very soluble in water. Other examples of soluble chromates are sodium chromate (yellow crystals) and sodium dichromate (reddish to bright orange crystals). Lead chromate oxide is typically a red crystalline powder. Zinc chromate is typically seen as lemon yellow crystals which decompose in hot water and are soluble in acids and liquid ammonia. Other chromates such as barium, calcium, lead, strontium, and zinc chromates vary in color from light yellow to greenish yellow to orange-yellow and exist in solid form as crystals or powder.

The Color Pigments Manufacturers Association (CPMA) provided additional information on lead chromate and some other chromates used in their pigments (Ex. 38–205, pp. 12–13). CPMA describes two main lead chromate color groups: the chrome yellow pigments and the orange to red varieties known as molybdate orange pigments. The chrome yellow pigments are solid solution crystal compositions of lead chromate and lead sulfate. Molybdate orange pigments are solid solution crystal compositions of lead chromate, lead sulfate, and lead molybdate (Ex. 38–205, p. 12). CPMA also describes a basic lead chromate called ''chrome orange,'' and a lead chromate precipitated ''onto a core'' of silica (Ex. 38–205, p. 13).

OSHA re-examined available information on solubility values in light of comments from the CPMA and Dominion Color Corporation (DCC) on qualitative solubility designations and CPMA's claim of low bioavailability of lead chromate due to its extremely low solubility (Exs. 38–201–1, p. 4; 38–205, p. 95). There was not always agreement or consistency with the qualitative assignments of solubilities. Quantitative values for the same compound also differ depending on the source of information.

The Table IV–1 is the result of OSHA's re-examination of quantitative water solubility values and qualitative designations. Qualitative designations as well as quantitative values are listed as they were provided by the source. As can be seen by the Table IV–1, qualitative descriptions vary by the descriptive terminology chosen by the source.

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Table IV-1: SOLUBILITIES FOR SELECTED CHROMATE COMPOUNDS AS REPORTED BY VARIOUS REFERENCES

Compound	**Handbook of Chemistry and Physics 53rd ed. (1)** **Solubility[a] g/l**	**IARC 1990 (2)** **Solubility[a] g/l**	**ACGIH 2001 (3)** **Solubility[a] g/l**	**Handbook of Chemistry and Physics 83rd & 85th Eds. (4)** **Solubility[a] g/l**
Lead chromate	0.000058 – Insoluble	0.00058 - Very Slightly Soluble	0.000058 - Insoluble	0.00017
Basic lead chromate	Insoluble	Insoluble		
Lead oxide				Insoluble
Barium chromate	0.0034	0.0044 - Very Slightly Soluble		0.0026
Strontium chromate	1.2	1.2 - Slightly Soluble	1.2 Slightly Soluble	1.06
Zinc chromate	Insoluble	Insoluble	Sparingly Soluble	30.8
Zinc chromate hydroxide		Slightly Soluble	Sparingly Soluble	
Zinc Potassium chromate (commercial pigment)	2.5-5.0		Sparingly Soluble	

Compound	Handbook of Chemistry and Physics 53rd ed. (1) Solubility[a] g/l	IARC 1990 (2) Solubility[a] g/l	ACGIH 2001 (3) Solubility[a] g/l	Handbook of Chemistry and Physics 83rd & 85th Eds. (4) Solubility[a] g/l
Potassium dichromate	49.0	49.0 Soluble		151
Calcium chromate	163.0	163.0 Soluble (hydrated form) Slightly Soluble (not hydrated)	163 Soluble (hydrated form) Slightly Soluble (not hydrated)	132 (dihydrate form)
Potassium chromate	629.0	629.0- Soluble		650
Sodium chromate	873.0	873.0 – Soluble		876
Sodium dichromate	1800.0 anhydride	1800.0 - Soluble		1870

[a] Solubility in water. Values and qualitative descriptions of solubility are listed as reported by the reference.

(1) *Handbook of Chemistry and Physics*, 53rd Edition, 1972-1973.

(2) International Agency for Research on Cancer, *IARC Monographs*, Vol. 49, 1990.

(3) American Conference of Governmental Industrial Hygienists (ACGIH), *Threshold Limit Values Documentation*, 2001

(4) *Handbook of Chemistry and Physics*, 83rd Edition, 2002-2003; and 85th Edition, 2004-2005.

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OSHA has made some generalizations to describe the water solubilities of chromates in subsequent sections of this **Federal Register** notice. OSHA has divided Cr(VI) compounds and mixtures into three categories based on solubility values. Compounds and mixtures with water solubilities less than 0.01 g/l are referred to as water insoluble. Compounds and mixtures between 0.01 g/l and 500 g/l are referred to as slightly

soluble. Compounds and mixtures with water solubility values of 500 g/l or greater are referred to as highly water soluble. It should be noted that these boundaries for insoluble, slightly soluble, and highly soluble are arbitrary designations for the sake of further description elsewhere in this document. Quantitative values take precedence over qualitative designations. For example, zinc chromates would be slightly soluble where their solubility values exceed 0.01 g/l.

Some major users of chromium are the metallurgical, refractory, and chemical industries. Chromium is used by the metallurgical industry to produce stainless steel, alloy steel, and nonferrous alloys. Chromium is alloyed with other metals and plated on metal and plastic substrates to improve corrosion resistance and provide protective coatings for automotive and equipment accessories. Welders use stainless steel welding rods when joining metal parts.

Cr(VI) compounds are widely used in the chemical industry in pigments, metal plating, and chemical synthesis as ingredients and catalysts. Chromates are used as high quality pigments for textile dyes, paints, inks, glass, and plastics. Cr(VI) can be produced during welding operations even if the chromium was originally present in another valence state. While Cr(VI) is not intentionally added to portland cement, it is often present as an impurity.

Occupational exposures to Cr(VI) can occur from inhalation of mists (e.g., chrome plating, painting), dusts (e.g., inorganic pigments), or fumes (e.g., stainless steel welding), and from dermal contact (e.g., cement workers).

There are about thirty major industries and processes where Cr(VI) is used. These include producers of chromates and related chemicals from chromite ore, electroplating, welding, painting, chromate pigment production and use, steel mills, and iron and steel foundries. A detailed discussion of the uses of Cr(VI) in industry is found in Section VIII of this preamble.

V. Health Effects

This section summarizes key studies of adverse health effects resulting from exposure to hexavalent chromium (Cr(VI)) in humans and experimental animals, as well as information on the fate of Cr(VI) in the body and laboratory research that relates to its toxic mode of action. The primary health impairments from workplace exposure to Cr(VI) are lung cancer, asthma, and damage to the nasal epithelia and skin. While this chapter on health effects does not describe all of the many studies that have been conducted on Cr(VI) toxicity, it includes a selection of those that are relevant to the rulemaking and representative of the scientific literature on Cr(VI) health effects.

A. Absorption, Distribution, Metabolic Reduction and Elimination

Although chromium can exist in a number of different valence states, Cr(VI) is the form considered to be the greatest health risk. Cr(VI) enters the body by inhalation, ingestion, or absorption through the skin. For occupational exposure, the airways and skin are the primary routes of uptake. The following discussion summarizes key aspects of Cr(VI) uptake, distribution, metabolism, and elimination.

1. Deposition and Clearance of Inhaled Cr(VI) From the Respiratory Tract

Various anatomical, physical and physiological factors determine both the fractional and regional deposition of inhaled particulate matter. Due to the airflow patterns in the lung, more particles tend to deposit at certain preferred regions in the lung. It is therefore possible to have a buildup of chromium at certain sites in the bronchial tree that could create areas of very high chromium concentration. A high degree of correspondence between the efficiency of particle deposition and the frequency of bronchial tumors at sites in the upper bronchial tree was reported in research by Schlesinger and Lippman that compared the distribution of cancer sites in published reports of primary bronchogenic tumors with experimentally determined particle deposition patterns (Ex. 35–102).

Large inhaled particles (>5 μm) are efficiently removed from the air-stream in the extrathoracic region (Ex. 35–175). Particles greater than 2.5 μm are generally deposited in the tracheobronchial regions, whereas particles less than 2.5 μm are generally deposited in the pulmonary region. Some larger particles (>2.5 μm) can reach the pulmonary region. The mucociliary escalator predominantly clears particles that deposit in the extrathoracic and the tracheobronchial region of the lung. Individuals exposed to high particulate levels of Cr(VI) may also have altered respiratory mucociliary clearance. Particulates that reach the alveoli can be absorbed into the bloodstream or cleared by phagocytosis.

2. Absorption of Inhaled Cr(VI) Into the Bloodstream

The absorption of inhaled chromium compounds depends on a number of factors, including physical and chemical properties of the particles (oxidation state, size, solubility) and the activity of alveolar macrophages (Ex. 35–41). The hexavalent chromate anions $(CrO_4)^{2-}$ enter cells via facilitated diffusion through non-specific anion channels (similar to phosphate and sulfate anions). As demonstrated in research by Suzuki *et al.*, a portion of water soluble Cr(VI) is rapidly transported to the bloodstream in rats (Ex. 35–97). Rats were exposed to 7.3–15.9 mg Cr(VI)/m^3 as potassium dichromate for 2–6 hours. Following exposure to Cr(VI), the ratio of blood chromium/lung chromium was 1.44±0.30 at 0.5 hours, 0.81±0.10 at 18 hours, 0.85±0.20 at 48 hours, and 0.96±0.22 at 168 hours after exposure.

Once the Cr(VI) particles reach the alveoli, absorption into the bloodstream is greatly dependent on solubility. More soluble chromates are absorbed faster than water insoluble chromates, while insoluble chromates are poorly absorbed and therefore have longer resident time in the lungs. This effect has been demonstrated in research by Bragt and van Dura on the kinetics of three Cr(VI) compounds: highly soluble sodium chromate, slightly soluble zinc chromate and water insoluble lead chromate (Ex. 35–56). They instilled ^{51}chromium-labeled compounds (0.38 mg Cr(VI)/kg as sodium chromate, 0.36 mg Cr(VI)/kg as zinc chromate, or 0.21 mg Cr(VI)/kg as lead chromate) intratracheally in rats. Peak blood levels of ^{51}chromium were reached after 30 minutes for sodium chromate (0.35 μg chromium/ml), and after 24 hours for zinc chromate (0.60 μg chromium/ml) and lead chromate (0.007 μg chromium/ml). At 30 minutes after administration, the lungs contained 36, 25, and 81% of the respective dose of the sodium, zinc, and lead chromate. On day six, >80% of the dose of all three compounds had been cleared from the lungs, during which time the disappearance from lungs followed linear first-order kinetics. The residual amount left in the lungs on day 50 or 51 was 3.0, 3.9, and 13.9%, respectively. From these results authors concluded that zinc chromate, which is less soluble than sodium chromate, is more slowly absorbed from the lungs. Lead chromate was more poorly and slowly absorbed, as indicated by very low levels in blood and greater retention in the lungs. The authors also noted that the kinetics of sodium and zinc chromates were very similar. Zinc chromate, which is less soluble than sodium chromate, was slowly absorbed from the lung, but the maximal blood levels were higher than those resulting from an equivalent dose of sodium chromate. The authors

believe that this was probably the result of hemorrhages macroscopically visible in the lungs of zinc chromate-treated rats 24 hours following intratracheal administration. Boeing Corporation commented that this study does not show that the highly water soluble sodium chromate is cleared more rapidly or retained in the lung for shorter periods than the less soluble zinc chromate (Ex. 38–106–2, p. 18–19). This comment is addressed in the Carcinogenic Effects Conclusion Section V.B.9 dealing with the carcinogenicity of slightly soluble Cr(VI) compounds.

Studies by Langard *et al.* and Adachi *et al.* provide further evidence of absorption of chromates from the lungs (Exs. 35–93; 189). In Langard *et al.*, rats exposed to 2.1 mg Cr(VI)/m^3 as zinc chromate for 6 hours/day achieved steady state concentrations in the blood after 4 days of exposure (Ex. 35–93). Adachi *et al.* studied rats that were subject to a single inhalation exposure to chromic acid mist generated from electroplating at a concentration of 3.18 mg Cr(VI)/m^3 for 30 minutes which was then rapidly absorbed from the lungs (Ex. 189). The amount of chromium in the lungs of these rats declined from 13.0 mg immediately after exposure to 1.1 mg after 4 weeks, with an overall half-life of five days.

Several other studies have reported absorption of chromium from the lungs after intratracheal instillation (Exs. 7–9; 9–81; Visek *et al.* 1953 as cited in Ex. 35–41). These studies indicated that 53–85% of Cr(VI) compounds (particle size <5 μm) were cleared from the lungs by absorption into the bloodstream or by mucociliary clearance in the pharynx; the rest remained in the lungs. Absorption of Cr(VI) from the respiratory tract of workers has been shown in several studies that identified chromium in the urine, serum and red blood cells following occupational exposure (Exs. 5–12; 35–294; 35–84).

Evidence indicates that even chromates encapsulated in a paint matrix may be released in the lungs (Ex. 31–15, p. 2). In a study of chromates in aircraft spray paint, LaPuma *et al.* measured the mass of Cr(VI) released from particles into water originating from three types of paint particles: solvent-borne epoxy (25% strontium chromate ($SrCrO_4$)), water-borne epoxy (30% $SrCrO_4$) and polyurethane (20% $SrCrO_4$) (Ex. 31–2–1). The mean fraction of Cr(VI) released into the water after one and 24 hours for each primer averaged: 70% and 85% (solvent epoxy), 74% and 84% (water epoxy), and 94% and 95% (polyurethane). Correlations between particle size and the fraction of Cr(VI) released indicated that smaller particles (<5 μm) release a larger fraction of Cr(VI) versus larger particles (>5 μm). This study demonstrates that the paint matrix only modestly hinders Cr(VI) release into a fluid, especially with smaller particles. Larger particles, which contain the majority of Cr(VI) due to their size, appear to release proportionally less Cr(VI) (as a percent of total Cr(VI)) than smaller particles. Some commenters suggested that the above research shows that the slightly soluble Cr(VI) from aircraft spray paint is less likely to reach and be absorbed in the bronchoalveolar region of the lung than a highly soluble Cr(VI) form, such as chromic acid aerosol (Exs. 38–106–2; 39–43, 44–33). This issue is further discussed in the Carcinogenic Effects Conclusion Section V.B.9.a and in the Quantitative Risk Assessment Section VI.G.4.a.

A number of questions remain unanswered regarding encapsulated Cr(VI) and bioavailability from the lung. There is a lack of detailed information on the efficiency of encapsulation and whether all of the chromate molecules are encapsulated. The stability of the encapsulated product in physiological and environmental conditions over time has not been demonstrated. Finally, the fate of inhaled encapsulated Cr(VI) in the respiratory tract and the extent of distribution in systemic tissues has not been thoroughly studied.

3. Dermal Absorption of Cr(VI)

Both human and animal studies demonstrate that Cr(VI) compounds are absorbed after dermal exposure. Dermal absorption depends on the oxidation state of chromium, the vehicle and the integrity of the skin. Cr(VI) readily traverses the epidermis to the dermis (Exs. 9–49; 309). The histological distribution of Cr(VI) within intact human skin was studied by Liden and Lundberg (Ex. 35–80). They applied test solutions of potassium dichromate in petrolatum or in water as occluded circular patches of filter paper to the skin. Results with potassium dichromate in water revealed that Cr(VI) penetrated beyond the dermis and penetration reached steady state with resorption by the lymph and blood vessels by 5 hours. About 10 times more chromium penetrated when potassium dichromate was applied in petrolatum than when applied in water, indicating that organic solvents facilitate the absorption of Cr(VI) from the skin. Research by Baranowska-Dutkiewicz also demonstrated that the absorption rates of sodium chromate solutions from the occluded forearm skin of volunteers increase with increasing concentration (Ex. 35–75). The rates were 1.1 μg Cr(VI)/cm^2/hour for a 0.01 molar solution, 6.4 μg Cr(VI)/cm^2/hour for a 0.1 molar solution, and 10 μg Cr(VI)/cm^2/hour for a 0.2 molar solution.

Additional studies have demonstrated that the absorption of Cr(VI) compounds can take place through the dermal route. Using volunteers, Mali found that potassium dichromate penetrates the intact epidermis (Exs. 9–49; 35–41). Wahlberg and Skog demonstrated the presence of chromium in the blood, spleen, bone marrow, lymph glands, urine and kidneys of guinea pigs dermally exposed to ^{51}chromium labeled Cr(VI) compounds (Ex. 35–81).

4. Absorption of Cr(VI) by the Oral Route

Inhaled Cr(VI) can enter the digestive tract as a result of mucocilliary clearance and swallowing. Studies indicate Cr(VI) is absorbed from the gastrointestinal tract. For example, in a study by Donaldson and Barreras, the six-day fecal and 24-hour urinary excretion patterns of radioactivity in groups of six volunteers given Cr(VI) as sodium chromate labeled with ^{51}chromium indicated that at least 2.1% of the Cr(VI) was absorbed. After intraduodenal administration at least 10% of the Cr(VI) compound was absorbed. These studies also demonstrated that Cr(VI) compounds are reduced to Cr(III) compounds in the stomach, thereby accounting for the relatively poor gastrointestinal absorption of orally administered Cr(VI) compounds (Exs. 35–96; 35–41). In the gastrointestinal tract, Cr(VI) can be reduced to Cr(III) by gastric juices, which is then poorly absorbed (Underwood, 1971 as cited in Ex. 19–1; Ex. 35–85).

In a study conducted by Clapp *et al.*, treatment of rats by gavage with an unencapsulated lead chromate pigment or with a silica-encapsulated lead chromate pigment resulted in no measurable blood levels of chromium (measured as Cr(III), detection limit = 10 μg/L) after two or four weeks of treatment or after a two-week recovery period. However, kidney levels of chromium (measured as Cr(III)) were significantly higher in the rats that received the unencapsulated pigment when compared to the rats that received the encapsulated pigment, indicating that silica encapsulation may reduce the gastrointestinal bioavailability of chromium from lead chromate pigments (Ex. 11–5). This study does not address the bioavailability of encapsulated chromate pigments from the lung where residence time could be different.

5. Distribution of Cr(VI) in the Body

Once in the bloodstream, Cr(VI) is taken up into erythrocytes, where it is reduced to lower oxidation states and forms chromium protein complexes during reduction (Ex. 35–41). Once complexed with protein, chromium cannot leave the cell and chromium ions are unable to repenetrate the membrane and move back into the plasma (Exs. 7–6; 7–7; 19–1; 35–41; 35–52). Once inside the blood cell, the intracellular Cr(VI) reduction to Cr(III) depletes Cr(VI) concentration in the red blood cell (Ex. 35–89). This serves to enhance diffusion of Cr(VI) from the plasma into the erythrocyte resulting in very low plasma levels of Cr(VI). It is also believed that the rate of uptake of Cr(VI) by red blood cells may not exceed the rate at which they reduce Cr(VI) to Cr(III) (Ex. 35–99). The higher tissue levels of chromium after administration of Cr(VI) than after administration of Cr(III) reflect the greater tendency of Cr(VI) to traverse plasma membranes and bind to intracellular proteins in the various tissues, which may explain the greater degree of toxicity associated with Cr(VI) (MacKenzie *et al.* 1958 as cited in 35–52; Maruyama 1982 as cited in 35–41; Ex. 35–71).

Examination of autopsy tissues from chromate workers who were occupationally exposed to Cr(VI) showed that the highest chromium levels were in the lungs. The liver, bladder, and bone also had chromium levels above background. Mancuso examined tissues from three individuals with lung cancer who were exposed to chromium in the workplace (Ex. 124). One was employed for 15 years as a welder, the second and third worked for 10.2 years and 31.8 years, respectively, in ore milling and preparations and boiler operations. The cumulative chromium exposures for the three workers were estimated to be 3.45, 4.59, and 11.38 mg/m^3-years, respectively. Tissues from the first worker were analyzed 3.5 years after last exposure, the second worker 18 years after last exposure, and the third worker 0.6 years after last exposure. All tissues from the three workers had elevated levels of chromium, with the possible exception of neural tissues. Levels were orders of magnitude higher in the lungs when compared to other tissues. Similar results were also reported in autopsy studies of people who may have been exposed to chromium in the workplace as well as chrome platers and chromate refining workers (Exs. 35–92; 21–1; 35–74; 35–88).

Animal studies have shown similar distribution patterns after inhalation exposure. For example, a study by Baetjer *et al.* investigated the distribution of Cr(VI) in guinea pigs after intratracheal instillation of slightly soluble potassium dichromate (Ex. 7–8). At 24 hours after instillation, 11% of the original dose of chromium from potassium dichromate remained in the lungs, 8% in the erythrocytes, 1% in plasma, 3% in the kidney, and 4% in the liver. The muscle, skin, and adrenal glands contained only a trace. All tissue concentrations of chromium declined to low or nondetectable levels in 140 days, with the exception of the lungs and spleen.

6. Metabolic Reduction of Cr(VI)

Cr(VI) is reduced to Cr(III) in the lungs by a variety of reducing agents. This serves to limit uptake into lung cells and absorption into the bloodstream. Cr(V) and Cr(IV) are transient intermediates in this process. The genotoxic effects produced by the Cr(VI) are related to the reduction process and are further discussed in the section V.B.8 on Mechanistic Considerations.

In vivo and *in vitro* experiments in rats indicated that, in the lungs, Cr(VI) can be reduced to Cr(III) by ascorbate and glutathione. A study by Suzuki and Fukuda showed that the reduction of Cr(VI) by glutathione is slower than the reduction by ascorbate (Ex. 35–65). Other studies have reported the reduction of Cr(VI) to Cr(III) by epithelial lining fluid (ELF) obtained from the lungs of 15 individuals by bronchial lavage. The average overall reduction capacity was 0.6 μg Cr(VI)/mg of ELF protein. In addition, cell extracts made from pulmonary alveolar macrophages derived from five healthy male volunteers were able to reduce an average of 4.8 μg Cr(VI)/10^6 cells or 14.4 μg Cr(VI)/mg protein (Ex. 35–83). Postmitochondrial (S12) preparations of human lung cells (peripheral lung parenchyma and bronchial preparations) were also able to reduce Cr(VI) to Cr(III) (De Flora *et al.* 1984 as cited in Ex. 35–41).

7. Elimination of Cr(VI) From the Body

Excretion of chromium from Cr(VI) compounds is predominantly in the urine, although there is some biliary excretion into the feces. In both urine and feces, the chromium is present as low molecular weight Cr(III) complexes. Absorbed chromium is excreted from the body in a rapid phase representing clearance from the blood and at least two slower phases representing clearance from tissues. Urinary excretion accounts for over 50% of eliminated chromium (Ex. 35–41). Although chromium is excreted in urine and feces, the intestine plays only a minor part in chromium elimination, representing only about 5% of elimination from the blood (Ex. 19–1). Normal urinary levels of chromium in humans have been reported to range from 0.24–1.8 μg/L with a median level of 0.4 μg/L (Ex. 35–79). Humans exposed to 0.01–0.1 mg Cr(VI)/m^3 as potassium dichromate (8-hour time-weighted average) had urinary excretion levels from 0.0247 to 0.037 mg Cr(III)/L. Workers exposed mainly to Cr(VI) compounds had higher urinary chromium levels than workers exposed primarily to Cr(III) compounds. An analysis of the urine did not detect Cr(VI), indicating that Cr(VI) was rapidly reduced before excretion (Exs. 35–294; 5–48).

A half-life of 15–41 hours has been estimated for chromium in urine for four welders using a linear one-compartment kinetic model (Exs. 35–73; 5–52; 5–53). Limited work on modeling the absorption and deposition of chromium indicates that adipose and muscle tissue retain chromium at a moderate level for about two weeks, while the liver and spleen store chromium for up to 12 months. The estimated half-life for whole body chromium retention is 22 days for Cr(VI) (Ex. 19–1). The half-life of chromium in the human lung is 616 days, which is similar to the half-life in rats (Ex. 7–5).

Elimination of chromium was shown to be very slow in rats exposed to 2.1 mg Cr(VI)/m^3 as zinc chromate six hours/day for four days. Urinary levels of chromium remained almost constant for four days after exposure and then decreased (Ex. 35–93). After intratracheal administration of sodium dichromate to rats, peak urinary chromium concentrations were observed at six hours, after which the urinary concentrations declined rapidly (Ex. 35–94). The more prolonged elimination of the moderately soluble zinc chromate as compared to the more soluble sodium dichromate is consistent with the influence of Cr(VI) solubility on absorption from the respiratory tract discussed earlier.

Information regarding the excretion of chromium in humans after dermal exposure to chromium or its compounds is limited. Fourteen days after application of a salve containing water soluble potassium chromate, which resulted in skin necrosis and sloughing at the application site, chromium was found at 8 mg/L in the urine and 0.61 mg/100 g in the feces of one individual (Brieger 1920 as cited in Ex. 19–1). A slight increase over background levels of urinary chromium was observed in four

subjects submersed in a tub of chlorinated water containing 22 mg Cr(VI)/L as potassium dichromate for three hours (Ex. 31–22–6). For three of the four subjects, the increase in urinary chromium excretion was less than 1 μg/day over the five-day collection period. Chromium was detected in the urine of guinea pigs after radiolabeled sodium chromate solution was applied to the skin (Ex. 35–81).

8. Physiologically-Based Pharmacokinetic Modeling

Physiologically-based pharmacokinetic (PBPK) models have been developed that simulate absorption, distribution, metabolism, and excretion of Cr(VI) and Cr(III) compounds in humans (Ex. 35–95) and rats (Exs. 35–86; 35–70). The original model (Ex. 35–86) evolved from a similar model for lead, and contained compartments for the lung, GI tract, skin, blood, liver, kidney, bone, well-perfused tissues, and slowly perfused tissues. The model was refined to include two lung subcompartments for chromium, one of which allowed inhaled chromium to enter the blood and GI tract and the other only allowed chromium to enter the GI tract (Ex. 35–70). Reduction of Cr(VI) to Cr(III) was considered to occur in every tissue compartment except bone.

The model was developed from several data sets in which rats were dosed with Cr(VI) or Cr(III) intravenously, orally or by intratracheal instillation, because different distribution and excretion patterns occur depending on the route of administration. In most cases, the model parameters (*e.g.*, tissue partitioning, absorption, reduction rates) were estimated by fitting model simulations to experimental data. The optimized rat model was validated against the 1978 Langard inhalation study (Ex. 35–93). Chromium blood levels were overpredicted during the four-day inhalation exposure period, but blood levels during the post-exposure period were well predicted by the model. The model-predicted levels of liver chromium were high, but other tissue levels were closely estimated.

A human PBPK model recently developed by O'Flaherty *et al.* is able to predict tissue levels from ingestion of Cr(VI) (Ex. 35–95). The model incorporates differential oral absorption of Cr(VI) and Cr(III), rapid reduction of Cr(VI) to Cr(III) in major body fluids and tissues, and concentration-dependent urinary clearance. The model does not include a physiologic lung compartment, but can be used to estimate an upper limit on pulmonary absorption of inhaled chromium. The model was calibrated against blood and urine chromium concentration data from a group of controlled studies in which adult human volunteers drank solutions of soluble Cr(III) or Cr(VI).

PBPK models are increasingly used in risk assessments, primarily to predict the concentration of a potentially toxic chemical that will be delivered to any given target tissue following various combinations of route, dose level, and test species. Further development of the respiratory tract portion of the model, specific Cr(VI) rate data on extracellular reduction and uptake into lung cells, and more precise understanding of critical pathways inside target cells would improve the model value for risk assessment purposes.

9. Summary

Based on the studies presented above, evidence exists in the literature that shows Cr(VI) can be systemically absorbed by the respiratory tract. The absorption of inhaled chromium compounds depends on a number of factors, including physical and chemical properties of the particles (oxidation state, size, and solubility), the reduction capacity of the ELF and alveolar macrophages and clearance by the mucocliary escalator and phagocytosis. Highly water soluble Cr(VI) compounds (*e.g.* sodium chromate) enter the bloodstream more readily than highly insoluble Cr(VI) compounds (*e.g.* lead chromate). However, insoluble compounds may have longer residence time in lung. Absorption of Cr(VI) can also take place after oral and dermal exposure, particularly if the exposures are high.

The chromate $(CrO_4)^{2-}$ enters cells via facilitated diffusion through non-specific anion channels (similar to phosphate and sulfate anions). Following absorption of Cr(VI) compounds from various exposure routes, chromium is taken up by the blood cells and is widely distributed in tissues as Cr(VI). Inside blood cells and tissues, Cr(VI) is rapidly reduced to lower oxidation states and bound to macromolecules which may result in genotoxic or cytotoxic effects. However, in the blood a substantial proportion of Cr(VI) is taken up into erythrocytes, where it is reduced to Cr(III) and becomes bound to hemoglobin and other proteins.

Inhaled Cr(VI) is reduced to Cr(III) *in vivo* by a variety of reducing agents. Ascorbate and glutathione in the ELF and macrophages have been shown to reduce Cr(VI) to Cr(III) in the lungs. After oral exposure, gastric juices are also responsible for reducing Cr(VI) to Cr(III). This serves to limit the amount of Cr(VI) systemically absorbed.

Absorbed chromium is excreted from the body in a rapid phase representing clearance from the blood and at least two slower phases representing clearance from tissues. Urinary excretion is the primary route of elimination, accounting for over 50% of eliminated chromium. Although chromium is excreted in urine and feces, the intestine plays only a minor part in chromium elimination representing only about 5% of elimination from the blood.

B. Carcinogenic Effects

There has been extensive study on the potential for Cr(VI) to cause carcinogenic effects, particularly cancer of the lung. OSHA reviewed epidemiologic data from several industry sectors including chromate production, chromate pigment production, chromium plating, stainless steel welding, and ferrochromium production. Supporting evidence from animal studies and mechanistic considerations are also evaluated in this section.

1. Evidence from Chromate Production Workers

The epidemiologic literature of workers in the chromate production industry represents the earliest and best-documented relationship between exposure to chromium and lung cancer. The earliest study of chromate production workers in the United States was reported by Machle and Gregorius in 1948 (Ex. 7–2). In the United States, two chromate production plants, one in Baltimore, MD, and one in Painesville, OH, have been the subject of multiple studies. Both plants were included in the 1948 Machle and Gregorius study and again in the study conducted by the Public Health Service and published in 1953 (Ex. 7–3). Both of these studies reported the results in aggregate. The Baltimore chromate production plant was studied by Hayes *et al.* (Ex. 7–14) and more recently by Gibb *et al.* (Ex. 31–22–11). The chromate production plant in Painesville, OH, has been followed since the 1950s by Mancuso with his most recent follow-up published in 1997. The most recent study of the Painesville plant was published by Luippold *et al.* (Ex. 31–18–4). The studies by Gibb and Luippold present historical exposure data for the time periods covered by their respective studies. The Gibb exposure data are especially interesting since the industrial hygiene data were collected on a routine basis and not for compliance purposes. These routine air

measurements may be more representative of those typically encountered by the exposed workers. In Great Britain, three plants have been studied repeatedly, with reports published between 1952 and 1991. Other studies of cohorts in the United States, Germany, Italy and Japan are also reported. The elevated lung cancer mortality reported in the great majority of these cohorts and the significant upward trends with duration of employment and cumulative exposure provide some of the strongest evidence that Cr(VI) is carcinogenic to workers. A summary of selected human epidemiologic studies in chromate production workers is presented in Table V–1.

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TABLE V-1: SUMMARY OF SELECTED EPIDEMIOLOGIC STUDIES OF LUNG CANCER IN WORKERS EXPOSED TO HEXAVALENT CHROMIUM

Chromate Production

Reference/Exhibit Number	Study Population	Reference Population	Chromium (VI) Exposure	Lung Cancer Risk
Hayes et al. (1979, Ex. 7-14) Braver et al. (1985, Ex. 7-17)	1803 male workers initially employed 3 or more months 1945-1974 at old and new Baltimore MD production facility; follow-up through 1977	Baltimore City mortality	Primarily sodium chromate and dichromate production. Avg Cr(VI) of 21 to 413 $\mu g/m^3$ and avg duration 1.6 yr to 13 yr depending on subcohort, plant, and year employed	-O/E of 2.0 ($p<0.01$) based on 59 lung cancer deaths -Increased risk with duration of employment
Gibb et al. (2000, Ex. 31-22-11)	2357 male workers initially employed 1950-1974 only at new Baltimore MD production facility; follow-up through 1992	U.S. mortality	Primarily sodium chromate and dichromate. Mean cumulative Cr(VI) of 0.070 mg/ m^3 - yr and work duration of 3.1 yr	-O/E of 1.86 ($p<0.01$) based on 71 lung cancer deaths -Significant upward mortality trend with cumulative Cr(VI) exposure
Mancuso (1997, Ex. 23) Mancuso (1975, Ex. 7-11) Mancuso and Heuper (1951, Ex. 7-13) Bourne and Yee (1950, Ex. 7-98)	332 male workers employed at Painesville OH facility 1931-1937; follow-up through 1993	Mortality rate directly calculated using the distribution of person years by age group for the entire exposed population as the standard	Primarily sodium chromate and dichromate production with some calcium chromate as a result of using high lime process. Most cumulative soluble Cr(VI) between 0.25 and 4.0 mg/ m^3 – yr based on 1949 survey	O/E not calculated but significant increase in age-adjusted lung cancer death rate with cumulative chromium exposure based on 66 deaths
Luippold et al. (2003, Ex. 31-18-4)	492 male workers employed one year between 1940 and 1972 at Painesville OH facility; follow-up through 1997	U.S. and Ohio Mortality Rates	Primarily sodium chromate and dichromate production with minor calcium chromate Mean cumulative soluble Cr(VI) of 1.58 mg/ m^3 - yr	-O/E of 2.41($p<0.01$) based on Ohio rates and 51 deaths -Significant upward mortality trend with cumulative Cr(VI) exposure
Davies et al. (1991, Ex. 7-99) Alderson et al. (1981, Ex. 7-22) Bistrup and Case (1956, Ex. 7-20)	2298 male chromate production workers employed for one year between 1950 and 1976 at three different UK plants; follow-up through 1989	Cancer mortality of England, Wales and Scotland and unexposed local workers	Principally sodium chromate and dichromate production with some calcium chromate before switch from high lime to no lime process. Avg soluble Cr(VI) in early 1950s from 2 to 880 $\mu g/m^3$ depending on job.	-O/E of 1.97 ($p<0.01$) pre-process change based on 175 deaths -SMR of 1.02 (NS) post-process change based on 14 deaths - Increased risk for high exposed compared with less exposed
Korallus et al. (1993, Ex. 7-91) Korallus et al. (1982, Ex. 7-26) Birk et al. (2005, Ex. 48-4)	1417 chromate production workers employed for one year between 1948 and 1987 at two different German plants; follow-up through 1988. 901 'post-process change' [to no lime process] workers followed	Mortality rates for North Rhine-Westphalia region of Germany where plants located as well as German national rates	Principally sodium chromate and dichromate production with some calcium chromate before switch from high lime to no lime process. Annual mean Cr(VI) between 6.2 and 38 $\mu g/m^3$ after 1977. Cr(VI) exposure not	-O/E of 2.27($p<0.01$) pre-process change based on 66 deaths -O/E of 1.22 (NS) post-process change based on 22 deaths -O/E of 2.09 ($p<0.05$) post-process change with $\geq$ 200 μg urinary Cr/dl – yr based on 12 deaths

	through 1998.		reported before 1977.	
Pastides et al. (1994, Ex. 7-93)	398 chromate production workers employed for one year between September 4, 1971 and December 31, 1989 at a North Carolina plant; follow-up through 1989	Mortality rates for eight North Carolina counties, state rates (not reported), and U.S. mortality rates	Principally sodium bichromate and chromic acid production with as a result of low lime process. About 50% of personal air monitoring samples < 1 $\mu g/m^3$ Cr(VI), 75% < 3 $\mu g/m^3$, and 96% < 25 $\mu g/m^3$.	-O/E of 127 based on U.S. rates and 2 deaths -O/E of 97 based on North Carolina county rates
Luippold et al. (2005, Ex. 47-24-2)	430 chromate production workers employed for one year at low lime North Carolina plant studied by Pastides et al. (1994); 187 chromate production workers employed for one year at a second plant after switch to low lime process in 1980; follow-up through 1998	State-specific mortality rates and U.S. mortality rates (not reported)	Principally sodium dichromate and chromic acid production as a result of low lime process. Airborne Cr(VI) levels typically < 1.5 $\mu g/m^3$; highest recorded levels < 10 $\mu g/m^3$.	-O/E of 84 based on state-specific rates and 3 deaths

Observed/Expected (O/E)
Relative Risk (RR)
Not Statistically Significant (NS)
Odds Ratio (OR)

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The basic hexavalent chromate production process involves milling and mixing trivalent chromite ore with soda ash, sometimes in the presence of lime (Exs. 7–103; 35–61). The mixture is 'roasted' at a high temperature, which oxidizes much of the chromite to hexavalent sodium chromate. Depending on the lime content used in the process, the roast also contains other chromate species, especially calcium

chromate under high lime conditions. The highly water-soluble sodium chromate is water-extracted from the water-insoluble trivalent chromite and the less water-soluble chromates (*e.g.*, calcium chromate) in the 'leaching' process. The sodium chromate leachate is reacted with sulfuric acid and sodium bisulfate to form sodium dichromate. The sodium dichromate is prepared and packaged as a crystalline powder to be sold as final product or sometimes used as the starting material to make other chromates such as chromic acid and potassium dichromate.

a. Cohort Studies of the Baltimore Facility. The Hayes *et al.* study of the Baltimore, Maryland chromate production plant was designed to determine whether changes in the industrial process at one chromium chemical production facility were associated with a decreased risk of cancer, particularly cancer of the respiratory system (Ex. 7–14). Four thousand two hundred and seventeen (4,217) employees were identified as newly employed between January 1, 1945 and December 31, 1974. Excluded from this initial enumeration were employees who: (1) were working as of 1945, but had been hired prior to 1945 and (2) had been hired since 1945 but who had previously been employed at the plant. Excluded from the final cohort were those employed less than 90 days; women; those with unknown length of employment; those with no work history; and those of unknown age. The final cohort included 2,101 employees (1,803 hourly and 298 salaried).

Hayes divided the production process into three departments: (1) The mill and roast or ''dry end'' department which consists of grinding, roasting and leaching processes; (2) the bichromate department which consists of the acidification and crystallization processes; and (3) the special products department which produces secondary products including chromic acid. The bichromate and special products departments are referred to as the ''wet end''.

The construction of a new mill and roast and bichromate plant that opened during 1950 and 1951 and a new chromic acid and special products plant that opened in 1960 were cited by Hayes as ''notable production changes'' (Ex. 7–14). The new facilities were designed to ''obtain improvements in process technique and in environmental control of exposure to chromium bearing dusts * * *'' (Ex. 7–14).

Plant-related work and health histories were abstracted for each employee from plant records. Each job on the employee's work history was characterized according to whether the job exposure occurred in (1) a newly constructed facility, (2) an old facility, or (3) could not be classified as having occurred in the new or the old facility. Those who ever worked in an old facility or whose work location(s) could not be distinguished based upon job title were considered as having a high or questionable exposure. Only those who worked exclusively in the new facility were defined for study purposes as ''low exposure''. Data on cigarette smoking were abstracted from plant records, but were not utilized in any analyses since the investigators thought them ''not to be of sufficient quality to allow analysis.''

One thousand one hundred and sixty nine (1,169) cohort members were identified as alive, 494 not individually identified as alive and 438 as deceased. Death certificates could not be located for 35 reported decedents. Deaths were coded to the 8th revision of the International Classification of Diseases.

Mortality analysis was limited to the 1,803 hourly employees calculating the standardized mortality ratios (SMRs) for specific causes of death. The SMR is a ratio of the number of deaths observed in the study population to the number that would be expected if that study population had the same specific mortality rate as a standard reference population (*e.g.*, age-, gender-, calendar year adjusted U.S. population). The SMR is typically multiplied by 100, so a SMR greater than 100 represents an elevated mortality in the study cohort relative to the reference group. In the Hayes study, the expected number of deaths was based upon Baltimore, Maryland male mortality rates standardized for age, race and time period. For those where race was unknown, the expected numbers were derived from mortality rates for whites. Cancer of the trachea, bronchus and lung accounted for 69% of the 86 cancer deaths identified and was statistically significantly elevated (O=59; E=29.16; SMR=202; 95% CI: 155–263).

Analysis of lung cancer deaths among hourly workers by year of initial employment (1945–1949; 1950–1959 and 1960–1974), exposure category (low exposure or questionable/high exposure) and duration of employment (short term defined as 90 days–2 years; long term defined as 3 years +) was also conducted. For those workers characterized as having questionable/high exposure, the SMRs were significantly elevated for the 1945–1949 and the 1950–1959 hire periods and for both short- and long-term workers (not statistically significant for the short-term workers initially hired 1945–1949). For those characterized as low exposure, there was an elevated SMR for the long-term workers hired between 1950 and 1959, but based only on three deaths (not statistically significant). No lung cancer cases were observed for workers hired 1960–1974.

Case-control analyses of (1) a history of ever having been employed in selected jobs or combinations of jobs or (2) a history of specified morbid conditions and combinations of conditions reported on plant medical records were conducted. Cases were defined as decedents (both hourly and salaried were included in the analyses) whose underlying or contributing cause of death was lung cancer. Controls were defined as deaths from causes other than malignant or benign tumors. Cases and controls were matched on race (white/non-white), year of initial employment (+/−3 years), age at time of initial employment (+/−5 years) and total duration of employment (90 days–2 years; 3–4 years and 5 years +). An odds ratio (OR) was determined where the ratio is the odds of employment in a job involving Cr(VI) exposure for the cases relative to the controls.

Based upon matched pairs, analysis by job position showed significantly elevated odds ratios for special products (OR=2.6) and bichromate and special products (OR=3.3). The relative risk for bichromate alone was also elevated (OR=2.1, not statistically significant).

The possible association of lung cancer and three health conditions (skin ulcers, nasal perforation and dermatitis) as recorded in the plant medical records was also assessed. Of the three medical conditions, only the odds ratio for dermatitis was statistically significant (OR=3.0). When various combinations of the three conditions were examined, the odds ratio for having all three conditions was statistically significantly elevated (OR=6.0).

Braver *et al.* used data from the Hayes study discussed above and the results of 555 air samples taken during the period 1945–1950 by the Baltimore City Health Department, the U.S. Public Health Service, and the companies that owned the plant, in an attempt to examine the relationship between exposure to Cr(VI) and the occurrence of lung cancer (Ex. 7–17). According to the authors, methods for determining the air concentrations of Cr(VI) have changed since the industrial hygiene data were collected at the Baltimore plant between 1945 and 1959. The authors asked the National Institute for Occupational Safety and Health (NIOSH) and the Occupational Safety and Health

Administration (OSHA) to review the available documents on the methods of collecting air samples, stability of Cr(VI) in the sampling media after collection and the methods of analyzing Cr(VI) that were used to collect the samples during that period.

Air samples were collected by both midget impingers and high volume samplers. According to the NIOSH/OSHA review, high volume samplers could have led to a ''significant'' loss of Cr(VI) due to the reduction of Cr(VI) to Cr(III) by glass or cellulose ester filters, acid extraction of the chromate from the filter, or improper storage of samples. The midget impinger was ''less subject'' to loss of Cr(VI) according to the panel since neither filters nor acid extraction from filters was employed. However, if iron was present or if the samples were stored for too long, conversion from Cr(VI) to Cr(III) may have occurred. The midget impinger can only detect water soluble Cr(VI). The authors noted that, according to a 1949 industrial hygiene survey by the U.S. Public Health Service, very little water insoluble Cr(VI) was found at the Baltimore plant. One NIOSH/OSHA panel member characterized midget impinger results as ''reproducible'' and ''accuracy * * * fairly solid unless substantial reducing agents (*e.g.*, iron) are present'' (Ex. 7–17, p. 370). Based upon the panel's recommendations, the authors used the midget impinger results to develop their exposure estimates even though the panel concluded that the midget impinger methods ''tend toward underestimation'' of Cr(VI).

The authors also cite other factors related to the industrial hygiene data that could have potentially influenced the accuracy of their exposure estimates (either overestimating or underestimating the exposure). These include: Measurements may have been taken primarily in ''problem'' areas of the plant; the plants may have been cleaned or certain processes shut down prior to industrial hygiene monitoring by outside groups; respirator use; and periodic high exposures (due to infrequent maintenance operations or failure of exposure control equipment) which were not measured and therefore not reflected in the available data.

The authors estimated exposure indices for cohorts rather than for specific individuals using hire period (1945–1949 or 1950–1959) and duration of exposure, defined as short (at least 90 days but less than three years) and long (three years or more). The usual exposure to Cr(VI) for both the short- and long-term workers hired 1945–1949 was calculated as the average of the mean annual air concentration for 1945–1947 and 1949 (data were missing for 1948). This was estimated to be 413 μg/m^3. The usual exposure to Cr(VI) was estimated to be 218 μg/m^3 for the short and long employees hired between 1950 and 1959 based on air measurements in the older facility in the early 1950s.

Cumulative exposure was calculated as the usual exposure level times average duration. Short-term workers, regardless of length of employment, were assumed to have received 1.6 years of exposure regardless of hire period. For long-term workers, the average length of exposure was 12.3 years. Those hired 1945–1949 were assigned five years at an exposure of 413 μg/m^3 and 7.3 years at an exposure of 218 μg/m^3. For the long-term workers hired between 1950 and 1959, the average length of exposure was estimated to be 13.4 years. The authors estimated that the cumulative exposures at which ''significant increases in lung cancer mortality'' were observed in the Hayes study were 0.35, 0.67, 2.93 and 3.65 mg/m^3—years. The association seen by the authors appears more likely to be the result of duration of employment rather than the magnitude of exposure since the variation in the latter was small.

Gibb *et al.* relied upon the Hayes study to investigate mortality in a second cohort of the Baltimore plant (Ex. 31–22–11). The Hayes cohort was composed of 1,803 hourly and 298 salaried workers newly employed between January 1, 1945 and December 31, 1974. Gibb excluded 734 workers who began work prior to August 1, 1950 and included 990 workers employed after August 1, 1950 who worked less than 90 days, resulting in a cohort of 2,357 males followed for the period August 1, 1950 through December 31, 1992. Fifty-one percent (1,205) of the cohort was white; 36% (848) nonwhite. Race was unknown for 13% (304) of the cohort. The plant closed in 1985.

Deaths were coded according to the 8th revision of the International Classification of Diseases. Person years of observation were calculated from the beginning of employment until death or December 31, 1992, whichever came earlier. Smoking data (yes/no) were available for 2,137 (93.3%) of the cohort from company records.

Between 1950 and 1985, approximately 70,000 measurements of airborne Cr(VI) were collected utilizing several different sampling methods. The program of routine air sampling for Cr(VI) was initiated to ''characterize 'typical/usual exposures' of workers'' (Ex. 31–22–11, p. 117). Area samples were collected during the earlier time periods, while both area and personal samples were collected starting in 1977. Exposure estimates were derived from the area sampling systems and were adjusted to ''an equivalent personal exposure estimate using job-specific ratios of the mean area and personal sampling exposure estimates for the period 1978–1985 * * *'' (Ex. 31–22–11, p. 117). According to the author, comparison of the area and personal samples showed ''no significant differences'' for about two-thirds of the job titles. For several job titles with a ''significant point source of contamination'' the area sampling methods ''significantly underestimated'' personal exposure estimates and were adjusted ''by the ratio of the two'' (Ex. 31–22–11, p. 118).

A job exposure matrix (JEM) was constructed, where air sampling data were available, containing annual average exposure for each job title. Data could not be located for the periods 1950–1956 and 1960–1961. Exposures were modeled for the missing data using the ratio of the measured exposure for a job title to the average of all measured job titles in the same department. For the time periods where ''extensive'' data were missing, a simple straight line interpolation between years with known exposures was employed.

To estimate airborne Cr(III) concentrations, 72 composite dust samples were collected at or near the fixed site air monitoring stations about three years after the facility closed. The dust samples were analyzed for Cr(VI) content using ion chromatography. Cr(III) content was determined through inductively coupled plasma spectroscopic analysis of the residue. The Cr(III):Cr(VI) ratio was calculated for each area corresponding to the air sampling zones and the measured Cr(VI) air concentration adjusted based on this ratio. Worker exposures were calculated for each job title and weighted by the fraction of time spent in each air-monitoring zone. The Cr(III):Cr(VI) ratio was derived in this manner for each job title based on the distribution of time spent in exposure zones in 1978. Cr(VI) exposures in the JEM were multiplied by this ratio to estimate Cr(III) exposures.

Information on smoking was collected at the time of hire for approximately 90% of the cohort. Of the 122 lung cancer cases, 116 were smokers and four were non smokers at the time of hire. Smoking status was unknown for two lung cancer cases. As discussed below, these data were used by the study authors to adjust for smoking in their proportional hazards regression models used to determine whether lung cancer mortality in the worker cohort increased

with increasing cumulative Cr(VI) exposure.

A total of 855 observed deaths (472 white; 323 nonwhite and 60 race unknown) were reported. SMRs were calculated using U.S. rates for overall mortality. Maryland rates (the state in which the plant was located) were used to analyze lung cancer mortality in order to better account for regional differences in disease fatality. SMRs were not adjusted for smoking. In the public hearing, Dr. Gibb explained that it was more appropriate to adjust for smoking in the proportional hazards models than in the SMRs, because the analyst must make more assumptions to adjust the SMRs for smoking than to adjust the regression model (Tr. 124).

A statistically significant lung cancer SMR, based on the national rate, was found for whites (O=71; SMR=186; 95% CI: 145–234); nonwhites (O=47; SMR=188; 95% CI: 138–251) and the total cohort (O=122; SMR=180; 95% CI: 149–214). The ratio of observed to expected lung cancer deaths (O/E) for the entire cohort stratified by race and cumulative exposure quartile were computed. Cumulative exposure was lagged five years (only exposure occurring five years before a given age was counted). The cut point for the quartiles divided the cohort into four equal groups based upon their cumulative exposure at the end of their working history (0–0.00149 mgCrO^3/m3–yr; 0.0015–0.0089 mgCrO$_3$/m^3–yr; 0.009–0.0769 mgCrO$_3$/m^3–yr; and 0.077–5.25 mgCrO$_3$/m^3–yr). For whites, the relative risk of lung cancer was significantly elevated for the second through fourth exposure quartiles with O/E values of 0.8, 2.1, 2.1 and 1.7 for the four quartiles, respectively. For nonwhites, the O/E values by exposure quartiles were 1.1, 0.9, 1.2 and 2.9, respectively. Only the highest exposure quartile was significantly elevated. For the total cohort, a significant exposure-response trend was observed such that lung cancer mortality increased with increasing cumulative Cr(VI) exposure.

Proportional hazards models were used to assess the relationship between chromium exposure and the risk of lung cancer. The lowest exposure quartile was used as the reference group. The median exposure in each quartile was used as the measure of cumulative Cr(VI) exposure. When smoking status was included in the model, relative lung cancer risks of 1.83, 2.48 and 3.32 for the second, third and fourth exposure quartiles respectively were estimated. Smoking, Cr(III) exposure, and work duration were also significant predictors of lung cancer risk in the model.

The analysis attempted to separate the effects into two multivariate proportionate hazards models (one model incorporated the log of cumulative Cr(VI) exposure, the log of cumulative Cr(III) exposure and smoking; the second incorporated the log of cumulative Cr(VI), work duration and smoking). In either regression model, lung cancer mortality remained significantly associated ($p < .05$) with cumulative Cr(VI) exposure even after controlling for the combination of smoking and Cr(III) exposure or the combination of smoking and work duration. On the other hand, lung cancer mortality was not significantly associated with cumulative Cr(III) or work duration in the multivariate analysis indicating lung cancer risk was more strongly correlated with cumulative Cr(VI) exposure than the other variables.

Exponent, as part of a larger submission from the Chrome Coalition, submitted comments on the Gibb paper prior to the publication of the proposed rule. These comments asked that OSHA review methodological issues believed by Exponent to impact upon the usefulness of the Gibb data in a risk assessment analysis. While Exponent states that the Gibb study offers data that ''are substantially better for cancer risk than the Mancuso study * * * they believe that further scrutiny of some of the methods and analytical procedures is necessary (Ex. 31–18–15–1, p. 5).

The issues raised by Exponent and the Chrome Coalition (Ex. 31–18–14) concerning the Gibb paper are: selection of the appropriate reference population for compilation of expected numbers for use in the SMR analysis; inclusion of short term workers (< 1 year); expansion of the number of exposure groupings to evaluate dose response trends; analyzing dose response by peak JEM exposure levels; analyzing dose-response at exposures above and below the current PEL and calculating smoking-adjusted SMRs for use in dose-response assessments. Exponent obtained the original data from the Gibb study. The data were reanalyzed to address the issues cited above. Exponent's findings are presented in Exhibit 31–18–15–1 and are discussed below.

Exponent suggested that Gibb's use of U.S. and Maryland mortality rates for developing expectations for the SMR analysis was inappropriate. It suggested that Baltimore city mortality rates would have been the appropriate standard to select since those mortality rates would more accurately reflect the mortality experience of those who worked at the plant. Exponent reran the SMR analysis to compare the SMR values reported by Gibb (U.S. mortality rates for SMR analysis) with the results of an SMR analysis using Maryland mortality rates and Baltimore mortality rates. Gibb reported a lung cancer SMR of 1.86 (95% CI: 1.45–2.34) for white males based upon 71 lung cancer deaths using U.S. mortality rates. Reanalysis of the data produced a lung cancer SMR of 1.85 (95% CI: 1.44–2.33) for white males based on U.S. mortality rates, roughly the same value obtained by Gibb. When Maryland and Baltimore rates are used, the SMR drops to 1.70 and 1.25 respectively.

Exponent suggested conducting sensitivity analysis that excludes short-term workers (defined as those with one year of employment) since the epidemiologic literature suggests that the mortality of short-term workers is different than long-term workers. Short-term workers in the Gibb study comprise 65% of the cohort and 54% of the lung cancers. The Coalition also suggested that data pertaining to short-term employees' information are of ''questionable usefulness for assessing the increased cancer risk from chronic occupational exposure to Cr(VI)'' (Ex. 31–18–15–1, p. 5).

Lung cancer SMRs were calculated for those who worked for less than one year and for those who worked one year or more. Exponent defined short-term workers as those who worked less than one year ''because it is consistent with the inclusion criteria used by others studying chromate chemical production worker cohorts'' (Ex. 31–18–15–1, p. 12). Exponent also suggested that Gibb's breakdown of exposure by quartile was not the most ''appropriate'' way of assessing dose-response since cumulative Cr(VI) exposures remained near zero until the 50th to 60th percentile, ''so there was no real distinction between the first two quartiles * * * (Ex. 31–18–15–1, p. 24). They also suggested that combining ''all workers together at the 75th quartile * * * does not properly account for the heterogeneity of exposure in this group'' (Ex. 31–18–15–1, p. 24). The Exponent reanalysis used six cumulative exposure levels of Cr(VI) compared with the four cumulative exposure levels of Cr(VI) in the Gibb analysis. The lower levels of exposure were combined and ''more homogeneous'' categories were developed for the higher exposure levels.

Using these re-groupings and excluding workers with less than one year of employment, Exponent reported that the highest SMRs are seen in the highest exposure group (1.5–<5.25 mg

CrO_3/m^3–years) for both white and nonwhite, based on either the Maryland or the Baltimore mortality rates. The authors did not find ''that the inclusion of short-term workers had a significant impact on the results, especially if Baltimore rates are used in the SMR calculations' (Ex. 31–18–15–1, p. 28).

Analysis of length of employment and ''peak'' (*i.e.*, highest recorded mean annual) exposure level to Cr(VI) was conducted. Exponent reported that approximately 50% of the cohort had ''only very low'' peak exposure levels (<7.2 μg CrO_3/m^3 or approximately 3.6 μg/m^3 of Cr(VI)). The majority of the short-term workers had peak exposures of <100 μg CrO_3/m^3. There were five peak Cr(VI) exposure levels (<7.2 μg CrO_3/m^3; 7.2–<19.3 μg CrO_3/m^3; 19.3–<48.0 μg CrO_3/m^3; 48.0–<105 μg CrO_3/m^3; 105–<182 μg CrO_3/m^3; and 182–<806 μg CrO_3/m^3) included in the analyses. Overall, the lung cancer SMRs for the entire cohort grouped according to the six peak exposure categories were slightly higher using Maryland reference rates compared to Baltimore reference rates.

The Exponent analysis of workers who were ever exposed above the current PEL versus those never exposed above the current PEL produced slightly higher SMRs for those ever exposed, with the SMRs higher using the Maryland standard rather than the Baltimore standard. The only statistically significant result was for all lung cancer deaths combined.

Assessment was made of the potential impact of smoking on the lung cancer SMRs since Gibb did not adjust the SMRs for smoking. Exponent stated that the smoking-adjusted SMRs are more appropriate for use in the risk assessment than the unadjusted SMRs. It should be noted that smoking adjusted SMRs could not be calculated using Baltimore reference rates. As noted by the authors, the smoking adjusted SMRs produced using Maryland reference rates are, by exposure, ''reasonably consistent with the Baltimore-referenced SMRs'' (Ex. 31–18–15–1, p. 41).

Gibb *et al.* included workers regardless of duration of employment, and the cohort was heavily weighted by those individuals who worked less than 90 days. In an attempt to clarify this issue, Exponent produced analyses of short-term workers, particularly with respect to exposures. Exponent redefined short-term workers as those who worked less than one year, to be consistent with the definition used in other studies of chromate producers. OSHA finds this reanalysis excluding short-term workers to be useful. It suggests that including cohort workers employed less than one year did not substantively alter the conclusions of Gibb *et al.* with regard to the association between Cr(VI) exposure and lung cancer mortality. It should be noted that in the Hayes study of the Baltimore plant, the cohort is defined as anyone who worked 90 days or more.

Hayes *et al.* used Baltimore mortality rates while Gibb *et al.* used U.S. mortality rates to calculate expectations for overall SMRs. To calculate expectations for the analysis of lung cancer mortality and exposure, Gibb *et al.* used Maryland state mortality rates. The SMR analyses provided by Exponent using both Maryland and Baltimore rates are useful. The data showed that using Baltimore rates raised the expected number of lung cancer deaths and, thus, lowered the SMRs. However, there remained a statistically significant increase in lung cancer risk among the exposed workers and a significant upward trend with cumulative Cr(VI) exposure. The comparison group should be as similar as possible with respect to all other factors that may be related to the disease except the determinant under study. Since the largest portion of the cohort (45%) died in the city of Baltimore, and even those whose deaths occurred outside of Baltimore (16%) most likely lived in proximity to the city, the use of Baltimore mortality rates as an external reference population is preferable.

Gibb's selection of the cut points for the exposure quartiles was accomplished by dividing the workers in the cohort into four equal groups based on their cumulative exposure at the end of their working history. Using the same method but excluding the short-term workers would have resulted in slightly different cumulative exposure quartiles. Exponent expressed a preference for a six-tiered exposure grouping. The impact of using different exposure groupings is further discussed in section VI.C of the quantitative risk assessment.

The exposure matrix of Gibb *et al.* utilizes an unusually high-quality set of industrial hygiene data. Over 70,000 samples taken to characterize the ''typical/usual'' working environment is more extensive industrial hygiene data then is commonly available for most exposure assessments. However, there are several unresolved issues regarding the exposure assessment, including the impact of the different industrial hygiene sampling techniques used over the sampling time frame, how the use of different sampling techniques was taken into account in developing the exposure assessment and the use of area vs. personal samples.

Exponent and the Chrome Coalition also suggested that the SMRs should have been adjusted for smoking. According to Exponent, smoking adjusted SMRs based upon the Maryland mortality rates produced SMRs similar to the SMRs obtained using Baltimore mortality rates (Ex. 31–18–15–1). The accuracy of the smoking data is questionable since it represents information obtained at the time of hire. Hayes abstracted the smoking data from the plant medical records, but ''found it not to be of sufficient quality to allow analysis.'' One advantage to using the Baltimore mortality data may be to better control for the potential confounding of smoking.

The Gibb study is one of the better cohort mortality studies of workers in the chromium production industry. The quality of the available industrial hygiene data and its characterization as ''typical/usual'' makes the Gibb study particularly useful for risk assessment.

b. Cohort Studies of the Painesville Facility. The Ohio Department of Health conducted epidemiological and environmental studies at a plant in Painesville that manufactured sodium bichromate from chromite ore. Mancuso and Hueper (Ex. 7–12) reported an excess of respiratory cancer among chromate workers when compared to the county in which the plant was located. Among the 33 deaths in males who had worked at the plant for a minimum of one year, 18.2% were from respiratory cancer. In contrast, the expected frequency of respiratory cancer among males in the county in which the plant was located was 1.2%. Although the authors did not include a formal statistical comparison, the lung cancer mortality rate among the exposed workers would be significantly greater than the county rate.

Mancuso (Ex. 7–11) updated his 1951 study of 332 chromate production workers employed during the period 1931–1937. Age adjusted mortality rates were calculated by the direct method using the distribution of person years by age group for the total chromate population as the standard. Vital status follow-up through 1974 found 173 deaths. Of the 66 cancer deaths, 41 (62.1%) were lung cancers. A cluster of lung cancer deaths was observed in workers with 27–36 years since first employment.

Mancuso used industrial hygiene data collected in 1949 to calculate weighted average exposures to water-soluble (presumed to be Cr(VI)), insoluble (presumed to be principally Cr(III)) and

total chromium (Ex. 7–98). The age-adjusted lung cancer death rate increased from 144.6 (based upon two deaths) to 649.6 (based upon 14 deaths) per 100,000 in five exposure categories ranging from a low of 0.25–0.49 to a high of 4.0+ mg/m^3–years for the insoluble Cr(III) exposures. For exposure to soluble Cr(VI), the age adjusted lung cancer rates ranged from 80.2 (based upon three deaths) to 998.7 (based upon 12 deaths) in five exposure categories ranging from <0.25 to 2.0+ mg/m^3–years. For total chromium, the age-adjusted death rates ranged from 225.7 (based upon three deaths) to 741.5 (based upon 16 deaths) for exposures ranging from 0.50–0.99 mg/m^3–years to 6.0+ mg/m^3–years.

Age-adjusted lung cancer death rates also were calculated by classifying workers by the levels of insoluble Cr(III) and total chromium exposure. From the data presented, it appears that for a fixed level of insoluble Cr(III), the lung cancer risk appears to increase as the total chromium increases (Ex. 7–11).

Mancuso (Ex. 23) updated the 1975 study. As of December 31, 1993, 283 (85%) cohort members had died and 49 could not be found. Of the 102 cancer deaths, 66 were lung cancers. The age-adjusted lung cancer death rate per 100,000 ranged from 187.9 (based upon four deaths) to 1,254.1 (based upon 15 deaths) for insoluble Cr(III) exposure categories ranging from 0.25–0.49 to 4.00–5.00 mg/m^3 years. For the highest exposure to insoluble Cr(III) (6.00+ mg/m^3 years) the age-adjusted lung cancer death rate per 100,000 fell slightly to 1,045.5 based upon seven deaths.

The age-adjusted lung cancer death rate per 100,000 ranged from 99.7 (based upon five deaths) to 2,848.3 (based upon two deaths) for soluble Cr(VI) exposure categories ranging from <0.25 to 4.00+ mg/m^3 years. For total chromium, the age-adjusted lung cancer death rate per 100,000 ranged from 64.7 (based upon two deaths) to 1,106.7 (based upon 21 deaths) for exposure categories ranging from <0.50 to 6.00+ mg/m^3 years.

To investigate whether the increase in the lung cancer death rate was due to one form of chromium compound (presumed insoluble Cr(III) or soluble Cr(VI)), age-adjusted lung cancer mortality rates were calculated by classifying workers by the levels of exposure to insoluble Cr(III) and total chromium. For a fixed level of insoluble Cr(III), the lung cancer rate appears to increase as the total chromium increases for each of the six total chromium exposure categories, except for the 1.00–1.99 mg/m^3-years category. For the fixed exposure categories for total chromium, increasing exposures to levels of insoluble Cr(III) showed an increased age-adjusted death rate from lung cancer in three of the six total chromium exposure categories.

For a fixed level of soluble Cr(VI), the lung cancer death rate increased as total chromium categories of exposure increased for three of the six gradients of soluble Cr(VI). For the fixed exposure categories of total chromium, the increasing exposure to specific levels of soluble Cr(VI) led to an increase in two of the six total chromium exposure categories. Mancuso concluded that the relationship of lung cancer is not confined solely to either soluble or insoluble chromium. Unfortunately, it is difficult to attribute these findings specifically to Cr(III) [as insoluble chromium] and Cr(VI) [as soluble chromium] since it is likely that some slightly soluble and insoluble Cr(VI) as well as Cr(III) contributed to the insoluble chromium measurement.

Luippold *et al.* conducted a retrospective cohort study of 493 former employees of the chromate production plant in Painesville, Ohio (Ex. 31–18–4). This Painesville cohort does not overlap with the Mancuso cohort and is defined as employees hired beginning in 1940 who worked for a minimum of one year at Painesville and did not work at any other facility owned by the same company that used or produced Cr(VI). An exception to the last criterion was the inclusion of workers who subsequently were employed at a company plant in North Carolina (number not provided). Four cohort members were identified as female. The cohort was followed for the period January 1, 1941 through December 31, 1997. Thirty-two percent of the cohort worked for 10 or more years.

Information on potential confounders was limited. Smoking status (yes/no) was available for only 35% of the cohort from surveys administered between 1960 and 1965 or from employee medical files. For those employees where smoking data were available, 78% were smokers (responded yes on at least one survey or were identified as smokers from the medical file). Information on race also was limited, the death certificate being the primary source of information.

Results of the vital status follow-up were: 303 deaths; 132 presumed alive and 47 vital status unknown. Deaths were coded to the 9th revision of the International Classification of Diseases. Cause of death could not be located for two decedents. For five decedents the cause of death was only available from data collected by Mancuso and was recoded from the 7th to the 9th revision of the ICD. There were no lung cancer deaths among the five recoded deaths.

SMRs were calculated based upon two reference populations: The U.S. (white males) and the state of Ohio (white males). Lung cancer SMRs stratified by year of hire, duration of exposure, time since first employment and cumulative exposure group also were calculated.

Proctor *et al.* analyzed airborne Cr(VI) levels throughout the facility for the years 1943 to 1971 (the plant closed April 1972) from 800 area air sampling measurements from 21 industrial hygiene surveys (Ex. 35–61). A job exposure matrix (JEM) was constructed for 22 exposure areas for each month of plant operation. Gaps in the matrix were completed by computing the arithmetic mean concentration from area sampling data, averaged by exposure area over three time periods (1940–1949; 1950–1959 and 1960–1971) which coincided with process changes at the plant (Ex. 31–18–1)

The production of water-soluble sodium chromate was the primary operation at the Painesville plant. It involved a high lime roasting process that produced a water insoluble Cr(VI) residue (calcium chromate) as byproduct that was transported in open conveyors and likely contributed to worker exposure until the conveyors were covered during plant renovations in 1949. The average airborne soluble Cr(VI) from industrial hygiene surveys in 1943 and 1948 was 0.72 mg/m^3 with considerable variability among departments. During these surveys, the authors believe the reported levels may have underestimated total Cr(VI) exposure by 20 percent or less for some workers due to the presence of insoluble Cr(VI) dust.

Reductions in Cr(VI) levels over time coincided with improvements in the chromate production process. Industrial hygiene surveys over the period from 1957 to 1964 revealed average Cr(VI) levels of 270 μg/m^3. Another series of plant renovations in the early 1960s lowered average Cr(VI) levels to 39 μg/m^3 over the period from 1965 to 1972. The highest Cr(VI) concentrations generally occurred in the shipping, lime and ash, and filtering operations while the locker rooms, laboratory, maintenance shop and outdoor raw liquor storage areas had the lowest Cr(VI) levels.

The average cumulative Cr(VI) exposure (mg/m^3-yrs) for the cohort was 1.58 mg/m^3-yrs and ranged from 0.006 to 27.8 mg/m^3-yrs. For those who died from lung cancer, the average Cr(VI) exposure was 3.28 mg/m^3-yrs and ranged from 0.06 to 27.8 mg/m^3-yrs.

According to the authors, 60% of the cohort accumulated an estimated Cr(VI) exposure of 1.00 mg/m^3-yrs or less.

Sixty-three per cent of the study cohort was reported as deceased at the end of the follow-up period (December 31, 1997). There was a statistically significant increase for the all causes of death category based on both the national and Ohio state standard mortality rates (national: O=303; E=225.6; SMR=134; 95% CI: 120–150; state: O=303; E=235; SMR=129; 95% CI: 115–144). Fifty-three of the 90 cancer deaths were cancers of the respiratory system with 51 coded as lung cancer. The SMR for lung cancer is statistically significant using both reference populations (national O= 51; E=19; SMR 268; 95% CI: 200–352; state O=51; E=21.2; SMR 241; 95% CI: 180–317).

SMRs also were calculated by year of hire, duration of employment, time since first employment and cumulative Cr(VI) exposure, mg/m^3-years. The highest lung cancer SMRs were for those hired during the earliest time periods. For the period 1940–1949, the lung cancer SMR was 326 (O=30; E=9.2; 95% CI: 220–465); for 1950–1959, the lung cancer SMR was 275 (O=15; E=5.5; 95% CI: 154–454). For the period 1960–1971, the lung cancer SMR was just under 100 based upon six deaths with 6.5 expected.

Lung cancer SMRs based upon duration of employment (years) increased as duration of employment increased. For those with one to four years of employment, the lung cancer SMR was 137 based upon nine deaths (E=6.6; 95% CI: 62–260); for five to nine years of employment, the lung cancer SMR was 160 (O=8; E=5.0; 95% CI: 69–314). For those with 10–19 years of employment, the lung cancer SMR was 169 (O=7; E=4.1; 95% CI: 68–349), and for those with 20 or more years of employment, the lung cancer SMR was 497 (O=27; E=5.4; 95% CI: 328–723).

Analyses of cumulative Cr(VI) exposure found the lung cancer SMR (based upon the Ohio standard) in the highest exposure group (2.70–27.80 mg/m^3-yrs) was 463 (O=20; E=4.3; 95% CI: 183–398). In the 1.05–2.69 mg/m^3-yrs cumulative exposure group, the lung cancer SMR was 365 based upon 16 deaths (E=4.4; 95% CI: 208–592). For the cumulative exposure groups 0.49–1.04, 0.20–0.48 and 0.00–0.19, the lung cancer SMRs were 91 (O=4; E=4.4; 95% CI: 25–234; 184 (O=8; E=4.4; 95% CI: 79–362) and 67 (O=3; E=4.5; 95% CI: 14–196). A test for trend showed a strong relationship between lung cancer mortality and cumulative Cr(VI) exposure (p=0.00002). The authors claim that the SMRs are also consistent with a threshold effect since there was no statistically significant trend for excess lung cancer mortality with cumulative Cr(VI) exposures less than about 1 mg/m^3-yrs. The issue of whether the cumulative Cr(VI) exposure-lung cancer response is best represented by a threshold effect is discussed further in preamble section VI on the quantitative risk assessment.

The Painesville cohort is small (482 employees). Excluded from the cohort were six employees who worked at other chromate plants after Painesville closed. However, exceptions were made for employees who subsequently worked at the company's North Carolina plant (number not provided) because exposure data were available from the North Carolina plant. Subsequent exposure to Cr(VI) by other terminated employees is unknown and not taken into account by the investigators. Therefore, the extent of the bias introduced is unknown.

The 10% lost to follow-up (47 employees) in a cohort of this size is striking. Four of the forty-seven had ''substantial'' follow-up that ended in 1997 just before the end date of the study. For the remaining 43, most were lost in the 1950s and 1960s (most is not defined). Since person-years are truncated at the time individuals are lost to follow up, the potential implication of lost person years could impact the width of the confidence intervals.

The authors used U.S. and Ohio mortality rates for the standards to compute the expectations for the SMRs, stating that the use of Ohio rates minimizes bias that could occur from regional differences in mortality. It is unclear why county rates were not used to address the differences in regional mortality.

c. Other Cohort Studies. The first study of cancer of the respiratory system in the U.S. chromate producing industry was reported by Machle and Gregorius (Ex. 7–2). The study involved a total of 11,000 person-years of observation between 1933 and 1947. There were 193 deaths; 42 were due to cancer of the respiratory system. The proportion of respiratory cancer deaths among chromate workers was compared with proportions of respiratory cancer deaths among Metropolitan Life Insurance industrial policyholders. A non-significant excess respiratory cancer among chromate production workers was found. No attempt was made to control for confounding factors (*e.g.*, age). While some exposure data are presented, the authors state that one cannot associate tumor rates with tasks (and hence specific exposures) because of ''shifting of personnel'' and the lack of work history records.

Baetjer reported the results of a case-control study based upon records of two Baltimore hospitals (Ex. 7–7). A history of working with chromates was determined from these hospital records and the proportion of lung cancer cases determined to have been exposed to chromates was compared with the proportion of controls exposed. Of the lung cancer cases, 3.4% had worked in a chromate manufacturing plant, while none of the controls had such a history recorded in the medical record. The results were statistically significant and Baetjer concluded that the data confirmed the conclusions reached by Machle and Gregorius that ''the number of deaths due to cancer of the lung and bronchi is greater in the chromate-producing industry than would normally be expected'' (Ex. 7–7, p. 516).

As a part of a larger study carried out by the U.S. Public Health Service, the morbidity and mortality of male workers in seven U.S. chromate manufacturing plants during the period 1940–1950 was reported (Exs. 7–1; 7–3). Nearly 29 times as many deaths from respiratory cancer (excluding larynx) were found among workers in the chromate industry when compared to mortality rates for the total U.S. for the period 1940–1948. The lung cancer risk was higher at the younger ages (a 40-fold risk at ages 15–45; a 30-fold risk at ages 45–54 and a 20-fold risk at ages 55–74). Analysis of respiratory cancer deaths (excluding larynx) by race showed an observed to expected ratio of 14.29 for white males and 80 for nonwhite males.

Taylor conducted a mortality study in a cohort of 1,212 chromate workers followed over a 24 year (1937–1960) period (Ex. 7–5). The workers were from three chromate plants that included approximately 70% of the total population of U.S. chromate workers in 1937. In addition, the plants had been in continuous operation for the study period (January 1, 1937 to December 31, 1960). The cohort was followed utilizing records of Old Age and Survivors Disability Insurance (OASDI). Results were reported both in terms of SMRs and conditional probabilities of survival to various ages comparing the mortality experience of chromate workers to the U.S. civilian male population. No measures of chromate exposure were reported although results are provided in terms of duration of employment. Taylor concluded that not only was there an excess in mortality from respiratory cancer, but from other causes as well, especially as duration of employment increased.

In a reanalysis of Taylor's data, Enterline excluded those workers born prior to 1889 and analyzed the data by follow-up period using U.S. rates (Ex. 7–4). The SMR for respiratory cancer for all time periods showed a nine-fold excess (O=69 deaths; E=7.3). Respiratory cancer deaths comprised 28% of all deaths. Two of the respiratory cancer deaths were malignant neoplasms of the maxillary sinuses, a number according to Enterline, ''greatly in excess of that expected based on the experience of the U.S. male population.'' Also slightly elevated were cancers of the digestive organs (O=16; E=10.4) and non-malignant respiratory disease (O=13; E=8.9).

Pastides *et al.* conducted a cohort study of workers at a North Carolina chromium chemical production facility (Ex. 7–93). Opened in 1971, this facility is the largest chromium chemical production facility in the United States. A low-lime process was used since the plant began operation. Three hundred and ninety eight workers employed for a minimum of one year between September 4, 1971 and December 31, 1989 comprised the study cohort. A self-administered employee questionnaire was used to collect data concerning medical history, smoking, plant work history, previous employment and exposure to other potential chemical hazards. Personal air monitoring results for Cr(VI) were available from company records for the period February 1974 through April 1989 for 352 of the 398 cohort members. A job matrix utilizing exposure area and calendar year was devised. The exposure means from the matrix were linked to each employee's work history to produce the individual exposure estimates by multiplying the mean Cr(VI) value from the matrix by the duration (time) in a particular exposure area (job). Annual values were summed to estimate total cumulative exposure.

Personal air monitoring indicated that TWA Cr(VI) air concentrations were generally very low. Roughly half the samples were less than 1 $\mu g/m^3$, about 75 percent were below 3 $\mu g/m^3$, and 96 percent were below 25 $\mu g/m^3$. The average worker's age was 42 years and mean duration of employment was 9.5 years. Two thirds of the workers had accumulated less than 0.01 $\mu g/m^3$-yr cumulative Cr(VI) exposure. SMRs were computed using National, State (not reported) and county mortality rates (eight adjoining North Carolina counties, including the county in which the plant is located). Two of the 17 recorded deaths in the cohort were from lung cancers. The SMRs for lung cancer were 127 (95% CI: 22–398) and 97 (95% CI: 17–306) based on U.S. and North Carolina county mortality rates, respectively. The North Carolina cohort is still relatively young and not enough time has elapsed to reach any conclusions regarding lung cancer risk and Cr(VI) exposure.

In 2005, Luippold *et al.* published a study of mortality among two cohorts of chromate production workers with low exposures (Ex. 47–24–2). Luippold *et al.* studied a total of 617 workers with at least one year of employment, including 430 at the North Carolina plant studied by Pastides *et al.* (1994) (''Plant 1'') and 187 hired after the 1980 institution of exposure-reducing process and work practice changes at a second U.S. plant (''Plant 2''). A high-lime process was never used at Plant 1, and workers drawn from Plant 2 were hired after the institution of a low lime process, so that exposures to calcium chromate in both cohorts were likely minimal. Personal air-monitoring measures available from 1974 to 1988 for the first plant and from 1981 to 1998 for the second plant indicated that exposure levels at both plants were low, with overall geometric mean concentrations below 1.5 $\mu g/m^3$ and area-specific average personal air sampling values not exceeding 10 $\mu g/m^3$ for most years (Ex. 47–24–2, p. 383).

Workers were followed through 1998. By the end of follow-up, which lasted an average of 20.1 years for workers at Plant 1 and 10.1 years at Plant 2, 27 cohort members (4%) were deceased. There was a 41% deficit in all-cause mortality when compared to all-cause mortality from age-specific state reference rates, suggesting a strong healthy worker effect. Lung cancer was 16% lower than expected based on three observed vs. 3.59 expected cases, also using age-specific state reference rates (Ex. 47–24–2, p. 383). The authors stated that ''[t]he absence of an elevated lung cancer risk may be a favorable reflection of the postchange environment'', but cautioned that longer follow-up allowing an appropriate latency for the entire cohort would be required to confirm this conclusion (Ex. 47–24–2, p. 381). OSHA received several written testimony regarding this cohort during the post-hearing comment period. These are discussed in section VI.B.7 on the quantitative risk assessment.

A study of four chromate producing facilities in New Jersey was reported by Rosenman (Ex. 35–104). A total of 3,408 individuals were identified from the four facilities over different time periods (plant A from 1951–1954; plant B from 1951–1971; plant C from 1937–1964 and plant D 1937–1954). No Cr(VI) exposure data was collected for this study. Proportionate mortality ratios (PMRs) and proportionate cancer mortality ratios (PCMRs), adjusted by race, age, and calendar year, were calculated for the three companies (plants A and B are owned by one company). Unlike SMRs, PMRs are not based on the expected mortality rates in a standardized population but, instead, merely represent the proportional distribution of deaths in the cohort relative to the general U.S. population. Analyses were done evaluating duration of work and latency from first employment.

Significantly elevated PMRs were seen for lung cancer among white males (170 deaths, PMR=1.95; 95% CI: 1.67–2.27) and black males (54 deaths, PMR=1.88; 95% CI: 1.41–2.45). PMRs were also significantly elevated (regardless of race) for those who worked 1–10, 11–20 and >20 years and consistently higher for white and black workers 11–20 years and >20 years since first hire. The results were less consistent for those with 10 or fewer years since first hire.

Bidstrup and Case reported the mortality experience of 723 workers at three chromate producing factories in Great Britain (Ex. 7–20). Lung cancer mortality was 3.6 times that expected (O=12; E=3.3) for England and Wales. Alderson *et al.* conducted a follow-up of workers from the three plants in the U.K. (Bolton, Rutherglen and Eaglescliffe) originally studied by Bidstrup (Ex. 7–22). Until the late 1950s, all three plants operated a ''high-lime'' process. This process potentially produced significant quantities of calcium chromate as a by-product as well as the intended sodium dichromate. Process changes occurred during the 1940s and 1950s. The major change, according to the author, was the introduction of the ''no-lime'' process, which eliminated unwanted production of calcium chromate. The no-lime process was introduced at Eaglescliffe 1957–1959 and by 1961 all production at the plant was by this process. Rutherglen operated a low-lime process from 1957/1959 until it closed in 1967. Bolton never changed to the low lime process. The plant closed in 1966. Subjects were eligible for entry into the study if they had received an X-ray examination at work and had been employed for a minimum of one year between 1948 and 1977. Of the 3,898 workers enumerated at the three plants, 2,715 met the cohort entrance criteria, (alive: 1,999; deceased: 602; emigrated: 35; and lost to follow-up: 79). Those lost to follow-up were not included in the analyses. Eaglescliffe contributed the greatest number of subjects to the study (1,418). Rutherglen contributed the

largest number of total deaths (369, or 61%). Lung cancer comprised the majority of cancer deaths and was statistically significantly elevated for the entire cohort (O=116; E=47.96; SMR=240; p <0.001). Two deaths from nasal cancer were observed, both from Rutherglen.

SMRs were computed for Eaglescliffe by duration of employment, which was defined based upon plant process updates (those who only worked before the plant modification, those who worked both before and after the modifications, or those who worked only after the modifications were completed). Of the 179 deaths at the Eaglescliffe plant, 40 are in the pre-change group; 129 in the pre-/post-change and 10 in the post-change. A total of 36 lung cancer deaths occurred at the plant, in the pre-change group O=7; E=2.3; SMR=303; in the pre-/post-change group O=27; E=13; SMR=2.03 and in the post-change group O=2; E=1.07; SMR=187.

In an attempt to address several potential confounders, regression analysis examined the contributions of various risk factors to lung cancer. Duration of employment, duration of follow-up and working before or after plant modification appear to be greater risk factors for lung cancer, while age at entry or estimated degree of chromate exposure had less influence.

Davies updated the work of Alderson, *et al.* concerning lung cancer in the U.K. chromate producing industry (Ex. 7–99). The study cohort included payroll employees who worked a minimum of one year during the period January 1, 1950 and June 30, 1976 at any of the three facilities (Bolton, Eaglescliffe or Rutherglen). Contract employees were excluded unless they later joined the workforce, in which case their contract work was taken into account.

Based upon the date of hire, the workers were assigned to one of three groups. The first, or ''early'' group, consists of workers hired prior to January 1945 who are considered long term workers, but do not comprise a cohort since those who left or died prior to 1950 are excluded. The second group, ''pre-change'' workers, were hired between January 1, 1945 to December 31, 1958 at Rutherglen or to December 31, 1960 at Eaglescliffe. Bolton employees starting from 1945 are also termed pre-change. The cohort of pre-change workers is considered incomplete since those leaving 1946–1949 could not be included and because of gaps in the later records. For those who started after 1953 and for all men staying 5+ years, this subcohort of pre-change workers is considered complete. The third group, ''post-change'' workers, started after the process changes at Eaglescliffe and Rutherglen became fully effective and are considered a ''complete'' cohort. A ''control'' group of workers from a nearby fertilizer facility, who never worked in or near the chromate plant, was assembled.

A total of 2,607 employees met the cohort entrance criteria. As of December 31, 1988, 1,477 were alive, 997 dead, 54 emigrated and 79 could not be traced (total lost to follow-up: 133). SMRs were calculated using the mortality rates for England and Wales and the mortality rates for Scotland. Causes of death were ascertained for all but three decedents and deaths were coded to the revision of the International Classification of Diseases in effect at the time of death. Lung cancer in this study is defined as those deaths where the underlying cause of death is coded as 162 (carcinoma of the lung) or 239.1 (lung neoplasms of unspecified nature) in the 9th revision of the ICD. Two deaths fell into the latter category. The authors attempted to adjust the national mortality rates to allow for differences based upon area and social class.

There were 12 lung cancer deaths at Bolton, 117 at Rutherglen, 75 at Eaglescliffe and one among staff for a total of 205 lung cancer deaths. A statistically significant excess of lung cancer deaths (175 deaths) among early and pre-change workers is seen at Rutherglen and Eaglescliffe for both the adjusted and unadjusted SMRs. For Rutherglen, for the early period based upon 68 observed deaths, the adjusted SMR was 230 while the unadjusted SMR was 347 (for both SMRs p<0.001). For the 41 pre-change lung cancer deaths at Rutherglen, the adjusted SMR was 160 while the unadjusted SMR was 242 (for both SMRs p<0.001). At Eaglescliffe, there were 14 lung cancer deaths in the early period resulting in an adjusted SMR of 196 and an unadjusted SMR of 269 (for both SMRs p<0.05). For the pre-change period at Eaglescliffe, the adjusted SMR was 195 and the unadjusted was 267 (p<0.001 for both SMRs). At Bolton there is a non-significant excess among pre-change men. There are no apparent excesses in the post-change groups, the staff groups or in the non-exposed fertilizer group.

There is a highly significant overall excess of nasal cancers with two cases at Eaglescliffe and two cases at Rutherglen (O=4, Eadjusted=0.26; SMR=1538). All four men with nasal cancer had more than 20 years of exposure to chromates.

Aw reported on two case-control studies conducted at the previously studies Eaglescliffe plant (Ex. 245). In 1960, the plant, converted from a ''high-lime'' to a ''no-lime'' process, reducing the likelihood of calcium chromate formation. As of March 1996, 2,672 post-change workers had been employed, including 891 office personnel. Of the post-change plant personnel, 56% had been employed for more than one year. Eighteen lung cancer cases were identified among white male post-change workers (13 deceased; five alive). Duration of employment for the cases ranged from 1.5 to 25 years with a mean of 14.4. Sixteen of the lung cancer cases were smokers.

In the first case-control study reported, the 15 lung cancer cases identified up to September 1991 were matched to controls by age and hire date (five controls per case). Cases and controls were compared based upon their job categories within the plant. The results showed that cases were more likely to have worked in the kiln area than the controls. Five of the 15 cases had five or more years in the kiln area where Cr(VI) exposure occurred vs. six of the 75 controls. A second case-control study utilized the 18 lung cancer cases identified in post change workers up to March 1996. Five controls per case were matched by age (+/ − 5 years), gender and hire date. Both cases and controls had a minimum of one year of employment. A job exposure matrix was being constructed that would allow the investigators to ''estimate exposure to hexavalent chromates for each worker in the study for all the jobs done since the start of employment at the site until 1980.'' Starting in 1970 industrial hygiene sampling was performed to determine exposure for all jobs at the plant. Cr(VI) exposure levels for the period between 1960 and 1969 were being estimated based on the recall of employees regarding past working conditions relative to current conditions from a questionnaire. The author stated that preliminary analysis suggests that the maximum recorded or estimated level of exposure to Cr(VI) for the cases was higher than that of the controls. However, specific values for the estimated Cr(VI) exposures were not reported.

Korallus *et al.* conducted a study of 1,140 active and retired workers with a minimum of one year of employment between January 1, 1948 and March 31, 1979 at two German chromate production plants (Ex. 7–26). Workers employed prior to January 1, 1948 (either active or retired) and still alive at that date were also included in the cohort. The primary source for determining cause of death was medical

records. Death certificates were used only when medical records could not be found. Expected deaths were calculated using the male population of North Rhineland-Westphalia. Elevated SMRs for cancer of the respiratory system (50 lung cancers and one laryngeal cancer) were seen at both plants (O=21; E=10.9; SMR=192 and O=30; E=13.4; SMR=224).

Korallus *et al.* reported an update of the study. The cohort definition was expanded to include workers with one year of employment between January 1, 1948 and December 31, 1987 (Ex. 7–91). One thousand four hundred and seventeen workers met the cohort entrance criteria and were followed through December 31, 1988. While death certificates were used, where possible, to obtain cause of death, a majority of the cause of death data was obtained from hospital, surgical and general practitioner reports and autopsies because of Germany's data protection laws. Smoking data for the cohort were incomplete.

Process modifications at the two plants eliminated the high-lime process by January 1, 1958 at one location and January 1, 1964 at the second location. In addition, technical measures were introduced which led to reductions in the workplace air concentrations of chromate dusts. Cohort members were divided into pre- and post-change cohorts, with subcohorts in the pre-change group. SMRs were computed with the expected number of deaths derived from the regional mortality rates (where the plants are located). One plant had 695 workers (279 in the pre-change group and 416 in the post change group). The second plant had 722 workers (460 in the pre-change group and 262 in the post-change group). A total of 489 deaths were ascertained (225 and 264 deaths). Of the cohort members, 6.4% were lost to follow-up.

Lung cancer is defined as deaths coded 162 in the 9th revision of the International Classification of Diseases. There were 32 lung cancer deaths at one plant and 43 lung cancer deaths at the second plant. Lung cancer SMRs by date of entry (which differ slightly by plant) show elevated but declining SMRs for each plant, possibly due to lower Cr(VI) exposure as a result of improvements in production process. The lung cancer SMR for those hired before 1948 at Plant 1 is statistically significant (O=13; SMR=225; 95% CI: 122–382). The overall lung cancer SMR for Plant 1 is also statistically significantly elevated based upon 32 deaths (SMR=175; 95% CI: 120–246). At Plant 2, the only lung cancer SMR that is not statistically significant is for those hired after 1963 (based upon 1 death). Lung cancer SMRs for those hired before 1948 (O=23; SMR=344; 95% CI: 224–508) and for those hired between 1948 and 1963 (O=19; SMR=196; 95% CI: 1.24–2.98) are statistically significantly elevated. The overall lung cancer SMR at Plant 2 based upon 43 deaths is 239 (95% CI: 177–317). No nasal cavity neoplasms were found. A statistically significant SMR for stomach cancer was observed at Plant 2 (O=12; SMR=192; 95% CI: 104–324).

Recently, the mortality experience of the post-change workers identified by Korallus *et al.* was updated in a study by Birk *et al.* (Ex. 48–4). The study cohort consisted of 901 post-change male workers from two German chromate production plants (*i.e.* 472 workers and 262 workers, respectively) employed for at least one year. Review of employment records led to the addition of employees to the previous Korallus cohort. Mortality experience of the cohort was evaluated through 1998. A total of 130 deaths were ascertained, of which 22 were due to cancer of the lung. Four percent of the cohort was lost to follow-up. Specific cause of death could not be determined for 14 decedents. The mean duration of Cr(VI) exposure was 10 years and the mean time since first exposure was 17 years. The proportion of workers who ever smoked was 65 percent.

The cohort lacked sufficient job history information and air monitoring data to develop an adequate job-exposure matrix required to estimate individual airborne exposures (Ex. 48–1–2). Instead, the researchers used the over 12,000 measurements of urinary chromium from routine biomonitoring of plant employees collected over the entire study period to derive individual cumulative urinary chromium estimates as an exposure surrogate. The approximate geometric average of all urinary chromium measurements in the two German plants from 1960 to 1998 was 7–8 μg/dl (Ex. 48–1–2, Table 5). There was a general plant-wide decline in average urinary chromium over time from 30 to 50 μg/dl in the 1960s to less than 5 μg/dl in the 1990s (Ex. 48–4, Figure 1). However, there was substantial variation in urinary chromium by work location and job group.

The study reported a statistically significant deficit in all cause mortality (SMR=80 95% CI: 67–95) and mortality due to heart disease (SMR=66 95% CI: 45–93) based on the age- and calendar year-adjusted German national population rates indicating a healthy worker population. However, the SMR for lung cancer mortality was elevated (SMR=148 95% CI: 93–225) against the same reference population (Ex. 48–4, Table 2). There was a statistically significant two-fold excess lung cancer mortality (SMR=209; 95% CI: 108–365; 12 observed lung cancer deaths) among workers in the highest cumulative exposure grouping (*i.e.* >200 μg Cr/L-yr). There was no increase in lung cancer mortality in the lower exposure groups, but the number of lung cancer deaths was small (*i.e.* ≤5 deaths) and the confidence intervals were wide.

There were no obvious trends in lung cancer mortality with employment duration or time since first employed, but the results were, again, limited by the small number of study subjects per group. Logistic regression analysis showed that cumulative urinary chromium ≥ 200 μg Cr/L-yr was associated with a significantly higher risk of lung cancer death (OR=6.9; 95% CI: 2.6–18.2) when compared against workers exposed to lower cumulative urinary chromium exposures. This risk was unchanged after controlling for smoking status indicating that the elevated risks were unlikely to be confounded by smoking. Including a peak exposure score to the regression analysis did not result in additional risk beyond that associated with cumulative exposure alone. Some commenters felt this German post-change cohort provided evidence for an exposure threshold below which there is no risk of lung cancer. This issue is addressed in Section VI.B.7 of the quantitative risk assessment.

DeMarco *et al.* conducted a cohort study of chromate production workers in northern Italy to assess the existence of excess risk of respiratory cancer, specifically lung cancer (Ex. 7–54). The cohort was defined as males who worked for a minimum of one year from 1948 to 1985 and had at least 10 years of follow-up. Five hundred forty workers met the cohort definition. Vital status follow-up, carried out through June 30, 1985, found 427 cohort members alive, 110 dead and three lost to follow-up. Analysis utilizing SMRs based on Italian national rates was conducted. Of the 110 deaths, 42 were cancer deaths. The statistically significant SMR for lung cancer based upon 14 observed deaths with 6.46 expected was 217 (95% CI: 118–363).

Exposure estimates were based upon the duration of cumulative exposure and upon a risk score (low, medium, high and not assessed) assigned to the department in which the worker was primarily employed. A committee assigned the scores, based upon knowledge of the production process or on industrial hygiene surveys taken in

1974, 1982 and 1984. The risk score is a surrogate for the workplace concentrations of Cr(VI) in the different plant departments. Since no substantial changes had been made since World War II, the assumption was made that exposures remained relatively stable. Lung cancer SMRs based upon type of exposure increased with level of exposure (Low: O=1; E=1.43; SMR=70; Medium: O=5; E=202; SMR=2.48; High: O=6; E=1.4; SMR=420; Not Assessed: O=2; E=1.6; SMR=126). Only the SMR for those classified as having worked in departments characterized as high exposure was statistically significant at the $p<0.05$ level.

A cohort study of workers at a chromium compounds manufacturing plant in Tokyo, Japan by Satoh *et al.* included males employed between 1918 and 1975 for a minimum of one year and for whom the necessary data were available (Ex. 7–27). Date and cause of death data were obtained from the death certificate (85%) or from other ''reliable'' written testimony (15%). Of the 1,061 workers identified, 165 were excluded from the study because information was missing. A total of 896 workers met the cohort inclusion criteria and were followed through 1978. The causes of 120 deaths were ascertained. SMRs based on age-cause specific mortality for Japanese males were calculated for four different time periods (1918–1949; 1950–1959; 1960–1969 and 1970–1978) and for the entire follow-up period (1918–1978). An elevated SMR for lung cancer is seen for the entire follow-up period (O=26; E=2.746; SMR=950). A majority of the lung cancer deaths (20) occurred during the 1970–1978 interval.

Results from the many studies of chromate production workers from different countries indicate a relationship between exposure to chromium and malignant respiratory disease. The epidemiologic studies done between 1948 and 1952 by Machle and Gregorius (Ex. 7–2), Mancuso and Hueper (Ex. 7–12) and Brinton, *et al.* (Ex. 7–1) suggest a risk for respiratory cancer among chromate workers between 15 and 29 times expectation. Despite the potential problems with the basis for the calculations of the expectations or the particular statistical methods employed, the magnitude of the difference between observed and expected is powerful enough to overcome these potential biases.

It is worth noting that the magnitude of difference in the relative risks reported in a mortality study among workers in three chromate plants in the U.K. (Ex.7–20) were lower than the relative risks reported for chromate workers in the U.S. during the 1950s and 1960s. The observed difference could be the result of a variety of factors including different working conditions in the two countries, a shorter follow-up period in the British study, the larger lost-to-follow-up in the British study or the different statistical methods employed. While the earlier studies established that there was an excess risk for respiratory cancer from exposure to chromium, they were unable to specify either a specific chromium compound responsible or an exposure level associated with the risk. Later studies were able to use superior methodologies to estimate standardized lung cancer mortality ratios between chromate production cohorts and appropriate reference populations (Exs. 7–14; 7–22; 7–26; 7–99; 7–91). These studies generally found statistically increased lung cancer risk of around two-fold. The studies usually found trends with duration of employment, year of hire, or some production process change that tended to implicate chromium exposure as the causative agent.

Some of the most recent studies were able to use industrial hygiene data to reconstruct historical Cr(VI) exposures and show statistically significant associations between cumulative airborne Cr(VI) and lung cancer mortality (Exs. 23; 31–22–11; Ex. 31–18–4). Gibb *et al.* found the significant association between Cr(VI) and lung cancer was evident in models that accounted for smoking. The exposure'response relationship from these chromate production cohorts provide strong evidence that occupational exposure to Cr(VI) dust can increase cancer in the respiratory tract of workers.

The Davies, Korallus, (German cohort), Luippold (2003), and Luippold (2005) studies examine mortality patterns at chromate producing facilities where one production process modification involved conversion from a high-lime to a low-lime or a lime-free process (Exs. 7–99; 7–91; 31–18–4). In addition to process modification, technical improvements also were implemented that lowered Cr(VI) exposure. One of the plants in the Davies study retained the high-lime process and is not discussed. The lung cancer SMRs for one British plant and both of the German plants decline from early, to pre-change to post change time periods. In the remaining British plants, the lung cancer SMR is basically identical for the early and pre-change period, but does decline in the post-change time period. The lung cancer SMR in the Luippold 2003 cohort also declined over time as the amount of lime was reduced in the roasting process. Other modifications at the Painesville plant that reduced airborne Cr(VI) exposure, such as installation of covered conveyors and conversion from batch to continuous process, occurred at the same time (Ex. 35–61). The workers in the Luippold (2005) study were not exposed to Cr(VI) in facilities using a high-lime process. This study did not show excess risk; however, this may be a consequence of short follow-up time (< 20 years for most workers) or the small size of the study (< 4 expected lung cancers), as discussed further in Section VI.B.7. In general, it is not clear whether reduced levels of the high-lime byproduct, calcium chromate, or the roasting/leaching end product, sodium dichromate, that resulted from the various process changes is the reason for the decrease in lung cancer SMRs in these cohorts. It should be noted that increased lung cancer risk was experienced by workers at the Baltimore plant (*e.g.*, Hayes and Gibb cohorts) even though early air monitoring studies suggest that a high lime process was probably not used at this facility (Ex. 7–17).

2. Evidence From Chromate Pigment Production Workers

Chromium compounds are used in the manufacture of pigments to produce a wide range of vivid colors. Lead and zinc chromates have historically been the predominant hexavalent chromium pigments, although others such as strontium and barium chromate have also been produced. These chromates vary considerably in their water solubility with lead and barium chromates being the most water insoluble. All of the above chromates are less water-soluble than the highly water-soluble sodium chromate and dichromate that usually serve as the starting material for chromium pigment production. The reaction of sodium chromate or dichromate with the appropriate zinc or lead compound to form the corresponding lead or zinc chromate takes place in solution. The chromate pigment is then precipitated, separated, dried, milled, and packaged. Worker exposures to chromate pigments are greatest during the milling and packaging stages.

There have been a number of cohort studies of chromate pigment production workers from the United States, the United Kingdom, France, Germany, the Netherlands, Norway and Japan. Most of the studies found significantly elevated lung cancers in workers exposed to Cr(VI) pigments over many years when compared against standardized reference populations. In general, the

studies of chromate pigment workers lack the historical exposure data found in some of the chromate production cohorts. The consistently higher lung cancers across several worker cohorts exposed to the less water-soluble Cr(VI) compounds complements the lung cancer findings from the studies of workers producing highly water soluble chromates and adds to the further evidence that occupational exposure to Cr(VI) compounds should be regarded as carcinogenic. A summary of selected human epidemiologic studies in chromate production workers is presented in Table V–2.

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TABLE V-2: SUMMARY OF SELECTED EPIDEMIOLOGIC STUDIES OF LUNG CANCER IN WORKERS EXPOSED TO HEXAVALENT CHROMIUM

Chromate Pigment Production

Reference/Exhibit Number	Study Population	Reference Population	Chromium (VI) Exposure	Lung Cancer Risk
Langard & Vigander (1983, Ex. 7-36) Langard & Vigander (1975, Ex. 7-33)	133 Norwegian chromium pigment production workers employed between 1948 and 1972; 24 workers with 3+ years exposure to chromate dust; follow up through 1980	Cancer incidence from Norwegian Cancer Registry 1955-1976	Lead and zinc chromates with Some sodium dichromate as starting material; Cr(VI) levels between 10 and 30 $\mu g/m^3$ 1975-1980. No reporting <1975	-O/E of 44 for subcohort of 24 workers based on 6 cancer cases. -5 of 6 cases were exposed primarily to zinc chromate
Davies (1984, Ex. 7-42) Davies (1979, Ex. 7-41)	1152 British chromate pigment workers from 3 plants with a minimum of 1 year employment between 1930-June, 1975; follow up through 1981	Mortality of England and Wales	Factory A: chromates - primarily lead; some zinc; minor barium Factory B: mostly lead and zinc chromates; minor strontium. Factory C: lead chromate only No Cr(VI) levels reported	-O/E of 2.2 ($p<0.05$) for high exposed in Factory A 1932-1954; 21 deaths -O/E of 4.4 ($p<0.05$) for high exposed in Factory B 1948-1967; 11 deaths -O/E of 1.1 (NS) for exposed Factory C 1946-1967; 7 deaths
Hayes et al. (1989, Ex. 7-46) Sheffet et al. (1982, Ex. 7-48)	1,946 male pigment workers from New Jersey facility employed for a minimum of one month between 1940 and 1969; follow up through March, 1982	U.S. Mortality	-Primarily lead chromate with some zinc chromate -Cr(VI) levels in later years reported to be >500 $\mu g/m^3$ for exposed workers	-O/E of 1.2 (NS) for entire cohort based on 41 deaths - O/E of 1.5 ($p<0.5$) for workers employed >10 yr based on 23 deaths -Upward trend ($p<,0.01$) with duration of exposure
Equitable Environmental Health (1983, Ex. 2-D-1) Equitable Environmental Health (1976, Ex. 2-D-3)	574 male chromate workes from three plants (West Virginia, New Jersey or Kentucky) with a minimum of 6 months of exposure to lead chromate prior to 1974.	U.S. white male mortality rates	-West Virginia: lead chromates - Kentucky: chromates- mostly lead, some zinc, minor strontium and barium -New Jersey: mostly lead and some zinc chromate -Median Cr(VI) in 1975 reported to equal or exceed 52 $\mu g/m^3$	-O/E of 1.30 (NS) for West Virginia plant based on 3 deaths -O/E of 2.16 (NS) for Kentucky plant based on 2 deaths -O/E of 2.31 ($p<.05$) for New Jersey plant based on 9 deaths
Deschamps et al. (1995, Ex. 35-234) Haguenoer et al. (1981, Ex. 7-44)	294 male pigment workers from French facility employed for a minimum of six months between 1958 and 1987	Death rates from northern France	-Mostly lead chromate with some zinc chromate -Cr(VI) levels in 1981 between 2 and 180 $\mu g/m^3$	-O/E of 3.6 ($p<0.01$) based on 18 deaths - Upward trend ($p<0.01$) with duration of exposure

Observed/Expected (O/E)
Relative Risk (RR)
Not Statistically Significant (NS)
Odds Ratio (OR)

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Langard and Vigander updated a cohort study of lung cancer incidence in 133 workers employed by a chromium pigment production company in Norway (Ex. 7–36). The cohort was originally studied by Langard and Norseth (Ex. 7–33). Twenty four men had more than three years of exposure to chromate dust. From 1948, when the company was founded, until 1951, only lead chromate pigment was produced.

From 1951 to 1956, both lead chromate and zinc chromate pigments were produced and from 1956 to the end of the study period in 1972 only zinc chromate was produced. Workers were exposed to chromates both as the pigment and its raw material, sodium dichromate.

The numbers of expected lung cancers in the workers were calculated using the age-adjusted incidence rates for lung cancer in the Norwegian male population for the period 1955–1976. Follow-up using the Norwegian Cancer Registry through December 1980, found the twelve cancers of which seven were lung cancers. Six of the seven lung cancers were observed in the subcohort of 24 workers who had been employed for more than three years before 1973. There was an increased lung cancer incidence in the subcohort based on an observed to expected ratio of 44 (O=6; E=0.135). Except for one case, all lung cancer cases were exposed to zinc chromates and only sporadically to other chromates. Five of the six cases were known to be smokers or ex-smokers. Although the authors did not report any formal statistical comparisons, the extremely high age-adjusted standardized incidence ratio suggests that the results would likely be statistically significant.

Davies reported on a cohort study of English chromate pigment workers at three factories that produced chromate pigments since the 1920s or earlier (Ex. 7–41). Two of the factories produced both zinc and lead chromate. Both products were made in the same sheds and all workers had mixed exposure to both substances. The only product at the third factory was lead chromate.

Cohort members are defined as males with a minimum of one year of employment first hired between 1933 and 1967 at plant A; 1948 and 1967 at plant B and 1946–1961 at plant C. The analysis excludes men who entered employment later than 1967 because of the short follow-up period. Three hundred and ninety six (396) men from Factory A, 136 men from Factory B and 114 men from Factory C were followed to mid-1977. Ninety-four workers with 3–11 months employment during 1932–1945 at Factory A were also included. Expectations were based upon calendar time period-, gender- and age-specific national cancer death rates for England and Wales. The author adjusted the death rates for each factory for local differences, but the exact methods of adjustment were not explicit.

Exposure to chromates was assigned as high for those in the dry departments where pigments were ground, blended and packed; medium for those in the wet departments where precipitates were washed, pressed and stove dried and in maintenance or cleaning which required time in various departments; or low for those jobs which the author states involved ''slight exposure to chromates such as most laboratory jobs, boiler stoking, painting and bricklaying'' (Ex. 7–41, p. 159). The high and medium exposure categories were combined for analytical purposes.

For those entering employment from 1932 to 1954 at Factory A, there were 18 lung cancer deaths in the high/medium exposure group, with 8.2 deaths expected. The difference is significant at $p<.01$. In the low exposure group, the number of observed and expected lung cancer deaths was equal (two deaths). There were no lung cancer deaths at Factory A for those hired between 1955–1960 and 1961–1967.

For those entering employment between 1948 and 1967 at Factory B, there were seven observed lung cancer deaths in the high/medium exposure group with 1.4 expected which is statistically significant at $p<.001$. At Factory C (which manufactured only lead chromate), there was one death in the high/medium exposure group and one death in the low exposure group for those beginning employment between 1946 and 1967.

The author points out that:

> There has been no excess lung cancer mortality amongst workers with chromate exposure rated as ''low'', nor among those exposed only to lead chromate. High and medium exposure-rated workers who in the past had mixed exposure to both lead and zinc chromate have experienced a marked excess of lung cancer deaths, even if employed for as little as one year (Ex. 7–41, p. 157).

It is the author's opinion that the results ''suggest that the manufacture of zinc chromate may involve a lung cancer hazard'' (Ex. 7–41, p. 157).

Davies updated the lung cancer mortality at the three British chromate pigment production factories (Ex. 7–42). The follow-up was through December 31, 1981. The cohort was expanded to include all male workers completing one year of service by June 30, 1975 but excluded office workers.

Among workers at Factory A with high and medium exposure, mortality was statistically significantly elevated over the total follow-up period among entrants hired from 1932 to 1945 (O/E=2.22). A similar, but not statistically significant, excess was seen among entrants hired from 1946 to 1954 (O/E=2.23). The results for Factory B showed statistically significantly elevated lung cancer mortality among workers classified with medium exposures entering service during the period from 1948 to 1960 (O/E=3.73) and from 1961 to 1967 (O/E=5.62). There were no lung cancer deaths in the high exposure group in either time period. At Factory C, analysis by entry date (early entrant and the period 1946–1960) produced no meaningful results since the number of deaths was small. When the two periods are combined, the O/E was near unity. The author concluded that in light of the apparent absence of risk at Factory C, ''it seems reasonable to suggest that the hazard affecting workers with mixed exposures at factories A and B * * * is attributable to zinc chromates'' (Ex. 7–42, p. 166). OSHA disagrees with this conclusion, as discussed in section V.9.

Davies also studied a subgroup of 57 chromate pigment workers, mostly employed between 1930 and 1945, who suffered clinical lead poisoning (Ex. 7–43). Followed through 1981, there was a statistically significantly elevated SMR for lung cancer based upon four cases (O=4; E=2.8; SMR=145).

Haguenoer studied 251 French zinc and lead chromate pigment workers employed for six months or more between January 1, 1958 and December 31, 1977 (Ex. 7–44). As of December 31, 1977, 50 subjects were identified as deceased. Cause of death was obtained for 30 of the 50 deaths (60%). Lung cancer mortality was significantly elevated based on 11 fatalities (SMR=461; 95% CI: 270–790). The mean time from first employment until detection of cancer was 17 years. The mean duration of employment among cases was 15 years.

The Haguenoer cohort was followed up in a study by Deschamps *et al.* (Ex. 234). Both lead and zinc chromate pigments were produced at the plant until zinc chromate production ceased in 1986. The cohort consisted of 294 male workers employed for at least six months between 1958 and 1987. At the end of the follow-up, 182 cohort members were alive, 16 were lost to follow-up and 96 were dead. Because of French confidentiality rules, the cause of death could not be obtained from the death certificate; instead physicians and hospital records were utilized. Using cause of death data from sources other than death certificates raises the potential for misclassification bias. Cause of death could not be obtained for five decedents. Data on smoking habits was not available for a number of workers and was not used in the analysis.

Since individual work histories were not available, the authors made the assumption that the exposure level was the same for all workers during their

employment at the plant. Duration of employment was used as a surrogate for exposure. Industrial hygiene measurements taken in 1981 provide some idea of the exposure levels at the plant. In the filtration department, Cr(VI) levels were between 2 and 3 μg/m³; in the grinding department between 6 and 165 μg/m³; in the drying and sacking department between 6 and 178 μg/m³; and in the sacks marking department more than 2000 μg/m³.

The expected number of deaths for the SMR analysis was computed from age-adjusted death rates in the northern region of France where the plant was located. There was a significant increase in lung cancer deaths based on 18 fatalities with five expected (SMR=360; 95% CI: 213–568). Using duration of employment as a surrogate for exposure, statistically significant SMRs were seen for the 10–15 years of exposure (O=6, SMR=720, 95% CI: 264–1568), 15–20 years (O=4, SMR=481, 95% CI: 131–1231), and 20+ years (O=6, SMR=377, 95% CI: 1.38–8.21) time intervals. There was a significantly elevated SMR for brain cancer based upon two deaths (SMR=844, 95% CI: 102–3049). There was a non-statistically significant increase for digestive tract cancer (O=9, SMR=130) consisting of three esophageal cancers, two stomach cancers and four colon cancers.

Equitable Environmental Health, Inc., on behalf of the Dry Color Manufacturers Association, undertook a historical prospective mortality study of workers involved in the production of lead chromate (Exs. 2–D–3; 2–D–1). The cohort was defined as male employees who had been exposed to lead chromate for a minimum of six months prior to December 1974 at one of three facilities in West Virginia, Kentucky or New Jersey. The New Jersey facility had a unit where zinc chromate was produced dating back to 1947 (Ex. 2–D–3). Most workers rotated through this unit and were exposed to both lead and zinc chromates. Two men were identified at the New Jersey facility with exposure solely to lead chromate; no one with exposure only to zinc chromate was identified.

Subsequent review of the data found that the Kentucky plant also produced zinc chromates from the late 1930s to early 1964. During the period 1961–1962, zinc chromates accounted for approximately 12% of chromate production at the plant. In addition, strontium chromate and barium chromate also were produced at the plant.

The cohort consisted of 574 male employees from all three plants (Ex. 2–D–1). Eighty-five deaths were identified with follow up through December 1979. Six death certificates were not obtained. SMRs were reported based on U.S. white male death rates. There were 53 deaths from the New Jersey plant including a statistically significant SMR for cancer of the trachea, bronchus and lung based upon nine deaths (E=3.9; SMR=231; 95% CI: 106–438). One lung cancer decedent worked solely in the production of lead chromates. Three of the lung cancer deaths were black males. In addition, there were six deaths from digestive system cancers, five of which were stomach cancers reported at the New Jersey plant. The SMR for stomach cancer was statistically significantly elevated (O=5; E=0.63; SMR=792; 99% CI: 171–2243). There were 21 deaths from the West Virginia plant, three of which were cancer of the trachea, bronchus and lung (E=2.3; SMR=130; 95% CI: 27–381). There were 11 deaths at the Kentucky plant, two of which were cancer of the trachea, bronchus and lung (E=0.9; SMR=216; 95% CI: 26–780).

Sheffet *et al.* examined the lung cancer mortality among 1,946 male employees in a chromate pigment factory in Newark, NJ, who were exposed to both lead chromate and zinc chromate pigments (Ex. 7–48). The men worked for a minimum of one month between January 1, 1940 and December 31, 1969. As of March 31, 1979, a total of 321 cohort members were identified as deceased (211 white males and 110 non-white males). Cause of death could not be ascertained for 37 white males and 12 non-white males. The proportion of the cohort lost to follow up was high (15% of white males and 20% of non-white males).

Positions at the plant were classified into three categories according to intensity of exposure: high (continuous exposure to chemical dust), moderate (occasional exposure to chemical dust or to dry or wet pigments) and low (infrequent exposure by janitors or office workers). Positions were also classified by type of chemical exposure: chromates, other inorganic substances, and organics. The authors state that in almost all positions individuals ''who were exposed to any chemicals were also exposed to hexavalent chromium in the form of airborne lead and zinc chromates (Ex. 7–48, p. 46).'' The proportion of lead chromate to zinc chromate was approximately nine to one. Calculations, based upon air samples during later years, give an estimate for the study period of more than 2000 μg airborne chromium/m³ for the high exposure category, between 500 and 2000 μg airborne chromium/m³ and less than 100 μg airborne chromium/m³ for the low exposure category. Other suspected carcinogens present in the workplace air at much lower levels were nickel sulfate and nickel carbonate.

Because of the large proportion of workers lost to follow-up (15% of white males and 20% of non-white males) and the large numbers of unknown cause of death (21% of white males and 12% of non-white males), the authors calculated three separate mortality expectations based upon race-, gender-, age-, and time-specific U.S. mortality ratios. The first expectation was calculated upon the assumption that those lost to follow-up were alive at the end of the study follow-up period. The second expectation was calculated on the assumption that those whose vital status was unknown were lost to follow-up as of their employment termination date. The third expectation was calculated excluding those of unknown vital status from the cohort. Deaths with unknown cause were distributed in the appropriate proportions among known causes of death which served as an adjustment to the observed deaths. The adjusted deaths were used in all of the analyses.

A statistically significant ratio for lung cancer deaths among white males (O/E=1.6) was observed when using the assumption that either the lost to follow-up were assumed lost as of their termination date or were excluded from the cohort (assumptions two and three above). The ratio for lung cancer deaths for non-white males results in an identical O/E of 1.6 for all three of the above scenarios, none of which was statistically significant.

In addition, the authors also conducted Proportionate Mortality Ratio (PMR) and Proportionate Cancer Mortality Ratio (PCMR) analyses. For white males, the lung cancer PMR was 200 and the lung cancer PCMR was 160 based upon 25.5 adjusted observed deaths (21 actual deaths). Both were statistically significantly elevated at the $p<.05$ level. For non-white males, the lung cancer PMR was 200 and the lung cancer PCMR was 150 based upon 11.2 adjusted observed deaths (10 actual deaths). The lung cancer PMR for non-white males was statistically significantly elevated at the $p<.05$ level. Statistically significantly elevated PMRs and PCMRs for stomach cancer in white males were reported (PMR=280; PCMR=230) based upon 6.1 adjusted observed deaths (five actual).

The Sheffet cohort was updated in a study by Hayes *et al.* (Ex. 7–46). The follow up was through December 31, 1982. Workers employed as process operators or in other jobs which involved direct exposure to chromium

dusts were classified as having exposure to chromates. Airborne chromium concentrations taken in ''later years'' were estimated to be >500 μg g/m³ for ''exposed'' jobs and >2000 μg/m³ for ''highly exposed'' jobs.

The cohort included 1,181 white and 698 non-white males. Of the 453 deaths identified by the end of the follow-up period, 41 were lung cancers. For the entire study group, no statistically significant excess was observed for lung cancer (SMR=116) or for cancer at any other site. Analysis by duration of employment found a statistically significant trend (p=.04) for lung cancer SMRs (67 for those employed <1 year; 122 for those employed 1–9 years and 151 for those employed 10+ years).

Analysis of lung cancer deaths by duration of employment in chromate dust associated jobs found no elevation in risk for subjects who never worked in these jobs (SMR=92) or for subjects employed less than one year in these jobs (SMR=93). For those with cumulative employment of 1–9 and 10+ years in jobs with chromate dust exposure, the SMRs were 176 (nine deaths) and 194 (eight deaths) respectively.

Frentzel-Beyme studied the mortality experience of 1,396 men employed for more than six months in one of five factories producing lead and zinc chromate pigments located in Germany and the Netherlands (Ex. 7–45). The observed deaths from the five factories were compared with the expected deaths calculated on the basis of mortality figures for the region in which the plant was located. Additional analysis was conducted on relevant cohorts which included workers with a minimum of 10 years exposure, complete records for the entire staff, and exclusion of foreign nationals. Jobs were assigned into one of three exposure categories: High (drying and milling of the filtered pigment paste), medium (wet processes including precipitation of the pigment, filtering and maintenance, craftsmen and cleaning) and low or trivial exposure (storage, dispatch, laboratory personnel and supervisors).

There were 117 deaths in the entire cohort of which 19 were lung cancer deaths (E=9.3). The lung cancer SMRs in the relevant cohort analyses were elevated at every plant; however, in only one instance was the increased lung cancer SMR statistically significant, based upon three deaths (SMR=386, p<0.05). Analysis by type of exposure is not meaningful due to the small number of lung cancer deaths per plant per exposure classification.

Kano *et al.* conducted a study of five Japanese manufacturers who produced lead chromates, zinc chromate, and/or strontium chromate to assess if there was an excess risk of lung cancer (Ex. 7–118). The cohort consisted of 666 workers employed for a minimum of one year between 1950 and 1975. At the end of 1989, 604 subjects were alive, five lost to follow-up and 57 dead. Three lung cancer deaths were observed in the cohort with 2.95 expected (SMR=102; 95% CI: 0.21–2.98). Eight stomach cancer deaths were reported with a non-statistically significant SMR of 120.

Following the publication of the proposed rule, the Color Pigment Manufacturers Association requested that OSHA reconsider its preliminary conclusions with respect to the health effects of lead chromate color pigments (Ex. 38–205). They relied on the Davies (Ex. 7–43), Cooper [Equitable Environmental Health, Inc] (Ex. 2–D–1) and Kano (Ex. 14–1–B) epidemiologic studies as the only available data on worker cohorts exposed to lead chromate in the absence of other chromates commonly found in pigment production (*e.g.*, zinc chromate). The CPMA's comments regarding the Davies, Cooper and Kano studies and OSHA's response to them are discussed in section V.B.9.a.

3. Evidence from Workers in Chromium Plating

Chrome plating is the process of depositing chromium metal onto the surface of an item using a solution of chromic acid. The items to be plated are suspended in a diluted chromic acid bath. A fine chromic acid mist is produced when gaseous bubbles, released by the dissociation of water, rise to the surface of the plating bath and burst. There are two types of chromium electroplating. Decorative or ''bright'' involves depositing a thin (0.5–1 μm) layer of chromium over nickel or nickel-type coatings to provide protective, durable, non-tarnishable surface finishes. Decorative chrome plating is used for automobile and bicycle parts. Hard chromium plating produces a thicker (exceeding 5 μm) coating which makes it resistant and solid where friction is usually greater, such as in crusher propellers and in camshafts for ship engines. Limited air monitoring indicates that Cr(VI) levels are five to ten times higher during hard plating than decorative plating (Ex. 35–116).

There are fewer studies that have examined the lung cancer mortality of chrome platers than of soluble chromate production and chromate pigment production workers. The largest and best described cohort studies investigated chrome plating cohorts in the United Kingdom (Exs. 7–49; 7–57; 271; 35–62). They generally found elevated lung cancer mortality among the chrome platers, especially those engaged in chrome bath work, when compared to various reference populations. The studies of British chrome platers are summarized in Table V–3.

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TABLE V.3: SUMMARY OF SELECTED EPIDEMIOLOGIC STUDIES OF LUNG CANCER IN WORKERS EXPOSED TO HEXAVALENT CHROMIUM

Chromium Plating

Reference/Exhibit Number	Study Population	Reference Population	Chromium (VI) Exposure	Lung Cancer Risk
Sorahan & Harrington (2000, Ex. 35-62) Royle (1975, Ex. 7-49)	920 male platers employed in 54 plants in Yorkshire, UK for a minimum of three months between 1969 and 1972; follow up through 1997	-Mortality rates for the general population of England and Wales -Age-, sex-matched comparison group unexposed to Cr(VI)	-Chromic acid mist with some nickel and cadmium co-exposure -Cr(VI) levels in 1970 reported to range from <30 $\mu g/m^3$ to >100 $\mu g/m^3$	-O/E of 1.85 (p=0.001) based on 60 deaths and general pop -O/E of 1.39 (p=0.06) based on unexposed comparison group -No upward trend with duration of exposure
Sorahan et al. (1998, Ex. 35-271) Sorahan et al. (1987, Ex. 7-57)	1,762 platers employed for a minimum of six months between 1946 and 1975 from a Midlands, UK plant; follow up through 1995.	Mortality rates for the general population of England and Wales	-Chromic acid mist with nickel co-exposure -No reported Cr(VI) exposure levels	-O/E of 1.6 (p<0.01) for male chrome bath workers based on 40 deaths -O/E of 0.66 (NS) for other chrome workers based on 9 deaths -Upward trend (p<0.05) with duration of chrome bath work

Observed/Expected (O/E)
Relative Risk (RR)
Not Statistically Significant (NS)
Odds Ratio (OR)

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Cohort studies of chrome platers in Italy, the United States, and Japan are also discussed in this subsection. Co-exposure to nickel, another suspected carcinogen, during plating operations can complicate evaluation of an association between Cr(VI) and an increased risk of lung cancer in chrome platers. Despite this, the International Agency for Research on Cancer concluded that the epidemiological

studies provide sufficient evidence for carcinogenicity of Cr(VI) as encountered in the chromium plating industry; the same conclusion reached for chromate production and chromate pigment production (Exs. 18–1; 35–43). The findings implicate the highly water-soluble chromic acid as an occupational carcinogen. This adds to the weight of evidence that water-soluble (*e.g.*, sodium chromates, chromic acid) and water-insoluble forms (*e.g.*, lead and zinc chromates) of Cr(VI) are able to cause cancer of the lower respiratory tract.

Royle reported on a cohort mortality study of 1,238 chromium platers employed for a minimum of three consecutive months between February 20, 1969 and May 31, 1972 in 54 plating plants in West Riding, Yorkshire, England (Ex. 7–49). A control population was enumerated from other departments of the larger companies where chromium plating was only a portion of the companies' activities and from the former and current employees of two industrial companies in York where information on past workers was available. Controls were matched for gender, age (within two years) and date last known alive. In addition, 229 current workers were matched for smoking habits.

As of May 1974, there were 142 deaths among the platers (130 males and 12 females) and 104 deaths among the controls (96 males and 8 females). Among the male platers, there were 24 deaths from cancer of the lung and pleura compared to 13 deaths in the control group. The difference was not statistically significant. There were eight deaths from gastrointestinal cancer among male platers versus four deaths in the control group. The finding was not statistically significant.

The Royle cohort was updated by Sorahan and Harrington (Ex. 35–62). Chrome plating was the primary activity at all 54 plants, however 49 of the plants used nickel and 18 used cadmium. Also used, but in smaller quantities according to the authors, were zinc, tin, copper, silver, gold, brass or rhodium. Lead was not used at any of the plants. Four plants, including one of the largest, only used chromium. Thirty-six chrome platers reported asbestos exposure versus 93 comparison workers.

Industrial hygiene surveys were carried out at 42 plants during 1969–1970. Area air samples were done at breathing zone height. With the exception of two plants, the chromic acid air levels were less than 30 $\mu g/m^3$. The two exceptions were large plants, and in both the chromic acid levels exceeded 100 $\mu g/m^3$.

The redefined cohort consisted of 1087 platers (920 men and 167 women) from 54 plants employed for a minimum of three months between February 1969 and May 31, 1972 who were alive on May 31, 1972. Mortality data were also available for a comparison group of 1,163 workers (989 men and 174 women) with no chromium exposure. Both groups were followed for vital status through 1997.

The lung cancer SMR for male platers was statistically significant (O=60; E=32.5; SMR=185; 95% CI: 141–238). The lung cancer SMR for the comparison group, while elevated, was not statistically significant (O=47; E=36.9; SMR=127; 95% CI: 94–169). The only statistically significant SMR in the comparison group was for cancer of the pleura (O=7; E=0.57; SMR=1235; 95% CI: 497–2545).

Internal regression analyses were conducted comparing the mortality rates of platers directly with those of the comparison workers. For these analyses, lung cancers mentioned anywhere on the death certificate were considered cases. The redefinition resulted in four additional lung cancer cases in the internal analyses. There was a statistically significant relative risk of 1.44 ($p<0.05$) for lung cancer mortality among chrome platers that was slightly reduced to 1.39 after adjustment for smoking habits and employment status. There was no clear trend between lung cancer mortality and duration of Cr(VI) exposure. However, any positive trend may have been obscured by the lack of information on worker employment post-1972 and the large variation in chromic acid levels among the different plants.

Sorahan reported the experience of a cohort of 2,689 nickel/chromium platers from the Midlands, U.K. employed for a minimum of six months between 1946 and 1975 and followed through December 1983 (Ex. 7–57). There was a statistically significant lung cancer SMR for males (O=63; E=40; SMR=158; $p<0.001$). The lung cancer SMR for women, while elevated (O=9; E=8.1; SMR=111), was not statistically significant. Other statistically significant cancer SMRs for males included: stomach (O=21; E=11.3; SMR=186; $p<0.05$); liver (O=4; E=0.6; SMR=667; $p<0.01$); and nasal cavities (O=2; E=0.2; SMR=1000; $p<0.05$). While there were several elevated SMRs for women, none were statistically significant. There were nine lung cancers and one nasal cancer among the women.

Analysis by type of first employment (*i.e.*, chrome bath workers vs. other chrome work) resulted in a statistically significant SMR for lung cancer of 199 (O=46; E=23.1; $p<0.001$) for chrome bath workers and a SMR of 101 for other chrome work. The SMR for cancer of the stomach for male chrome bath workers was also statistically significantly elevated (O=13; E=6.3; SMR=206; $p<0.05$); for stomach cancer in males doing other chrome work, the SMR was 160 with 8 observed and 5 expected. Both of the nasal cancers in males and the one nasal cancer in women were chrome bath workers. The nasal cancer SMR for males was statistically significantly elevated (O=2; E=0.1; SMR=2000; $p<0.05$).

Regression analysis was used to examine evidence of association of several types of cancers and Cr(VI) exposure duration among the cohort. There was a significant positive association between lung cancer mortality and exposure duration as a chrome bath worker controlling for gender as well as year and age at the start of employment. There was no evidence of an association between other cancer types and duration of Cr(VI) exposure. There was no positive association between duration of exposure to nickel bath work and cancer of the lung. The two largest reported SMRs were for chrome bath workers 10–14 years (O=13; E=3.8; SMR=342; $p<0.001$) and 15–19 years (O=12; E=4.9; SMR=245; $p<0.01$) after starting employment. The positive associations between lung cancer mortality and duration of chrome bath work suggests Cr(VI) exposure may be responsible for the excess cancer risk.

Sorahan *et al.* reported the results of a follow-up to the nickel/chromium platers study discussed above (Ex. 271). The cohort was redefined and excluded employees whose personnel records could not be located (650); those who started chrome work prior to 1946 (31) and those having no chrome exposure (236). The vital status experience of 1,762 workers (812 men and 950 women) was followed through 1995. The expected number of deaths was based upon the mortality of the general population of England and Wales.

There were 421 deaths among the men and 269 deaths among the women, including 52 lung cancers among the men and 17 among the women. SMRs were calculated for different categories of chrome work: Period from first chrome work; year of starting chrome work, and cumulative duration of chrome work categories. Poison regression modeling was employed to investigate lung cancer in relation to type of chrome work and cumulative duration of work.

A significantly elevated lung cancer SMR was seen for male workers with

some period of chrome bath work (O=40; E=25.4; SMR=157; 95% CI: 113–214, p<0.01). Lung cancer was not elevated among male workers engaged in other chrome work away from the chromic acid bath (O=9; E=13.7; SMR=66; 95% CI: 30–125). Similar lung cancer mortality results were found for female chrome bath workers (O=15; E=8.6; SMR=175; 95% CI: 98–285; p<0.06). After adjusting for sex, age, calendar year, year starting chrome work, period from first chrome work, and employment status, regression modeling showed a statistically significant positive trend (p<0.05) between duration of chrome bath work and lung cancer mortality risk. The relative lung cancer risk for chrome bath workers with more than five years of Cr(VI) exposure (*i.e.*, relative to the risk of those without any chrome bath work) was 4.25 (95% CI: 1.83–9.37).

Since the Sorahan cohort consists of nickel/chromium workers, the question arises of the potential confounding of nickel. In the earlier study, 144 of the 564 employees with some period of chrome bath work had either separate or simultaneous periods of nickel bath employment. According to the authors, there was no clear association between cancer deaths from stomach, liver, respiratory system, nose and larynx, and lung and bronchus and the duration of nickel bath employment. In the follow-up report, the authors re-iterate this result stating, ''findings for lung cancer in a cohort of nickel platers (without any exposure to chrome plating) from the same factory are unexceptional'' (Ex. 35–271, p. 241).

Silverstein *et al.* reported the results of a cohort study of hourly employees and retirees with at least 10 years of credited pension service in a Midwestern plant manufacturing hardware and trim components for use primarily in the automobile industry (Ex. 7–55). Two hundred thirty eight deaths occurred between January 1, 1974 and December 31, 1978. Proportional Mortality Ratio (PMR) analysis adjusted for race, gender, age and year of death was conducted. For white males, the PMR for cancer of the lung and pleura was 1.91 (p<0.001) based upon 28 deaths. For white females, the PMR for cancer of the lung and pleura was 3.70 (p<0.001) based upon 10 deaths.

White males who worked at the plant for less than 15 years had a lung cancer PMR of 1.65. Those with 15 or more years at the plant had a lung cancer PMR of 2.09 (p<0.001). For white males with less than 22.5 years between hire and death (latency) the lung cancer PMR was 1.78 (p<0.05) and for those with 22.5 or more years, the PMR was 2.11 (p<0.01).

A case-control analysis was conducted on the Silverstein cohort to examine the association of lung cancer risk with work experience. Controls were drawn from cardiovascular disease deaths (ICD 390–458, 8th revision). The 38 lung cancer deaths were matched to controls for race and gender. Odds ratios (ORs) were calculated by department depending upon the amount of time spent in the department (ever/never; more vs. less than one year; and more vs. less than five years). Three departments showed increasing odds ratios with duration of work; however, the only statistically significant result was for those who worked more than five years in department 5 (OR=9.17, p=0.04, Fisher's exact test). Department 5 was one of the major die-casting and plating areas of the plant prior to 1971.

Franchini *et al.* conducted a mortality study of employees and retirees from nine chrome plating plants in Parma, Italy (Ex. 7–56). Three plants produced hard chrome plating. The remaining six plants produced decorative chromium plates. A limited number of airborne chromium measurements were available. Out of a total of 10 measurements at the hard chrome plating plants, the air concentrations of chromium averaged 7 $\mu g/m^3$ (range of 1–50 $\mu g/m^3$) as chromic acid near the baths and 3 $\mu g/m^3$ (range of 0–12 $\mu g/m^3$) in the middle of the room.

The cohort consisted of 178 males (116 from the hard chromium plating plants and 62 from the bright chromium plating plants) who had worked for at least one year between January 1, 1951 and December 31, 1981. In order to allow for a 10-year latency period, only those employed before January 1972 were included in further analysis. There were three observed lung cancer deaths among workers in the hard chrome plating plants, which was significantly greater than expected (O=3; E=0.6; p<0.05). There were no lung cancer deaths among decorative chrome platers.

Okubo and Tsuchiya conducted a study of plating firms with five or more employees in Tokyo (Exs. 7–51; 7–52). Five hundred and eighty nine firms were sent questionnaires to ascertain information regarding chromium plating experience. The response rate was 70.5%. Five thousand one hundred seventy platers (3,395 males and 1,775 females) met the cohort entrance criteria and were followed from April 1, 1970 to September 30, 1976. There were 186 deaths among the cohort; 230 people were lost to follow-up after retirement. The cohort was divided into two groups: Chromium platers who worked six months or more and a control group with no exposure to chromium (clerical, unskilled workers). There were no deaths from lung cancer among the chromium platers.

The Okubo cohort was updated by Takahashi and Okubo (Ex. 265). The cohort was redefined to consist of 1,193 male platers employed for a minimum of six months between April 1970 and September 1976 in one of 415 Tokyo chrome plating plants and who were alive and over 35 years of age on September 30, 1976. The only statistically significant SMR was for lung cancer for all platers combined (O=16; E=8.9; SMR=179; 95% CI: 102–290). The lung cancer SMR for the chromium plater subcohort was 187 based upon eight deaths and 172 for the nonchromium plater subcohort, also based upon eight deaths. The cohort was followed through 1987. Itoh *et al.* updated the Okubo metal plating cohort through December 1992 (Ex. 35–163). They reported a lung cancer SMR of 118 (95% CI: 99–304).

4. Evidence From Stainless Steel Welders

Welding is a term used to describe the process for joining any materials by fusion. The fumes and gases associated with the welding process can cause a wide range of respiratory exposures which may lead to an increased risk of lung cancer. The major classes of metals most often welded include mild steel, stainless and high alloy steels and aluminum. The fumes from stainless steel, unlike fumes from mild steel, contain nickel and Cr(VI). There are several cohort and case-control studies as well as two meta analyses of welders potentially exposed to Cr(VI). In general, the studies found an excess number of lung cancer deaths among stainless steel welders. However, few of the studies found clear trends with Cr(VI) exposure duration or cumulative Cr(VI). In most studies, the reported excess lung cancer mortality among stainless steel welders was no greater than mild steel welders, even though Cr(VI) exposure is much greater during stainless steel welding. This weak association between lung cancer and indices of exposure limits the evidence provided by these studies. Other limitations include the co-exposures to other potential lung carcinogens, such as nickel, asbestos, and cigarette smoke, as well as possible healthy worker effects and exposure misclassification in some studies, which may obscure a relationship betweeen Cr(VI) and lung cancer risk. These limitations are discussed further in sections VI.B.5, VI.E.3, and VI.G.4.

Nevertheless, these studies add some further support to the much stronger link between Cr(VI) and lung cancer found in soluble chromate production workers, chromate pigment production workers, and chrome platers. The key studies are summarized in Table V–4.

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TABLE V-4: SUMMARY OF SELECTED EPIDEMIOLOGIC STUDIES OF LUNG CANCER IN WORKERS EXPOSED TO HEXAVALENT CHROMIUM

Stainless Steel Welding

Reference/Exhibit Number	Study Population	Reference Population	Chromium (VI) Exposure	Lung Cancer Risk
Moulin (1997, Ex. 35-285)	Meta analysis of epidemiological studies of lung cancer risk among welders in five categories including stainless steel welding and mild steel welding	Stainless steel welding cohort studies: Simonato et al., 1991; Polednak et al., 1981 case control studies: Hull et al., 1989; Gerin et al., 1984; Kjuus et al. 1986.	Stainless steel welders exposed to higher Cr(VI) than mild steel welders	-RR of 1.50 ($p<0.05$) for stainless steel welders based on combined 114 deaths from five studies -RR of 1.50 ($p<0.05$) for mild steel welders based on combined 137 deaths from four studies
Sjogren et al. (1994, Ex. 7-113)	Meta analysis of epidemiological studies of exposure to stainless steel welding fumes and lung cancer.	Stainless steel welding cohort studies: Moulin et al., 1993; Sjogren et al., 1987 case control studies: Lauritsen et al., 1996; Gerin et al., 1984; Kjuus et al. 1986	Cr(VI) exposure was not part of the analysis	RR of 1.94 ($p<0.05$) for stainless steel welders based on combined 70 deaths from five studies
Simonato et al. (1991, Ex.7-114) Gerin et al. (1993, Ex. 35-220)	Cohort of 11,092 male welders from 135 companies in nine European countries. Cohort entrance criteria varied by country.	Age and sex specific mortality rates computed using the WHO mortality data bank.	Average cumulative Cr(VI) exposures estimated between 0.05 to 1.5 mg/ m^3 - yr based on job process matrix	-O/E of 1.23 (NS) for primarily stainless steel welders based on 20 deaths -Upward trend ($p<0.05$) with time since first exposure -No trend with cumulative exposure
Moulin et al. (1993, Ex. 7-92)	Cohort of 2,721 French male welders from 13 factories with a minimum of one year of employment from 1975 to 1988.	6,683 unexposed manual workers from 13 factories with a minimum of one year of employment from 1975 to 1988	-Primarily manual metal arc welding -Cr(VI) exposures not recorded	-O/E of 1.03 (NS) for primarily stainless steel welders based on 2 deaths -No trend with exposure duration
Hansen et al. (1996, Ex. 35-247)	Cohort of 10,059 male welders and other steel workers from 79 Danish companies employed for a minimum of one year between 1964 and 1984.	National cancer incidence rates from the Danish Cancer Registry.	Cr(VI) exposure not recorded	-O/E of 2.38 (NS) for stainless steel only welders based on 5 deaths -No trend with exposure duration
Lauritsen et al. (1996, Ex. 35-291)	Nested case-control study of 94 lung cancer deaths from Hansen study.	439 eligible controls who were not cases and did not have respiratory disease or unknown malignancy as cause of death	Cr(VI) exposure not recorded	-OR of 1.3 (NS) for stainless steel only welders -No trend with exposure duration
Sjogren et al (1987, Ex. 7-95)	Cohort of 234 male stainless steel welders and 208 male railway track welders. Minimum employment was 5 years between 1950 and 1965. Follow-up through 1984	Mortality rates for Swedish males	Median Cr level for stainless steel welding was 57 $\mu g/m^3$ and for gas shielded welding [railway welders] was 5 $\mu g/m^3$ in Sweden during 1975	-O/E of 2.5 (NS) for stainless steel welders based on 5 deaths -O/E of 0.3 (NS) for railway welders based on 1 death

Kjuus et al (1986, Ex. 7-72)	A hospital-based case-control study of 176 male incident lung cancer cases admitted to two hospitals in Norway during 1979-1983.	186 controls admitted to the same hospitals in Norway during 1979-1983 and matched to cases for age +/- 5 years.	Cr(VI) exposure not recorded	-OR of 3.0 ($p < 0.05$, adjusted for smoking) for stainless steel welding based on 16 deaths -Welding not significant in logistic model with smoking, asbestos
Hull, et al (1989, Ex. 35-243)	Case-control study of 85 lung cancer cases in white male welders identified through the LA County tumor registry (1972-1987).	Controls were 74 welders with non-pulmonary malignancies	No direct Cr(VI) exposure measurements recorded	-OR of 0.9 (NS) for stainless steel welding based on 34 cases -OR of 1.3 (NS) for manual metal arc welding on stainless steel based on 61 cases

Observed/Expected (O/E)
Relative Risk (RR)
Not Statistically Significant (NS)
Odds Ratio (OR)

Sjogren *et al.* reported on the mortality experience in two cohorts of welders (Ex. 7–95). The cohort characterized as "high exposure"

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consisted of 234 male stainless steel welders with a minimum of 5 years of employment between 1950 and 1965. An additional criterion for inclusion in the study was assurance from the employer that asbestos had not been used or had been used only occasionally and never in a dust-generating way. The cohort characterized as ''low exposure'' consisted of 208 male railway track welders working at the Swedish State Railways for at least 5 years between 1950 and 1965. In 1975, air pollution in stainless steel welding was surveyed in Sweden. The median time weighted average (TWA) value for Cr(VI) was 110 μg CrO_3/m^3 (57 μg/m^3 measured as CrVI). The highest concentration was 750 μg CrO_3/m^3 (390 μg/m^3 measured as CrVI) found in welding involving coated electrodes. For gas-shielded welding, the median Cr(VI) concentration was 10 μg CrO_3/m^3 (5.2 μg/m^3 measured as CrVI) with the highest concentration measured at 440 μg CrO_3/m^3 (229 μg/m^3 measured as CrVI). Follow-up for both cohorts was through December 1984. The expected number of deaths was based upon Swedish male death rates. Of the 32 deaths in the ''high exposure'' group, five were cancers of the trachea, bronchus and lung (E=2.0; SMR=249; 95% CI: 0.80–5.81). In the low exposure group, 47 deaths occurred, one from cancer of the trachea, bronchus and lung.

Polednak compiled a cohort of 1,340 white male welders who worked at the Oak Ridge nuclear facilities from 1943 to 1977 (Ex. 277). One thousand fifty-nine cohort members were followed through 1974. The cohort was divided into two groups. The first group included 536 welders at a facility where nickel-alloy pipes were welded; the second group included 523 welders of mild steel, stainless steel and aluminum materials. Smoking data were available for 33.6% of the total cohort. Expectations were calculated based upon U.S. mortality rates for white males. There were 17 lung cancer deaths in the total cohort (E=11.37; SMR=150; 95% CI: 87–240). Seven of the lung cancer deaths occurred in the group which routinely welded nickel-alloy materials (E=5.65; SMR=124; 95% CI: 50–255) versus 10 lung cancer deaths in the ''other'' welders (E=6.12; SMR=163; 95% CI: 78–300).

Becker *et al.* compiled a cohort of 1,213 stainless steel welders and 1,688 turners from 25 German metal processing factories who had a minimum of 6 months employment during the period 1950–1970 (Exs. 227; 250; 251). The data collected included the primary type of welding (*e.g.*, arc welding, gas-shielded welding, etc.) used by each person, working conditions, average daily welding time and smoking status. The most recent follow-up of the cohort was through 1995. Expected numbers were developed using German mortality data. There were 268 deaths among the welders and 446 deaths among the turners. An elevated, but non-statistically significant, lung cancer SMR (O=28; E=23; SMR=121.5; 95% CI: 80.7–175.6) was observed among the welders. There were 38 lung cancer deaths among the turners with 38.6 expected, resulting in a SMR slightly below unity. Seven deaths from cancer of the pleura (all mesotheliomas) occurred among the welders with only 0.6 expected (SMR=1,179.9; 95% CI: 473.1–2,430.5), compared to only one death from cancer of the pleura among the turners, suggesting that the welders had exposure to asbestos. Epidemiological studies have shown that asbestos exposure is a primary cause of pleural mesotheliomas.

The International Agency for Research on Cancer (IARC) and the World Health Organization (WHO) cosponsored a study on welders. IARC and WHO compiled a cohort of 11,092 male welders from 135 companies in nine European countries to investigate the relationship between the different types of exposure occurring in stainless steel, mild steel and shipyard welding and various cancer sites, especially lung cancer (Ex. 7–114). Cohort entrance criteria varied by country. The expected number of deaths was compiled using national mortality rates from the WHO mortality data bank.

Results indicated the lung cancer deaths were statistically significant in the total cohort (116 cases; E=86.81; SMR=134; 95% CI: 110–160). Cohort members were assigned to one of four subcohorts based upon type of welding activity. While the lung cancer SMRs were elevated for all of the subcohorts, the only statistically significant SMR was for the mild steel-only welders (O=40; E=22.42; SMR=178; 95% CI: 127–243). Results for the other subgroups were: shipyard welders (O=36; E=28.62; SMR=126; 95% CI: 88–174); ever stainless steel welders (O=39; E=30.52; SMR=128; 95% CI: 91–175); and predominantly stainless steel welders (O=20; E=16.25; SMR=123; 95% CI: 75–190). When analyzed by subcohort and time since first exposure, the SMRs increased over time for every group except shipyard welders. For the predominantly stainless steel welder subcohort, the trend to increase with time was statistically significant ($p < .05$).

An analysis was conducted of lung cancer mortality in two stainless steel welder subgroups (predominantly and ever) with a minimum of 5 years of employment. Cumulative Cr(VI) was computed from start of exposure until 20 years prior to death. A lung cancer SMR of 170, based upon 14 cases, was observed in the stainless steel ever subgroup for those welders with ≥0.5 mg-years/m^3 Cr(VI) exposure; the lung cancer SMR for those in the <0.5 mg-years/m^3 Cr(VI) exposure group was 123 (based upon seven cases). Neither SMR was statistically significant. For the predominantly stainless steel welders, which is a subset of the stainless steel ever subgroup, the corresponding SMRs were 167 (≥0.5 mg-years/m^3 Cr(VI) exposure) based upon nine cases and 191 (<0.5 mg-years/m^3 Cr(VI) exposure) based upon three cases. Neither SMR was statistically significant.

In conjunction with the IARC/WHO welders study, Gerin *et al.* reported the development of a welding process exposure matrix relating 13 combinations of welding processes and base metals used to average exposure levels for total welding fumes, total chromium, Cr(VI) and nickel (Ex. 7–120). Quantitative estimates were derived from the literature supplemented by limited monitoring data taken in the 1970s from only 8 of the 135 companies in the IARC/WHO mortality study. An exposure history was constructed which included hire and termination dates, the base metal welded (stainless steel or mild steel), the welding process used and changes in exposure over time. When a detailed welding history was not available for an individual, the average company welding practice profile was used. In addition, descriptions of activities, work force, welding processes and parameters, base metals welded, types of electrodes or rods, types of confinement and presence of local exhaust ventilation were obtained from the companies.

Cumulative dose estimates in mg/m^3 years were generated for each welder's profile (number of years and proportion of time in each welding situation) by applying a welding process exposure matrix associating average concentrations of welding fumes (mg/m^3) to each welding situation. The corresponding exposure level was multiplied by length of employment and summed over the various employment periods involving different welding situations. No dose response relationship was seen for exposure to Cr(VI) for either those who were ''ever stainless steel welders'' or those who were ''predominantly stainless steel

welders''. The authors note that if their exposure estimates are correct, the study had the power to detect a significant result in the high exposure group for Cr(VI). However, OSHA believes that there is likely to be substantial exposure misclassification in this study, as discussed further in section VI.G.4.

The IARC/WHO multicenter study is the sole attempt to undertake even a semi-quantified exposure analysis of stainless steel welders' potential exposure to nickel and Cr(VI) for <5 and ≥0.5 mg-years/m^3 Cr(VI) exposures. The IARC/WHO investigators noted that there was more than a twofold increase in SMRs between the long (≥20 years since first exposure) and short (<20 years since first exposure) observation groups for the predominantly stainless steel welders ''suggesting a relation of lung cancer mortality with the occupational environment for this group'' (Ex. 7–114, p. 152). The authors conclude that the increase in lung cancer mortality does not appear to be related to either duration of exposure or cumulative exposure to total fume, chromium, Cr(VI) or nickel.

Moulin compiled a cohort of 2,721 French male welders and an internal comparison group of 6,683 manual workers employed in 13 factories (including three shipyards) with a minimum of one year of employment from 1975 to 1988 (Ex. 7–92). Three controls were selected at random for each welder. Smoking data were abstracted from medical records for 86.6% of welders and 86.5% of the controls. Smoking data were incorporated in the lung cancer mortality analysis using methods suggested by Axelson. Two hundred and three deaths were observed in the welders and 527 in the comparison group. A non-statistically significant increase was observed in the lung cancer SMR (O=19; E=15.33; SMR=124; 95% CI: 0.75–1.94) for the welders. In the control group, the lung cancer SMR was in deficit (O=44; E=46.72; SMR=94; 95% CI: 0.68–1.26). The resulting relative risk was a non-significant 1.3. There were three deaths from pleural cancer in the comparison group and none in the welders, suggesting asbestos exposure in the comparison group. The welders were divided into four subgroups (shipyard welders, mild steel only welders, ever stainless steel welders and stainless steel predominantly Cr(VI) welders). The highest lung cancer SMR was for the mild steel welders O=9; SMR of 159). The lowest lung cancer SMRs were for ever stainless steel welders (O=3; SMR= 92) and for stainless steel predominantly Cr(VI) welders (O=2; SMR= 103). None of the SMRs are statistically significant.

Hansen conducted a study of cancer incidence among 10,059 male welders, stainless steel grinders and other metal workers from 79 Danish companies (Ex. 9–129). Cohort entrance criteria included: alive on April 1, 1968; born before January 1, 1965; and employed for at least 12 months between April 1, 1964 and December 31, 1984. Vital status follow-up found 9,114 subjects alive, 812 dead and 133 emigrated. A questionnaire was sent to subjects and proxies for decedents/emigrants in an attempt to obtain information about lifetime occupational exposure, smoking and drinking habits. The overall response rate was 83%. The authors stated that no major differences in smoking habits were found between exposure groups with or without a significant excess of lung cancer.

The expected number of cancers was based on age-adjusted national cancer incidence rates from the Danish Cancer Registry. There were statistically significantly elevated Standardized Incidence Ratios (SIRs) for lung cancer in the welding (any kind) group (O=51; E=36.84; SIR=138; 95% CI: 103–181) and in the mild steel only welders (O=28; E=17.42; SIR=161; 95% CI: 107–233). The lung cancer SIR for mild steel ever welders was 132 (O=46; E=34.75; 95% CI: 97–176); for stainless steel ever welders 119 (O=23; E=19.39; 95% CI: 75–179) and for stainless steel only welders 238 (O=5; E=2.10; 95% CI: 77–555).

Laurtitsen reported the results of a nested case-control conducted in conjunction with the Hansen cancer incidence study discussed above (Exs. 35–291; 9–129). Cases were defined as the 94 lung cancer deaths. Controls were defined as anyone who was not a case, but excluded deaths from respiratory diseases other than lung cancer (either as an underlying or a contributing cause of death), deaths from ''unknown malignancies'' and decedents who were younger than the youngest case. There were 439 decedents eligible for use as controls.

The crude odds ratio (OR) for welding ever (yes/no) was 1.7 (95% CI: 1.0–2.8). The crude OR for mild steel welding only was 1.3 (95% CI: 0.8–2.3) and for stainless steel welding only the crude OR was 1.3 (95% CI: 0.3–4.3). When analyzed by number of years exposed, ''ever'' stainless steel welding showed no relationship with increasing number of years exposed. The highest odds ratio (2.9) was in the lowest category (1–5 years) based upon seven deaths; the lowest odds ratio was in the highest category (21+ years) based upon three deaths.

Kjuus *et al.* conducted a hospital-based case-control study of 176 male incident lung cancer cases and 186 controls (matched for age, +/−5 years) admitted to two county hospitals in southeast Norway during 1979–1983 (Ex. 7–72). Subjects were classified according to exposure status of main occupation and number of years in each exposure category and assigned into one of three exposure groups according to potential exposure to respiratory carcinogens and other contaminants. A statistically significantly elevated risk ratio for lung cancer (adjusted for smoking) for the exposure factor ''welding, stainless, acid proof'' of 3.3 ($p<0.05$) was observed based upon 16 lung cancer deaths. The unadjusted odds ratio is not statistically significant (OR=2.8). However, the appropriateness of the analysis is questionable since the exposure factors are not discrete (a case or a control may appear in multiple exposure factors and therefore is being compared to himself). In addition, the authors note that several exposure factors were highly correlated and point out specifically that one-half of the cases ''exposed to either stainless steel welding fumes or fertilizers also reported moderate to heavy asbestos exposure.'' When put into a stepwise logistic regression model, exposure to stainless steel fumes, which was initially statistically significant, loses its significance when smoking and asbestos are first entered into the model.

Hull *et al.* conducted a case-control study of lung cancer in white male welders aged 20–65 identified through the Los Angeles County tumor registry (Southern California Cancer Surveillance Program) for the period 1972 to 1987 (Ex. 35–243). Controls were welders 40 years of age or older with non-pulmonary malignancies. Interviews were conducted to obtain information about sociodemographic data, smoking history, employment history and occupational exposures to specific welding processes, metals welded, asbestos and confined space welding. Interviews were completed for 90 (70%) of the 128 lung cancer cases and 116 (66%) of the controls. Analysis was conducted using 85 deceased cases and 74 deceased controls after determining that the subject's vital status influenced responses to questions concerning occupational exposures. The crude odds ratio (ever vs. never exposed) for stainless steel welding, based upon 34 cases, was 0.9 (95% CI: 0.3–1.4). For manual metal arc welding on stainless steel, the crude odds ratio

was 1.3 (95% CI: 0.6–2.3) based upon 61 cases.

While the relative risk estimates in both cohort and case-control of stainless steel welders are elevated, none are statistically significant. However, when combined in two meta-analyses, a small but statistically significant increase in lung cancer risk was reported. Two meta-analyses of welders have been published. Moulin carried out a meta-analysis of epidemiologic studies of lung cancer risk among welders, taking into account the role of asbestos and smoking (Ex. 35–285). Studies published between 1954 and 1994 were reviewed. The inclusion criteria were clearly defined: only the most recent updates of cohort studies were used and only the mortality data from mortality/morbidity studies were included. Studies that did not provide the information required by the meta-analysis were excluded.

Five welding categories were defined (shipyard welding, non-shipyard welding, mild steel welding, stainless steel welding and all or unspecified welding). The studies were assigned to a welding category (or categories) based upon the descriptions provided in the paper's study design section. The combined relative risks (odds ratios, standardized mortality ratios, proportionate mortality ratios and standardized incidence ratios) were calculated separately for the population-based studies, case-control studies, and cohort studies, and for all the studies combined.

Three case-control studies (Exs. 35–243; 7–120; 7–72) and two cohort studies (Exs. 7–114; 35–277) were included in the stainless steel welding portion of the meta-analysis. The combined relative risk was 2.00 (O=87; 95% CI: 1.22–3.28) for the case-control studies and 1.23 (O=27; 95% CI: 0.82–1.85) for the cohort studies. When all five studies were combined, the relative risk was 1.50 (O=114; 95% CI: 1.10–2.05).

By contrast, the combined risk ratio for the case-control studies of mild steel welders was 1.56 (O=58; 95% CI: 0.82–2.99) (Exs. 7–120; 35–243). For the cohort studies, the risk ratio was 1.49 (O=79; 95% CI: 1.15–1.93) (Exs. 35–270; 7–114). For the four studies combined, the risk ratio was 1.50 (O=137; 95% CI: 1.18–191). The results for the stainless steel welders and the mild steel welders are basically the same.

The meta-analysis by Sjogren of exposure to stainless steel welding fumes and lung cancer included studies published between 1984 and 1993, which took smoking and potential asbestos exposure into account (Ex. 7–113). Five studies met the author's inclusion criteria and were included in the meta-analysis: two cohort studies, Moulin *et al.* (Ex. 35–283) and Sjogren *et al.* (Ex. 7–95); and three case-control studies, Gerin, *et al.* (Ex. 7–120, Hansen *et al.* (Ex. 9–129) and Kjuus *et al.* (Ex. 7–72). The calculated pooled relative risk for welders exposed to stainless steel welding fumes was 1.94 (95% CI: 1.28–2.93).

5. Evidence from Ferrochromium Workers

Ferrochromium is produced by the electrothermal reduction of chromite ore with coke in the presence of iron in electric furnaces. Some of the chromite ore is oxidized into Cr(VI) during the process. However, most of the ore is reduced to chrome metal. The manufacture of ferroalloys results in a complex mixture of particles, fumes and chemicals including nickel, Cr(III) and Cr(VI). Polycyclic aromatic hydrocarbons (PAH) are released during the manufacturing process. The co-exposure to other potential lung carcinogens combined with the lack of a statistically significant elevation in lung cancer mortality among ferrochromium workers were limitations in the key studies. Nevertheless, the observed increase in the relative risks of lung cancer add some further support to the much stronger link between Cr(VI) and lung cancer found in soluble chromate production workers, chromate pigment production workers, and chrome platers. The key studies are summarized in Table V–5.

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TABLE V-5: SUMMARY OF SELECTED EPIDEMIOLOGIC STUDIES OF LUNG CANCER IN WORKERS EXPOSED TO HEXAVALENT CHROMIUM

Ferrochromium Production

Reference/Exhibit Number	Study Population	Reference Population	Chromium (VI) Exposure	Lung Cancer Risk
Axelsson et al. (1980, Ex. 7-62)	1932 Swedish males employed at least one year in a ferrochromium between 1930 to 1975	Swedish county mortality and incidence rates	"Recent" job-specific Cr(VI) levels estimated at 10 to 250 $\mu g/m^3$	-O/E of 0.7 (NS) for ferrochromium workers based on 5 cases -No trend with job-specific Cr(VI)
Langard et al. (1990, Ex. 7-37)	1235 males employed at least one year who started working prior to 1965 in a Norway ferrochromium plant Follow-up through 1985.	-Norwegian Cancer Registry -Subcohort of ferrosilicon workers at same plant not exposed to Cr(VI)	Avg total Cr exposure was 50 $\mu g/m^3$ in 1975 with 11 to 33 % soluble Cr(VI)	-O/E of 1.5 (NS) for ferrochromium workers based on 10 cases -O/E of 0.3 for ferrosilicon workers based on 2 cases

Observed/Expected (O/E)
Relative Risk (RR)
Not Statistically Significant (NS)
Odds Ratio (OR)

Langard *et al.* conducted a cohort study of male workers producing ferrosilicon and ferrochromium for more than one year between 1928 and 1977 at

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a plant located on the west coast of Norway (Exs. 7–34; 7–37). The cohort and study findings are summarized in Table V.5. Excluded from the study were workers who died before January 1, 1953 or had an unknown date of birth. The cohort was defined in the 1980 study as 976 male employees who worked for a minimum of one year prior to January 1, 1960. In the 1990 study, the cohort definition was expanded to include those hired up to 1965.

Production of ferrosilicon at the plant began in 1928 and ferrochromium production began in 1932. Job characterizations were compiled by combining information from company personnel lists and occupational histories contained in medical records and supplemented with information obtained via interview with long-term employees. Ten occupational categories were defined. Workers were assigned to an occupational category based upon the longest time in a given category.

Industrial hygiene studies of the plant from 1975 indicated that both Cr(III) and Cr(VI) were present in the working environment. The ferrochromium furnance operators were exposed to measurements of 0.04–0.29 mg/m^3 of total chromium. At the charge floor the mean concentration of total chromium was 0.05 mg/m^3, 11–33% of which was water soluble. The water soluble chromium was considered to be in the hexavalent state.

Both observed and expected cases of cancer were obtained via the Norwegian Cancer Registry. The observation period for cancer incidence was January 1, 1953 to December 31, 1985. Seventeen incident lung cancers were reported in the 1990 study (E=19.4; SIR=88). A deficit of lung cancer incidence was observed in the ferrosilicon group (O=2; E=5.8; SIR=35). In the ferrochromium group there were a significant excess of lung cancer; 10 observed lung cancers with 6.5 expected (SIR=154).

Axelsson *et al.* conducted a study of 1,932 ferrochromium workers to examine whether exposure in the ferrochromium industry could be associated with an increased risk of developing tumors, especially lung cancer (Ex. 7–62). The study cohort and findings are summarized in Table V.5. The study cohort was defined as males employed at a ferrochromium plant in Sweden for at least one year during the period January 1, 1930 to December 31, 1975.

The different working sites within the industry were classified into four groups with respect to exposure to Cr(VI) and Cr(III). Exposure was primarily to metallic and trivalent chromium with estimated levels ranging from 0–2.5 mg/m^3. Cr(VI) was also present in certain operations with estimated levels ranging from 0–0.25 mg/m^3. The highest exposure to Cr(VI) was in the arc-furnace operations. Cr(VI) exposure also occurred in a chromate reduction process during chromium alum production from 1950–1956. Asbestos-containing materials had been used in the plant. Cohort members were classified according to length and place of work in the plant.

Death certificates were obtained and coded to the revision of the International Classification of Diseases in effect at the time of death. Data on cancer incidence were obtained from the Swedish National Cancer Registry. Causes of death in the cohort for the period 1951–1975 were compared with causes of death for the age-adjusted male population in the county in which the plant was located.

There were seven cases of cancers of the trachea, bronchus and lung and the pleura with 5.9 expected (SIR=119) for the period 1958–1975. Four of the seven cases in the lung cancer group were maintenance workers and two of the four cases were pleural mesotheliomas. In the arc furnace group, which was thought to have the highest potential exposure to both Cr(III) and Cr(VI), there were two cancers of the trachea, bronchus and lung and the pleura. One of the cases was a mesothelioma. Of the 380 deaths that occurred during the period 1951–1975, five were from cancer of the trachea, bronchus and lung and the pleura (E=7.2; SMR=70). For the ''highly'' exposed furnace workers, there was one death from cancer of the trachea, bronchus and lung and the pleura.

Moulin *et al.* conducted a cohort mortality study in a French ferrochromium/stainless steel plant to determine if exposure to chromium compounds, nickel compounds and polycyclic aromatic hydrocarbons (PAHs) results in an increased risk of lung cancer (Ex. 282). The cohort was defined as men employed for at least one year between January 1, 1952 and December 31, 1982; 2,269 men met the cohort entrance criteria. No quantitative exposure data were available and no information on the relative amounts of Cr(VI) and Cr(III) was provided. In addition, some workers were also exposed to other carcinogens, such as silica and asbestos. The authors estimated that 75.7% of the cohort had been exposed to combinations of PAH, nickel and chromium compounds. Of the 137 deaths identified, the authors determined 12 were due to cancer of the trachea, bronchus and lung (E=8.56; SMR=140; 95% CI: 0.72–2.45). Eleven of the 12 lung cancers were in workers employed for at least one year in the ferrochromium or stainless steel production workshops (E=5.4; SMR=204; 95% CI: 1.02–3.64).

Pokrovskaya and Shabynina conducted a cohort mortality study of male and female workers employed ''some time'' between 1955 and 1969 at a chromium ferroalloy production plant in the U.S.S.R (Ex. 7–61). Workers were exposed to both Cr(III) and Cr(VI) as well as to benzo [a] pyrene. Neither the number of workers nor the number of cancer deaths by site were provided. Death certificates were obtained and the deaths were compared with municipal mortality rates by gender and 10 year age groups. The investigators state that they were able to exclude those in the comparison group who had chromium exposures in other industries. The lung cancer SMR for male chromium ferroalloy workers was 440 in the 30–39 year old age group and 660 in the 50–59 year old age group (p=0.001). There were no lung cancer deaths in the 40–49 and the 60–69 year old age groups. The data suggest that these ferrochromium workers may have been had an excess risk of lung cancer.

The association between Cr(VI) exposure in ferrochromium workers and the incidence of respiratory tract cancer these studies is difficult to assess because of co-exposures to other potential carcinogens (*e.g.*, asbestos, PAHs, nickel, etc.), absence of a clear exposure-response relationship and lack of information on smoking. There is suggestive evidence of excess lung cancer mortality among Cr(VI)-exposed ferrochromium workers in the Norwegian (Langard) cohort when compared to a similar unexposed cohort of ferrosilicon workers. However, there is little consistency for this finding in the Swedish (Axelsson) or French (Moulin) cohorts.

6. Evidence From Workers in Other Industry Sectors

There are several other epidemiological studies that do not fit into the five industry sectors previously reviewed. These include worker cohorts in the aerospace industry, paint manufacture, and leather tanning operations, among others. The two cohorts of aircraft manufacturing workers are summarized in Table V–6. All of the cohorts had some Cr(VI) exposure, but certain cohorts may have included a sizable number of workers with little or no exposure to Cr(VI). This creates an additional complexity in assessing whether the study findings

support a Cr(VI) etiology for cancer of the respiratory system.

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TABLE V-6: SUMMARY OF SELECTED EPIDEMIOLOGIC STUDIES OF LUNG CANCER IN WORKERS EXPOSED TO HEXAVALENT CHROMIUM

Aircraft Manufacture

Reference/Exhibit Number	Study Population	Reference Population	Chromium (VI) Exposure	Lung Cancer Risk
Alexander et al. (1996, Ex. 31-16-3)	2429 aerospace workers with a minimum six months employment in Washington State from 1974 to 1994. Median age at end of study was 42 years with median 9 years follow-up	Incidence rates from regional cancer surveillance system registry	Painters/sanders exposed to zinc strontium and lead chromates Platers/tank tenders exposed primarily to chromic acid Median cumulative chromate exposure between 0.01 and 0.18 mg/m^3 – yr based on 1974 to 1994 data	-O/E of 0.8 (NS) for aerospace cohort based on 15 deaths -No clear trend with chromate exposure
Boice et al. (1999, Ex. 31-16-4) Marano et al. (2000, Ex. 47-19-5)	77,965 workers employed for minimum of one year in California aircraft manufacturing plant on or after 1960. Follow-up through 1996.	Mortality rates for white population of California and for non-white U.S. population	8 percent of cohort had potential for routine Cr(VI) exposure as painters and platers mean Cr(VI) exposure levels of 0.78 $\mu g/m^3$ from 1978-1991 air sampling	-O/E of 1.02 (NS) for workers with routine Cr(VI) exposures based on 87 deaths -upward trend (NS) with duration of exposure -O/E of 0.71 ($p<0.05$) for non-factory workers

Observed/Expected (O/E)
Relative Risk (RR)
Not Statistically Significant (NS)
Odds Ratio (OR)

Alexander *et al.* conducted a cohort study of 2,429 aerospace workers with a minimum of six months of cumulative employment in jobs involving chromate

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exposure during the period 1974 through 1994 (Ex. 31–16–3). Exposure estimates were based on industrial hygiene measurements and work history records. Jobs were classified into categories of ''high'' (spray painters, decorative painters), ''moderate'' (sanders/maskers, maintenance painters) and ''low'' (chrome platers, surface processors, tank tenders, polishers, paint mixers) exposure. Each exposure category was assigned a summary TWA exposure based upon the weighted TWAs and information from industrial hygienists. The use of respiratory protection was accounted for in setting up the job exposure matrix. The index of cumulative total chromium exposure (reported as $\mu g/m^3$ chromate TWA-years) was computed by multiplying the years in each job by the summary TWAs for each exposure category.

In addition to cumulative chromate exposure, chromate exposure jobs were classified according to the species of chromate. According to the authors, in painting operations the exposure is to chromate pigments with moderate and low solubility such as zinc chromate, strontium chromate and lead chromate; in sanding and polishing operations the same chromate pigments exist as dust; while platers and tank tenders are exposed to chromium trioxide, which is highly soluble.

Approximately 26% of the cohort was lost to follow-up. Follow-up on the cohort was short (average 8.9 years per cohort member). Cases were identified through the Cancer Surveillance System (CSS) at the Fred Hutchinson Cancer Research Center in Seattle, Washington. CSS records primary cancer diagnoses in 13 counties in western Washington. Expected numbers were calculated using race-, gender-, age- and calendar-specific rates from the Puget Sound reference population for 1974 through 1994. Fifteen lung cancer cases were identified with an overall standardized incidence ratio (SIR) of 80 (95% CI: 0.4–1.3). The SIRs for lung cancer by cumulative years of employment in the ''high exposure'' painting job category were based upon only three deaths in each of the cumulative years categories (<5 and ≥5); years of employment was inversely related to the risk of lung cancer. For those in the ''low exposure'' category, the SIRs were 130 for those who worked less than five years in that category (95% CI: 0.2–4.8) and 190 for those who worked five years or more (95% CI: 0.2–6.9). However, there were only two deaths in each category. The SIR for those who worked ≥5 years was 270 (95% CI: 0.5–7.8), but based only on three deaths.

Boice *et al.* conducted a cohort mortality study of 77,965 workers employed for a minimum of one year on or after January 1960 in aircraft manufacturing (Ex. 31–16–4). Routine exposures to Cr(VI) compounds occurred primarily while operating plating and coating process equipment or when using chromate based primers or paints. According to the authors, 3,634 workers, or 8% of the cohort, had the potential for routine exposure to chromate and 3,809 workers, or 8.4%, had the potential for intermittent exposure to chromate. Limited chromate air sampling was conducted between 1978 and 1991. The mean full shift air measurement was 1.5 $\mu g\ CrO_3/m^3$ (0.78 $\mu g\ Cr(VI)/m^3$) indicating fairly low airborne Cr(VI) in the plant (Ex. 47–19–5).

Follow up of the cohort was through 1996. Expectations were calculated based on the general population of California for white workers, while general population rates for the U.S. were used for non-white workers. For the 3,634 cohort members who had potential for routine exposure to chromates, the lung cancer SMR (race and gender combined) was 102 based upon 87 deaths (95% CI: 82–126). There was a slight non-significant positive trend (p value >2.0) for lung cancer with duration of potential exposure. The SMR was 108 (95% CI: 75–157) for workers exposed to chromate for ≥5 years. Among the painters, there were 41 deaths from lung cancer yielding a SMR of 111 (95% CI: 80–151). For those who worked as a process operator or plater the SMR for lung cancer was 103 based upon 38 deaths (95% CI: 73–141).

OSHA believes the Alexander (Ex. 31–16–3) and the Boice *et al.* (Ex. 31–16–4) studies have several limitations. The Alexander cohort has few lung cancers (due in part to the young age of the population) and lacks smoking data. The authors note that these factors ''[limit] the overall power of the study and the stability of the risk estimates, especially in exposure-related subanalyses'' (Ex. 31–16–3, p. 1256). Another limitation of the study is the 26.3% of cohort members lost to follow-up. Boice *et al.* is a large study of workers in the aircraft manufacturing industry, but was limited by a lack of Cr(VI) exposure measurement during the 1960s and most of the 1970s. I was also limited by a substantial healthy worker survivor effect that may have masked evidence of excess lung cancer mortality in Cr(VI) exposed workers (Ex. 31–16–4). These studies are discussed further in section VI, including section VI.B.6 (Alexander cohort) and section VI.G.4.a (Alexander and Boice cohorts).

Dalager *et al.* conducted a proportionate mortality study of 977 white male spray painters potentially exposed to zinc chromate in the aircraft maintenance industry who worked at least three months and terminated employment within ten years prior to July 31, 1959 (Ex. 7–64). Follow-up was through 1977. The expected numbers of deaths were obtained by applying the cause-specific proportionate mortality of U.S. white males to the total numbers of deaths in the study group by five year age groups and five year time intervals. Two hundred and two deaths were observed. There were 21 deaths from cancer of the respiratory system (PMR=184), which was statistically significant. The Proportionate Cancer Mortality Ratio for cancer of the respiratory system was not statistically significant (PCMR= 146). Duration of employment as a painter with the military as indicated on the service record was used as an estimate of exposure to zinc chromate pigments, which were used as a metal primer. The PMRs increased as duration of employment increased (<5 years, O=9, E=6.4, PMR=141; 5–9 years, O=6, E=3, PMR=200; and 10+ years, O=6, E=2, PMR=300) and were statistically significant for those who worked 10 or more years.

Bertazzi *et al.* studied the mortality experience of 427 workers employed for a minimum of six months between 1946 and 1977 in a plant manufacturing paint and coatings (Ex. 7–65). According to the author, chromate pigments represented the ''major exposure'' in the plant. The mortality follow-up period was 1954–1978. There were eight deaths from lung cancer resulting in a SMR of 227 on the local standard (95% CI: 156–633) and a SMR of 334 on the national standard (95% CI: 106–434). The authors were unable to differentiate between exposures to different paints and coatings. In addition, asbestos was used in the plant and may be a potential confounding exposure.

Morgan conducted a cohort study of 16,243 men employed after January 1, 1946 for at least one year in the manufacture of paint or varnish (Ex. 8–4). Analysis was also conducted for seven subcohorts, one of which was for work with pigments. Expectations were calculated based upon the mortality experience of U.S. white males. The SMR for cancer of the trachea, bronchus and lung was below unity based upon 150 deaths. For the pigment subcohort, the SMR for cancer of the trachea, bronchus and lung was 117 based upon 43 deaths. In a follow-up study of the subcohorts, case-control analyses were conducted for several causes of death

including lung cancer (Ex. 286). The details of matching were not provided. The authors state that no significant excesses of lung cancer risk by job were found. No odds ratios were presented.

Pippard *et al.* conducted a cohort mortality study of 833 British male tannery workers employed in 1939 and followed through December 31, 1982 (Ex. 278). Five hundred and seventy three men worked in tanneries making vegetable tanned leathers and 260 men worked in tanneries that made chrome tanned leathers. The expected number of deaths was calculated using the mortality rates of England and Wales as a whole. The lung cancer SMR for the vegetable tanned leather workers was in deficit (O=31; E=32.6; 95% CI: 65–135), while the lung cancer SMR for the chrome tanned leather workers was slightly elevated but not statistically significant (O=13; E=12; SMR=108; 95% CI: 58–185).

In a different study of two U.S. tanneries, Stern *et al.* investigated mortality in a cohort of all production workers employed from January 1, 1940 to June 11, 1979 at tannery A (N=2,807) and from January 1, 1940 to May 1, 1980 at tannery B (N=6,558) (Ex. 7–68). Vital status was followed through December 31, 1982. There were 1,582 deaths among workers from the two tanneries. Analyses were conducted employing both U.S. mortality rates and the mortality rates for the state in which the plant is located. There were 18 lung/pleura cancer deaths at tannery A and 42 lung/pleura cancer deaths at tannery B. The lung cancer/pleura SMRs were in deficit on both the national standard and the state standard for both tanneries. The authors noted that since the 1940s most chrome tanneries have switched to the one-bath tanning method in which Cr(VI) is reduced to Cr(III).

Blot *et al.* reported the results of a cohort study of 51,899 male workers of the Pacific Gas & Electric Company alive in January 1971 and employed for at least six months before the end of 1986 (Ex. 239). A subset of the workers were involved in gas generator plant operations where Cr(VI) compounds were used in open and closed systems from the 1950s to early 1980s. One percent of the workers (513 men) had worked in gas generator jobs, with 372 identified from post-1971 listing at the company's three gas generator plants and 141 from gas generator job codes. Six percent of the cohort members (3,283) had trained at one of the gas generator plants (Kettleman).

SMRs based on national and California rates were computed. Results in the paper are based on the California rates, since the overall results reportedly did not differ substantially from those using the national rates. SMRs were calculated for the entire cohort and for subsets defined by potential for gas generator plant exposure. No significant cancer excesses were observed and all but one cancer SMR was in deficit. There were eight lung cancer deaths in the gas generator workers (SMR=81; 95% CI: 0.35–1.60) and three lung cancer deaths among the Kettleman trainees (SMR=57; 95% CI: 0.12–1.67). There were no deaths from nasal cancer among either the gas generator workers or the Kettleman trainees. The risk of lung cancer did not increase with length of employment or time since hire.

Rafnsson and Johannesdottir conducted a study of 450 licensed masons (cement finishers) in Iceland born between 1905 and 1945, followed from 1951 through 1982 (Ex. 7–73). Stonecutters were excluded. Expectations were based on the male population of Iceland. The SMR for lung cancer was 314 and is statistically significant based upon nine deaths (E=2.87; 95% CI: 1.43–5.95). When a 20 year latency was factored into the analysis, the lung cancer SMR remained statistically significant (O=8; E=2.19; SMR=365; 95% CI: 1.58–7.20).

Svensson *et al.* conducted a cohort mortality study of 1,164 male grinding stainless steel workers employed for three months or more during the period 1927–1981 (Ex.266). Workers at the facility were reportedly exposed to chromium and nickel in the stainless steel grinding process. Records provided by the company were used to assign each worker to one of three occupational categories: those considered to have high exposure to chromium, nickel as well as total dust, those with intermediate exposure, and those with low exposure. Mortality rates for males in Blekinge County, Sweden were used as the reference population. Vital status follow-up was through December 31, 1983. A total of 194 deaths were observed (SMR=91). No increased risk of lung cancer was observed (SMR=92). The SMR for colon/rectum cancer was 2.47, but was not statistically significant.

Cornell and Landis studied the mortality experience of 851 men who worked in 26 U.S. nickel/chromium alloy foundries between 1968 and 1979 (Ex. 7–66). Standardized Proportionate Mortality Ratio (SPMR) analyses were done using both an internal comparison group (foundry workers not exposed to nickel/chromium) and the mortality experience of U.S. males. The SPMR for lung cancer was 105 (O=60; E=56.9). No nasal cancer deaths were observed.

Brinton *et al.* conducted a case-control study of 160 patients diagnosed with primary malignancies of the nasal cavity and sinuses at one of four hospitals in North Carolina and Virginia between January 1, 1970 and December 31, 1980 (Ex. 8–8). For each case determined to be alive at the time of interview, two hospital controls were selected matched on vital status, hospital, year of admission (±2 years), age (±5 years), race and state economic area or county or usual residence. Excluded from control selection were malignant neoplasms of the buccal cavity and pharynx, esophagus, nasal cavity, middle ear and accessory sinuses, larynx, and secondary neoplasms. Also excluded were benign neoplasms of the respiratory system, mental disorders, acute sinusitis, chronic pharyngitis and nasopharyngitis, chronic sinusitis, deflected nasal septum or nasal polyps. For those cases who were deceased at the time of interview, two different controls were selected. One control series consisted of hospital controls as described previously. The second series consisted of decedents identified through state vital statistics offices matched for age (±5 years), sex, race, county of usual residence and year of death. A total of 193 cases were identified and 160 case interviews completed. For those exposed to chromates, the relative risk was not significantly elevated (OR=5.1) based upon five cases. According to the authors, chromate exposure was due to the use of chromate products in the building industry and in painting, rather than the manufacture of chromates.

Hernberg *et al.* reported the results of a case-control study of 167 living cases of nasal or paranasal sinus cancer diagnosed in Denmark, Finland and Sweden between July 1, 1977 and December 31, 1980 (Exs. 8–7; 7–71). Controls were living patients diagnosed with malignant tumors of the colon and rectum matched for country, gender and age at diagnosis (±3 years) with the cases. Both cases and controls were interviewed by telephone to obtain occupational histories. Patients with work-related exposures during the ten years prior to their illness were excluded. Sixteen cases reported exposure to chromium, primarily in the ''stainless steel welding'' and ''nickel'' categories, versus six controls (OR=2.7l; 95% CI: 1.1–6.6).

7. Evidence From Experimental Animal Studies

Most of the key animal cancer bioassays for chromium compounds were conducted before 1988. These

studies have been critically reviewed by the IARC in the Monograph Chromium, Nickel, and Welding (Ex. 35–43). OSHA reviewed the key animal cancer bioassays in the NPRM (69 FR at 59341–59347) and requested any additional data in experimental animals that were considered important to evaluating the carcinogenicity of Cr(VI). The discussion below describes these studies along with any new study information received during the public hearing and comment periods.

In the experimental studies, Cr(VI) compounds were administered by various routes including inhalation, intratracheal instillation, intrabronchial implantation, and intrapleural injection, as well as intramuscular and subcutaneous injection. For assessing human health effects from occupational exposure, the most relevant route is inhalation. However, as a whole, there were very few inhalation studies. In addition to inhalation studies, OSHA is also relying on intrabronchial implantation and intratracheal instillation studies for hazard identification because these studies examine effects directly administered to the respiratory tract, the primary target organ of concern, and they give insight into the relative potency of different Cr(VI) compounds. In comparison to studies examining inhalation, intrabronchial implantation, and intratracheal instillation, studies using subcutaneous injection and intramuscular administration of Cr(VI) compounds were of lesser significance but were still considered for hazard identification.

In its evaluation, OSHA took into consideration the exposure regimen and experimental conditions under which the experiments were performed, including the exposure level and duration; route of administration; number, species, strain, gender, and age of the experimental animals; the inclusion of appropriate control groups; and consistency in test results. Some studies were not included if they did not contribute to the weight of evidence, lacked adequate documentation, were of poor quality, or were less relevant to occupational exposure conditions (*e.g.*, some intramuscular injection studies).

The summarized animal studies are organized by Cr(VI) compound in order of water solubility as defined in section IV on Chemical Properties (*i.e.*, Cr(VI) compounds that are highly soluble in water; Cr(VI) compounds that are slightly soluble in water, and Cr(VI) compounds that insoluble in water). Solubility is an important factor in determining the carcinogenicity of Cr(VI) compounds (Ex. 35–47).

a. Highly Water Soluble Cr(VI) Compounds

Multiple animal carcinogenicity studies have been conducted on highly water soluble sodium dichromate and chromic acid. The key studies are summarized in Table V–7.

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TABLE V-7: SUMMARY OF SELECTED CARCINOGENICITY STUDIES IN EXPERIMENTAL ANIMALS ADMINISTERED HEXAVALENT CHROMIUM

Highly Water Soluble Chromates

Compound	Route	Sex/Species/ Strain (# in exposed groups)	Dose Administered[1] and Observation Periods	Tumor Incidence	Reference/Exhibit #
Chromic acid (Chromium trioxide)	Inhalation	Female ICR mice (50 per exposed group)	3.6 mg Cr(VI)/m^3 for 30 min per day, 2 d/wk up to 12 mo. Histopatholoical evaluation at periods up to 18 mo	-Lung tumors: 7/48 vs 2/20 for control -5 benign adenomas and 2 adenocarcinomas	Adachi et al. (1986, Ex. 35-26-1)
	Inhalation	Female C57BL mice (23 examined at 12 mo; 20 examined at 18 mo)	1.8 mg Cr(VI)/m^3 for 120 min 2 x week for 12 months Histopatholoical evaluation at 12 and 18 mo	Nasal papilloma: 6/20 ($p<0.05$) at 18 mo; Lung adenoma: 1/20 (NS) at 18 mo	Adachi (1987, Ex. 35-219)
	Intrabronchial	Male/female Porton-Wistar rats (50 per exposed group)	1.0 mg Cr(VI) as single dose mixed w cholesterol in steel pellet and evaluated at 2 years	Bronchial carcinoma (M/F combined) : 2/100 (N.S.)	Levy et al. (1986, Ex. 11-2)
Sodium dichromate	Inhalation	Male Wistar rats (20 per exposed group)	0.025, 0.050 and 0.10 mg Cr(VI)/m^3 22-23 hr/day, 7 d/wk for 18 months; evaluated at up to30 months	Lung tumors: 0.025 mg/m^3- 0/18; 0.05 mg/m^3- 0/18; 0.1 mg/m^3 -3/19 (NS)	Glaser et al. (1986, Ex. 10-11)
	Intrabronchial	Male/female Porton-Wistar rats (50 per exposed group)	0.8 mg Cr(VI) as a single dose mixed w cholesterol in steel pellet and evaluated at 2 years	Bronchial carcinoma (M/F combined): 1/100 (NS)	Levy et al. (1986, Ex. 11-2)
	Intratracheal	Male/female Sprague Dawley rats (40 per exposed group)	5 x weekly: 0.0034, 0.017, 0.086 mg Cr(VI)/kg bw for 30 mo 1x weekly: 0.017, 0.086, 0.43 mg Cr(VI)/kg bw for 30 mo	Lung tumors (M/F combined)- 5 x weekly: 0/80 in all groups 1 x weekly: 0.017 mg/kg -0/80; 0.086 mg/kg-1/80; 0.43 mg/kg-14/80 ($p<0.01$)	Steinhoff et al. (1986, Ex. 11-7)

[1] doses calculated and recorded as mg of Cr(VI), rather than specific chromate compound, where possible
Not Statistically Significant – NS
Male/Female – M/F

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Chromic acid (Chromium trioxide). In a study by Adachi *et al.*, ICR/JcI mice were exposed by inhalation to 3.63 mg/m^3 for 30 minutes per day, two days per week for up to 12 months (Ex. 35–26–1). The mice were observed for an additional six months. The authors used a miniaturized chromium electroplating system to generate chromic acid for the study. The authors found there were elevations in lung adenomas at 10–14

months (3/14 vs. 0/10) and lung adenocarcinomas at 15–18 months (2/19 vs. 0/10), but the results were not statistically significant. The small number of animals (*e.g.* 10–20 per group) used in this study limited its power to detect all but a relatively high tumor incidence (*e.g.* >20%) with statistical precision. Statistically significant increases in nasal papillomas were observed in another study by Adachi *et al.*, in which C57B1 mice were exposed by inhalation to 1.81 mg/m^3 chromic acid for 120 min per day, two days per week for up to 12 months (Ex. 35–26). At 18 months, the tumor incidence was 6/20 in exposed animals vs. 0/20 in the control animals ($p<0.05$).

In separate but similar studies, Levy *et al.* and Levy and Venitt, using similar exposure protocol, conducted bronchial implantation experiments in which 100 male and female Porton-Wistar rats were dosed with single intrabronchial implantations of 2 mg chromic acid (1.04 mg Cr(VI)) mixed 50:50 with cholesterol in stainless steel mesh pellets (Exs. 11–2; 11–12). The authors found no statistically significant increases in lung tumors, although Levy *et al.* found a bronchial carcinoma incidence of 2/100 in exposed rats compared with 0/100 in control rats. Levy and Venitt found a bronchial carcinoma incidence of 1/100 accompanied by a statistically significant increase in squamous metaplasia, a lesion believed capable of progressing to carcinoma. There was no statistically significant increase in the incidence of squamous metaplasia in control rats or rats treated with Cr(III) compounds in the same study. This finding suggests that squamous metaplasia is specific to Cr(VI) and is not evoked by a non-specific stimuli, the implantation procedure itself, or treatment with Cr(III) containing materials.

Similar to Levy *et al.* and Levy and Venitt studies, Laskin *et al.* gave a single intrabronchial implantation of 3–5 mg chromic acid mixed 50:50 with cholesterol in stainless steel mesh pellets to 100 male and female Porton-Wistar rats (Ex. 10–1). The rats were observed for 2 years. No tumors were identified in the treated or control animals (0/100 vs. 0/24).

Sodium dichromate. Glaser *et al.* exposed male Wistar rats to aerosolized sodium dichromate by inhalation for 22–23 hours per day, seven days per week for 18 months (Exs. 10–10; 10–11). The rats were held for an additional 12 months at which point the study was terminated. Lung tumor incidences among groups exposed to 25, 50, and 100 μg Cr(VI)/m^3 were 0/18, 0/18, and 3/19, respectively, vs. 0/37 for the control animals. Histopathology revealed one adenocarcinoma and two adenomas in the highest group. The slightly elevated tumor incidence at the highest dose was not statistically significant. A small number of animals (20 per group) were used in this study limiting its power to detect all but a relatively high tumor incidence (*e.g.* >20%) with statistical precision. In addition, the administered doses used in this study were fairly low, such that the maximum tolerated dose (*i.e.*, the maximum dose level that does not lead to moderate reduction in body weight gain) may not have been achieved. Together, these factors limit the interpretation of the study.

In an analysis prepared by Exponent and submitted by the Chrome Coalition, Exponent stated that ''inhalation studies of Glaser *et al.* support a position that exposures to soluble Cr(VI) at concentrations at least as high as the current PEL (*i.e.*, 52 μg/m^3) do not cause lung cancer'' (Ex. 31–18–1, page 2). However, it should be noted that the Glaser *et al.* studies found that 15% (3/19) of the rats exposed to an air concentration just above the current PEL developed lung tumors, and that the elevated tumor incidence was not statistically significant in the highest dose group because the study used a small number of animals. OSHA believes the Glaser study lacks the statistical power to state with sufficient confidence that Cr(VI) exposure does not cause lung cancer at the current PEL, especially when given the elevated incidence of lung tumors at the next highest dose level.

Steinhoff *et al.* studied the carcinogenicity of sodium dichromate in Sprague-Dawley rats (Ex. 11–7). Forty male and 40 female Sprague-Dawley rats were divided into two sets of treatment groups. In the first set, doses of 0.01, 0.05 or 0.25 mg/kg body weight in 0.9% saline were instilled intratracheally five times per week. In the second set of treatment groups, 0.05, 0.25 or 1.25 mg/kg body weight in 0.9% saline doses were instilled intratracheally once per week. Duration of exposure in both treatment groups was 30 months. The total cumulative dose for the lowest treatment group of animals treated once per week was the same as the lowest treatment group treated five times per week. Similarly, the medium and high dose groups treated once per week had total doses equivalent to the medium and high dose animals treated five times per week, respectively. No increased incidence of lung tumors was observed in the animals dosed five times weekly. However, in the animals dosed once per week, tumor incidences were 0/80 in control animals, 0/80 in the 0.05 mg/kg exposure group, 1/80 in the 0.25 mg/kg exposure group and 14/80 in the 1.25 mg/kg exposure group ($p<0.01$). The tumors were malignant in 12 of the 14 animals in the 1.25 mg/kg exposure group. Tracheal instillation at the highest dose level (*i.e.* 1.25 mg/kg) caused emphysematous lesions and pulmonary fibrosis in the lungs of Cr(VI)-treated rats. A similar degree of lung damage did not occur at the lower dose levels. Exponent commented that the Steinhoff and Glaser results are evidence that the risk of lung cancer from occupational exposure does not exist below a threshold Cr(VI) air concentration of approximately 20 μg/m^3 (Ex. 38–233–4). This comment is addressed in Section VI.G.2.c.

In separate but similar studies, Levy *et al.* and Levy and Venitt implanted stainless steel mesh pellets filled with a single dose of 2 mg sodium dichromate (0.80 mg Cr(VI)) mixed 50:50 with cholesterol in the bronchi of male and female Porton-Wistar rats (Exs. 11–2; 11–12). Control groups (males and females) received blank pellets or pellets loaded with cholesterol. The rats were observed for two years. Levy *et al.* and Levy and Venitt reported a bronchial tumor incidence of 1/100 and 0/89, respectively, for exposed rats. However, the latter study reported a statistically significant increase in squamous metaplasia, a lesion believed capable of progressing to carcinoma, among exposed rats when compared to unexposed rats. There were no bronchial tumors or squamous metaplasia in any of the control animals and no significant increases in lung tumors were observed in the two studies.

b. Slightly Water Soluble Cr(VI) Compounds

Animal carcinogenicity studies have been conducted on slightly water soluble calcium chromate, strontium chromate, and zinc chromates. The key studies are summarized in Table V–8.

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TABLE V-8: SUMMARY OF SELECTED CARCINOGENICITY STUDIES IN EXPERIMENTAL ANIMALS ADMINISTERED HEXAVALENT CHROMIUM

Slightly Water Soluble Chromates

Compound	Route	Sex/Species/ Strain (# in exposed groups)	Dose Administered[1] and Observation Periods	Tumor Incidence	Reference/Exhibit #
Calcium chromate	Inhalation	Male/female C57BL/6 mice (136 per group)	4.3 mg Cr(VI)/m^3, 5 hr/d, 5d/wk over animal lifetime	Lung adenoma (M/F combined): 14/272 vs 5/272 for controls	Nettesheim et al. (1971, Ex. 10-8)
	Intrabronchial	Male/female Porton-Wistar rats (100 per group)	0.67 mg Cr(VI) as a single dose mixed w cholesterol in steel pellet and evaluated at 2 years	Bronchial carcinoma (M/F combined): 25/100 ($p<0.01$)	Levy et al. (1986, Ex. 11-2)
	Intratracheal	Male/female Sprague Dawley rats (40 per group)	5 x weekly: 0.083 mg Cr(VI)/kg bw for 30 mo 1 x weekly: 0.41.mg Cr(VI)/kg bw for 30 mo	Lung tumors (M/F combined)– 5 x weekly: 0.083 mg/kg- 6/80 ($p<0.01$) 1 x weekly: 0.41 mg/kg-13/80 ($p<0.01$)	Steinhoff et al. (1986, Ex. 11-7)
	Intratracheal	Male Sprague Dawley rats (50 per exposed group)	0.67 mg Cr(VI)/kg bw x 13 installations over 20 wks and evaluated at 2 to 2.5 yr	Lung tumors: 1/44 (NS)	Snyder et al. (1997, Ex. 31-18-12)
Strontium chromates (two different compounds)	Intrabronchial	Male/female Porton-Wistar rats (50 per exposed group)	0.48 mg Cr(VI) as a single dose mixed w cholesterol in steel pellet and evaluated at 2 years	Bronchial carcinoma (M/F combined): 43/99 & 62/99 ($p<0.01$)	Levy et al. (1986, Ex. 11-2)
Zinc chromates (three different compounds)	Intrabronchial	Male/female Porton-Wistar rats (50 per exposed group)	0.42 to 0.52 mg Cr(VI) as a single dose mixed w cholesterol in steel pellet and evaluated at 2 years	Bronchial carcinoma (M/F combined): 3/61 ($p<0.05$), 5/100 ($p<0.05$), 3/100 ($p=0.07$)	Levy et al. (1986, Ex. 11-2) Levy and Venitt (1986, Ex. 11-12)
Zinc tetroxychromate	Intrabronchial	Male/female Porton-Wistar rats (50 per exposed group)	0.18 mg Cr(VI) as a single dose mixed w cholesterol in steel pellet and evaluated at 2 years	Bronchial carcinoma (M/F combined): 1/100 (NS)	Levy et al. (1986, Ex. 11-2)

[1] doses calculated and recorded as mg of Cr(VI), rather than specific chromate compound, where possible
Not Statistically significant – NS
Male/Female – M/F

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Calcium chromate. Nettesheim *et al.* conducted the only available inhalation carcinogenicity study with calcium chromate showing borderline statistical significance for increased lung adenomas in C57B1/6 mice exposed to 13 mg/m^3 for 5 hours per day, 5 days per week over the life of the mice. The tumor incidences were 6/136 in exposed male mice vs. 3/136 in control male mice and 8/136 in exposed female mice

vs. 2/136 in control female mice (Ex. 10–8).

Steinhoff *et al.* observed a statistically significant increase in lung tumors in Sprague-Dawley rats exposed by intratracheal instillation to 0.25 mg/kg body weight calcium chromate in 0.9% saline five times weekly for 30 months (Ex. 11–7). Tumors were found in 6/80 exposed animals vs. 0/80 in unexposed controls ($p<0.01$). Increased incidence of lung tumors was also observed in those rats exposed to 1.25 mg/kg calcium chromate once per week (14/80 vs. 0/80 in controls) for 30 months. At the highest dose, the authors observed 11 adenomas, one adenocarcinoma, and two squamous carcinomas. The total administered doses for both groups of dosed animals (1×1.25 mg/kg and 5×0.25 mg/kg) were equal, but the tumor incidence in the rats exposed once per week was approximately double the incidence in rats exposed to the same weekly dose divided into five smaller doses. The authors suggested that the dose-rate for calcium chromate compounds may be important in determining carcinogenic potency and that limiting higher single exposures may offer greater protection against carcinogenicity than reducing the average exposure alone.

Snyder *et al.* administered Cr(VI)-contaminated soil of defined aerodynamic diameter (2.9 to 3.64 micron) intratracheally to male Sprague-Dawley rats (Ex. 31–18–12). For the first six weeks of treatment, the rats were instilled with weekly suspensions of 1.25 mg of material per kg body weight, followed by 2.5 mg/kg every other week, until treatments were terminated after 44 weeks. The investigation included four exposure groups: control animals (50 rats), rats administered Cr(VI)-contaminated soil (50 rats), rats administered Cr(VI)-contaminated soil supplemented with calcium chromate (100 rats), and rats administered calcium chromate alone (100 rats). The total Cr(VI) dose for each group was: control group (0.000002 mg Cr(VI)/kg), soil alone group (0.324 mg Cr(VI)/kg), soil plus calcium chromate group (7.97 mg Cr(VI)/kg), and calcium chromate alone group (8.70 mg Cr(VI)/kg). No primary tumors were observed in the control group or the chromium contaminated soil group. Four primary tumors of the lung were found in the soil plus calcium chromate group and one primary lung tumor was observed in the group treated with calcium chromate alone; however, these incidences did not reach statistical significance.

Statistically significant increases in the incidence of bronchial carcinoma in rats exposed to calcium chromate through intrabronchial instillation were reported by Levy *et al.* (Ex. 11–2) and Levy and Venitt (Ex. 11–12). These studies, using a similar protocol, implanted a single dose of 2 mg calcium chromate (0.67 mg Cr(VI)) mixed 50:50 with cholesterol in stainless steel pellets into the bronchi of Porton-Wistar rats. Levy *et al.* and Levy and Venitt found bronchial carcinoma incidences of 25/100 and 8/84, respectively, following a 24-month observation. The increased incidences were statistically significant when compared to the control group. Levy and Venitt also reported statistically significant increases in squamous metaplasia in the calcium chromate-treated rats (Ex. 11–12).

Laskin *et al.* observed 8/100 tumors in rats exposed to a single dose of 3–5 mg calcium chromate mixed with cholesterol in stainless steel mesh pellets implanted in the bronchi (Ex. 10–1). Animals were observed for a total of 136 weeks. The sex, strain, and species of the rats were not specified in the study. Tumor incidence in control animals was 0/24. Although tumor incidence did not reach statistical significance in this study, OSHA agrees with the IARC evaluation that the incidences are due to calcium chromate itself rather than background variation.

Strontium chromate. Strontium chromate was tested by intrabronchial implantation and intrapleural injection. In a study by Levy *et al.*, two strontium chromate compounds mixed 50:50 with cholesterol in stainless steel mesh pellets were administered by intrabronchial instillation of a 2 mg (0.48 mg Cr(VI)) dose into 100 male and female Porton-Wistar rats (Ex. 11–2). Animals were observed for up to 136 weeks. The strontium chromate compounds induced bronchial carcinomas in 43/99 (Sr, 42.2%; CrO_4, 54.1%) and 62/99 rats (Sr, 43.0%; Cr, 24.3%)], respectively, compared to 0/100 in the control group. These results were statistically significant. The strontium chromates produced the strongest carcinogenic response out of the 20 Cr(VI) compounds tested by the intrabronchial implantation protocol. Boeing Corporation commented that the intrabronchial implantation results with strontium chromate should not be relied upon in an evaluation of carcinogenicity and that the data is inconsistent with other Cr(VI) studies (Ex. 38–106–2, p. 26). This comment is discussed in the Carcinogenic Effects Conclusion Section V.B.9 dealing with the carcinogenicity of slightly soluble Cr(VI) compounds.

In the study by Hueper, strontium chromate was administered by intrapleural injection (doses unspecified) lasting 27 months (Ex. 10–4). Local tumors were observed in 17/28 treated rats vs. 0/34 for the untreated rats. Although the authors did not examine the statistical significance of tumors, the results clearly indicate a statistical significance.

Zinc chromate compounds. Animal studies have been conducted to examine several zinc chromates of varying water solubilities and composition. In separate, but similarly conducted studies, Levy *et al.* and Levy and Venitt studied two zinc chromate powders, zinc potassium chromate, and zinc tetroxychromate (Exs. 11–2; 11–12). Two milligrams of the compounds were administered by intrabronchial implantation to 100 male and female Porton-Wistar rats. Zinc potassium chromate (0.52 mg Cr(VI)) produced a bronchial tumor incidence of 3/61 which was statistically significant ($p<0.05$) when compared to a control group (Ex. 11–12). There was also an increased incidence of bronchial tumors (5/100, $p=0.04$; 3/100, $p=0.068$) in rats receiving the zinc chromate powders (0.44 mg Cr(VI)). Zinc tetroxychromate (0.18 mg Cr(VI)) did not produce a statistically significant increase in tumor incidence (1/100) when compared to a control group. These studies show that most slightly water soluble zinc chromate compounds elevated incidences of tumors in rats.

Basic potassium zinc chromate was administered to mice, guinea pigs and rabbits via intratracheal instillation (Ex. 35–46). Sixty-two Strain A mice were given six injections of 0.03 ml of a 0.2% saline suspension of the zinc chromate at six week intervals and observed until death. A statistically significant increase in tumor incidence was observed in exposed animals when compared to controls (31/62 vs. 7/18). Statistically significant effects were not observed among guinea pigs or rabbits. Twenty-one guinea pigs (sex and strain not given) received six injections of 0.3 ml of a 1% suspension of zinc chromate at three monthly intervals and observed until death. Results showed pulmonary adenomas in only 1/21 exposed animals vs. 0/18 in controls. Seven rabbits (sex and strain not given) showed no increase in lung tumors when given 3–5 injections of 1 ml of a saline suspension of 10 mg zinc chromate at 3-month intervals. However, as noted by IARC, the small numbers of animals used in the guinea pig and rabbit experiments (as few as 13 guinea pigs and 7 rabbits per group) limit the power of the study to detect increases in cancer incidence.

Hueper found that intrapleural injection of slightly water soluble zinc

yellow (doses were unspecified) resulted in statistically significant increases in local tumors in rats (sex, strain, and age of rat unspecified; dose was unspecified). The incidence of tumors in exposed rats was 22/33 vs. 0/34 in controls (Ex. 10–4).

Maltoni *et al.* observed increases in the incidence of local tumors after subcutaneous injection of slightly water soluble zinc yellow in 20 male and 20 female Sprague-Dawley rats (statistical significance was not evaluated) (Ex. 8–37). Tumor incidences were 6/40 in 20% CrO_3 dosed animals at 110 weeks and 17/40 in 40% CrO_3 dosed animals at 137 weeks compared to 0/40 in control animals.

c. Water Insoluble Cr(VI) Compounds

There have been a number of animal carcinogenicity studies involving implantation or injection of principally water insoluble zinc, lead, and barium chromates. The key studies are summarized in Table V–9.

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TABLE V-9: SUMMARY OF SELECTED CARCINOGENICITY STUDIES IN EXPERIMENTAL ANIMALS ADMINISTERED HEXAVALENT CHROMIUM

Water Insoluble Chromates

Compound	Route	Sex/Species/ Strain (# in exposed groups)	Dose Administered[1] and Observation Periods	Tumor Incidence	Reference/Exhibit #
Lead chromates (seven different compounds)	Intrabronchial	Male/female Porton- Wistar rats (50 per exposed group)	0.25 to 0.32 mg Cr(VI) as single dose mixed w cholesterol in steel pellet and evaluated at 2 years	Bronchial carcinoma (M/F combined): 0-1/100 (N.S.)	Levy et al. (1986, Ex. 11-2)
Lead chromates (three different compounds)	Subcutaneous	Male/female Sprague Dawley rats (20 per exposed group)	1.5 to 4.8 mg Cr(VI) as a single dose in water and evaluated after 2 years	Sarcomas at injection site (M/F combined): 26-36/40 vs 0/40 for controls	Maltoni et al. (1974, Ex. 8-25) Maltoni (1976, Ex. 5-2)
Lead chromate	Intramuscular	Male/female Fischer 344 rats (25 per exposed group)	1.29 mg Cr(VI) in trioctyanoin 1 x mo for 9 mo and evaluated at up to 2 yr	Sarcomas at injection site (M/F combined): 31/47 vs 0/44 for controls	Furst et al. (1976, Ex. 10-2)
		Female NIH-Swiss mice (25 per exposed group)	0.72 mg Cr(VI) in trioctyanoin 1 x mo for 4 mo and evaluated at up to 2 yr	Sarcomas at injection site: 0/22 (NS)	
Barium chromate	Intrabronchial	Male/female Porton- Wistar rats (50 per exposed group)	0.37 mg Cr(VI) as a single dose mixed w cholesterol in steel pellet and evaluated at 2 years	Bronchial carcinoma (M/F combined): 0/100 (NS)	Levy et al. (1986, Ex. 11-2)

[1] doses calculated and recorded as mg of Cr(VI), rather than specific chromate compound, where possible
Not Statistically significant – NS
Male/Female – M/F

BILLING CODE 4510–26–C

Lead chromate and lead chromate pigments. Levy et al. examined the carcinogenicity of lead chromate and several lead chromate-derived pigments in 100 male and female Porton-Wistar rats after a single intrabronchial implantation followed by a two year observation period (Ex. 11–12). The rats were dosed with two mg of a lead chromate compound and lead chromate pigments, which were mixed 50:50 with

cholesterol in stainless steel mesh pellets and implanted in the bronchi of experimental animals. The lead chromate and lead chromate pigment compositions consisted of the following: lead chromate (35.8% CrO_4; 0.32 mg Cr(VI)), primrose chrome yellow (12.6% Cr; 0.25 mg Cr(VI)), molybdate chrome orange (12.9% Cr; 0.26 mg Cr(VI)), light chrome yellow (12.5% Cr; 0.25 mg Cr(VI)), supra LD chrome yellow (26.9% CrO_3; 0.28 mg Cr(VI)), medium chrome yellow (16.3% Cr; 0.33 mg Cr(VI)) and silica encapsulated medium chrome yellow (10.5% Cr; 0.21 mg Cr(VI)). No statistically significant tumors were observed in the lead chromate group compared to controls (1/98 vs. 0/100), primrose chrome yellow group (1/100 vs. 0/100), and supra LD chrome yellow group (1/100 vs. 0/100). The authors also noted no tumors in the molybdate chrome orange group, light chrome yellow group, and silica encapsulated medium chrome yellow group.

Maltoni (Ex. 8–25), Maltoni (Ex. 5–2), and Maltoni *et al.* (Ex. 8–37) examined the carcinogenicity of lead chromate, basic lead chromate (chromium orange) and molybdenum orange in 20 male and 20 female Sprague-Dawley rats by a single subcutaneous administration of the lead chromate compound in water. Animals were observed for 117 to 150 weeks. After injection of 30 mg lead chromate, local injection site sarcomas were observed in 26/40 exposed animals vs. 0/60 and 1/80 in controls. Although the authors did not examine the statistical significance of sarcomas, the results clearly indicate a statistical significance. Animals injected with 30 mg basic lead chromate (chromium orange) were found to have an increased incidence of local injection site sarcomas (27/40 vs. 0/60 and 1/80 in controls). Animals receiving 30 mg molybdenum orange in 1 ml saline were also found to have an increased incidence of local injection site sarcomas (36/40 vs. 0/60 controls).

Carcinogenesis was observed after intramuscular injection in a study by Furst *et al.* (Ex. 10–2). Fifty male and female Fischer 344 rats were given intramuscular injections of 8 mg lead chromate in trioctanoin every month for nine months and observed up to 24 months. An increase in local tumors at the injection site (fibrosarcomas and rhabdomyosarcomas) was observed (31/47 in treated animals vs. 0/22 in controls). These rats also had an increased incidence of renal carcinomas (3/23 vs. 0/22 in controls), but IARC noted that the renal tumors may be related to the lead content of the compound. In the same study, 3 mg lead chromate was administered to 25 female NISH Swiss weanling mice via intramuscular injection every 4 months for up to 24 months. In the exposed group, the authors observed three lung alveologenic carcinomas after 24 months of observation and two lymphomas after 16 months of observation. Two control groups were used: an untreated control group (22 rats) and a vehicle injected control group (22 rats). The authors noted that one alveologenic carcinoma and one lymphoma were observed in each control group. The Color Pigment Manufacturers Association (CPMA) commented that the lack of elevated tumor incidence in the intrabronchial implantation studies confirmed that lead chromate was not carcinogenic and that the positive injection studies by the subcutaneous, intrapleural, and intramuscular routes were of questionable relevance (Ex. 38–205, p. 93). This comment is further discussed in the Carcinogenic Effects Conclusion Section V.B.9 dealing with the carcinogenicity of lead chromate.

Barium chromate. Barium chromate was tested in rats via intrabronchial, intrapleural and intramuscular administration. No excess lung or local tumors were observed (Ex. 11–2; Ex. 10–4; Ex. 10–6).

d. Summary. Several Cr(VI) compounds produced tumors in laboratory animals under a variety of experimental conditions using different routes of administration. The animals were generally given the test material(s) by routes other than inhalation (*e.g.*, intratracheal administration, intramuscular injection, intrabronchial implantation, and subcutaneous injection). Although the route of administration may have differed from that found in an occupational setting, these studies have value in the identification of potential health hazards associated with Cr(VI) and in assessing the relative potencies of various Cr(VI) compounds.

OSHA believes that the results from Adachi *et al.* (Ex. 35–26–1), Adachi *et al.* (Ex. 35–26), Glaser *et al.* (Ex. 10–4), Glaser *et al.* (Ex. 10–10), Levy *et al.* (Ex. 11–2), and Steinhoff *et al.* (Ex. 11–7) studies provide valuable insight on the carcinogenic potency of Cr(VI) compounds in laboratory animals. Total dose administered, dose rate, amount of dosage, dose per administration, number of times administered, exposure duration and the type of Cr(VI) compound are major influences on the observed tumor incidence in animals. It was found that slightly water soluble calcium, strontium, and zinc chromates showed the highest incidence of lung tumors, as indicated in the results of the Steinhoff and Levy studies, even when compared to similar doses of the more water soluble sodium chromates and chromic acid compounds. The highly insoluble lead chromates did not produce lung tumors by the intrabronchial implantation procedure but did produce tumors by subcutaneous injection and intramuscular injection.

8. Mechanistic Considerations

Mechanistic information can provide insight into the biologically active form(s) of chromium, its interaction with critical molecular targets, and the resulting cellular responses that trigger neoplastic transformation. There has been considerable scientific study in recent years of Cr(VI)-initiated cellular and molecular events believed to impact development of respiratory carcinogenesis. Much of the research has been generated using *in vitro* techniques, cell culture systems, and animal administrations. The early mechanistic data were reviewed by IARC in 1990 (Ex. 35–43). Recent experimental research has identified several biological steps critical to the mode of action by which Cr(VI) transforms normal lung cells into a neoplastic phenotype. These are: (a) Cellular uptake of Cr(VI) and its extracellular reduction, (b) intracellular Cr(VI) reduction to produce biologically active products, (c) damage to DNA, and (d) activation of signaling pathways in response to cellular stress. Each step will be described in detail below.

a. Cellular Uptake and Extracellular Reduction. The ability of different Cr(VI) particulate forms to be taken up by the bronchoalveolar cells of the lung is an essential early step in the carcinogenic process. Particle size and solubility are key physical factors that influence uptake into these cells. Large particulates (>10 μm) are generally deposited in the upper nasopharygeal region of the respiratory tract and do not reach the bronchoalveolar region of the lungs. Smaller Cr(VI) particulates will increasingly reach these lower regions and come into contact with target cells.

Once deposited in the lower respiratory tract, solubility of Cr(VI) particulates becomes a major influence on disposition. Highly water soluble Cr(VI), such as sodium chromate and chromic acid, rapidly dissolves in the fluids lining the lung epithelia and can be taken up by lung cells via facilitated diffusion mediated by sulfate/phosphate anion transport channels (Ex. 35–148). This is because Cr(VI) exists in a tetrahedral configuration as a chromate oxyanion similar to the physiological anions, sulfate and phosphate (Ex. 35–

231). Using cultured human epithelial cells, Liu *et al.* showed that soluble Cr(VI) uptake was time- and dose-dependant over a range of 1 to 300 μm in the medium with 30 percent of the Cr(VI) transported into the cells within two hours and 67 percent at 16 hours at the lowest concentration (Ex. 31–22–18).

Water insoluble Cr(VI) particulates do not readily dissolve into epithelial lining fluids of the bronchoalveolar region. This has led to claims that insoluble chromates, such as lead chromate pigments, are not bioavailable and, therefore, are unable to cause carcinogenesis (Ex. 31–15). However, several scientific studies indicate that insoluble Cr(VI) particulates can come in close contact with the bronchoalveolar epithelial cell surface, allowing enhanced uptake into cells. Wise *et al.* showed that respirable lead chromate particles adhere to the surface of rodent cells in culture causing cell-enhanced dissolution of the chromate ion as well as phagocytosis of lead chromate particles (Exs. 35–68; 35–67). The intracellular accumulation was both time- and dose-dependant. Cellular uptake resulted in damage to DNA, apoptosis (*i.e.*, form of programmed cell death), and neoplastic transformation (Ex. 35–119). Singh *et al.* showed that treatment of normal human lung epithelial cells with insoluble lead chromate particulates (0.4 to 2.0 μg/cm^2) or soluble sodium chromate (10 μM) for 24 hours caused Cr(VI) uptake, Cr-DNA adduct formation, and apoptosis (Ex. 35–66). The proximate genotoxic agent in these cell systems was determined to be the chromate rather than the lead ions (Ex. 35–327). Elias *et al.* reported that cell-enhanced particle dissolution and uptake was also responsible for the cytotoxicity and neoplastic transformation in Syrian hamster embryo cells caused by Cr(VI) pigments, including several complex industrial chrome yellow and molybdate orange pigments (Ex. 125). These studies are key experimental evidence in the determination that water-insoluble Cr(VI) compounds, as well as water soluble Cr(VI) compounds, are to be regarded as carcinogenic agents. This determination is further discussed in the next section (see V.B.9).

Reduction to the poorly permeable Cr(III) in the epithelial lining fluid limits cellular uptake of Cr(VI). Ascorbic acid and glutathione (GSH) are believed to be the key molecules responsible for the extracellular reduction. Cantin *et al.* reported high levels of GSH in human alveolar epithelial lining fluid and Susuki *et al.* reported significant levels of ascorbic acid in rat lung lavage fluids (Exs. 35–147; 35–143). Susuki and Fukuda studied the kinetics of soluble Cr(VI) reduction with ascorbic acid and GSH *in vitro* and following intratracheal instillation (Ex. 35–90). They reported that the rate of reduction was proportional to Cr(VI) concentration with a half-life of just under one minute to several hours. They found the greatest reduction rates with higher levels of reductants. Ascorbic acid was more active than GSH. Cr(VI) reduction was slower *in vivo* than predicted from *in vitro* and principally involved ascorbic acid, not GSH. This research indicates that extracellular Cr(VI) reduction to Cr(III) is variable depending on the concentration and nature of the reductant in the epithelial fluid lining regions of the respiratory tract. De Flora *et al.* determined the amount of soluble Cr(VI) reduced *in vitro* by human bronchiolar alveolar fluid and pulmonary alveolar macrophage fractions over a short period and used these specific activities to estimate an ''overall reducing capacity'' of 0.9–1.8 mg Cr(VI) and 136 mg Cr(VI) per day per individual, respectively (Ex. 35–140).

De Flora, Jones, and others have interpreted the extracellular reduction data to mean that very high levels of Cr(VI) are required to ''overwhelm'' the reductive defense mechanism before target cell uptake can occur and, as such, impart a ''threshold'' character to the exposure-response (Exs. 35–139; 31–22–7). However, the threshold capacity concept does not consider that facilitated lung cell uptake and extracellular reduction are dynamic and parallel processes that happen concurrently. If their rates are comparable then some cellular uptake of Cr(VI) would be expected, even at levels that do not ''overwhelm'' the reductive capacity. Based on the *in vitro* kinetic data, it would appear that such situations are plausible, especially when concentrations of ascorbic acid are low. Unfortunately, there has been little systematic study of the dose-dependence of Cr(VI) uptake in the presence of physiological levels of ascorbate and GSH using experimental systems that possess active anion transport capability. The implications of extracellular reduction on the shape of Cr(VI) dose—lung cancer response curve is further discussed in Section VI.G.2.c.

Wise *et al.* did study uptake of a single concentration of insoluble lead chromate particles (0.8 μg/cm^2) and soluble sodium chromate (1.3 μM) in Chinese hamster ovary cells co-treated with a physiological concentration (1mM) of ascorbate (Ex. 35–68). They found that the ascorbate substantially reduced, but did not eliminate, chromate ion uptake over a 24 hour period. Interestingly, ascorbate did not affect phagocytic uptake of lead chromate particles, although it eliminated the Cr(VI)-induced clastogenesis (*e.g.*, DNA strand breakage and chromatid exchange) as measured under their experimental conditions.

Singh *et al.* suggested that cell surface interactions with insoluble lead chromate particulates created a concentrated microenvironment of chromate ions resulting in higher intracellular levels of chromium than would occur from soluble Cr(VI) (Ex. 35–149). Cell membrane-enhanced uptake of Cr(VI) is consistent with the intratracheal and intrabronchial instillation studies in rodents that show greater carcinogenicity with slightly soluble (*e.g.*, calcium chromate and strontium chromate) than with the highly water-soluble chromates (*e.g.*, sodium chromate and chromic acid) (Ex. 11–2).

Finally, Cr(VI) deposited in the tracheobronchial and alveolar regions of the respiratory tract is cleared by the mucocilliary escalator (soluble and particulate Cr(VI)) and macrophage phagocytosis (particulate Cr(VI) only). In most instances, these clearance processes take hours to days to completely clear Cr(VI) from the lung, but it can take considerably longer for particulates deposited at certain sites. For example, Ishikawa *et al.* showed that some workers had substantial amounts of chromium particulates at the bifurcations of the large bronchii for more than two decades after cessation of exposure (Ex. 35–81). Mancuso reported chromium in the lungs of six chromate production workers who died from lung cancer (as cited in Ex. 35–47). The interval between last exposure to Cr(VI) until autopsy ranged from 15 months to 16 years. Using hollow casts of the human tracheobronchial tree and comparing particle deposition with reported occurrence of bronchogenic tumors, Schlesinger and Lippman were able to show good correlations between sites of greatest deposition and increased incidence of bronchial tumors (Ex. 35–102).

b. Intracellular Reduction of Cr(VI). Once inside the cell, the hexavalent chromate ion is rapidly reduced to intermediate oxidation states, Cr(V) and Cr(IV), and the more chemically stable Cr(III). Unlike Cr(VI), these other chromium forms are able to react with DNA and protein to generate a variety of adducts and complexes. In addition, reactive oxygen species (ROS) are produced during the intracellular reduction of Cr(VI) that are also capable of damaging DNA. These reactive

intermediates, and not Cr(VI) itself, are considered to be the ultimate genotoxic agents that initiate the carcinogenic process.

After crossing the cell membrane, Cr(VI) compounds can be non-enzymatically converted to Cr(III) by several intracellular reducing factors (Ex. 35–184). The most plentiful electron donors in the cell are GSH, and other thiols, such as cysteine, and ascorbate. Connett and Wetterhahn showed that a Cr(VI)-thioester initially forms in the presence of GSH (Ex. 35–206). A two-phase reduction then occurs with rapid conversion to Cr(V) and glutathionyl radical followed by relatively slower reduction to Cr(III) that requires additional molecules of GSH. Depletion of cellular GSH and other thiols is believed to retard complete reduction of Cr(VI) to Cr(III), allowing buildup of intermediates Cr(V) and Cr(IV). The molecular kinetics of the Cr(VI) to Cr(III) reduction with ascorbate is less well understood but can also involve intermediate formation of Cr(V) and free radicals (Ex. 35–184).

Another important class of intracellular Cr(VI) reductions are catalyzed by flavoenzymes, such as GSH reductase, lipoyl dehydrogenase, and ferredoxin-NADP oxidoreductase. The most prominent among these is GSH reductase that uses NADPH as a cofactor in the presence of molecular oxygen (O_2) to form Cr(V)-NADPH complexes. During the reaction, O_2 undergoes one electron reduction to the superoxide radical (O_2^-) which produces hydrogen peroxide (H_2O_2) through the action of the enzyme superoxide dismutase. The Cr(V)-NADPH can then react with H_2O_2 to regenerate Cr(VI) giving off hydroxyl radicals, a highly reactive oxygen species, by a Fenton-like reaction. It is, therefore, possible for a single molecule of Cr(VI) to produce many molecules of potentially DNA damaging ROS through a repeated reduction/oxidation cycling process. Shi and Dalal used electron spin resonance (ESR) to establish formation of Cr(V)-NADPH and hydroxyl radical in an *in vitro* system (Ex. 35–169; 35–171). Sugiyama *et al.* reported Cr(V) formation in cultured Chinese hamster cells treated with soluble Cr(VI) (Ex.35–133). Using a low frequency ESR, Liu *et al.* provided evidence of Cr(V) formation *in vivo* in mice injected with soluble Cr(VI) (Ex. 35–141–28).

Several studies have documented that Cr(VI) can generate Cr(V) and ROS in cultured human lung epithelial cells and that this reduction/oxidation pathway leads to DNA damage, activation of the p53 tumor suppressor gene and stress-induced transcription factor NF-κB, cell growth arrest, and apptosis (Exs. 35–125; 35–142; 31–22–18; 35–135). Leonard *et al.* used ESR spin trapping, catalase, metal chelators, free radical scavengers, and O_2-free atmospheres to show that hydroxyl radical generation involves a Fenton-like reaction with soluble potassium dichromate (Ex. 31–22–17) and insoluble lead chromate (Ex.35–137) *in vitro.* Liu *et al.* showed that the Cr(IV)/Cr(V) compounds are also able to generate ROS with H_2O_2 in a Fenton reduction/oxidation cycle *in vitro* (Ex. 35–183).

Although most intracellular reduction of Cr(VI) is believed to occur in the cytoplasm, Cr(VI) reduction can also occur in mitochondria and the endoplasmic reticulum. Cr(VI) reduction can occur in the mitochondria through the action of the electron transport complex (Ex. 35–230). The microsomal cytochrome P–450 system in the endoplasmic reticulum also enzymatically reduces Cr(VI) to Cr(V), producing ROS through reduction/oxidation cycling as described above (Ex. 35–171).

c. Genotoxicity and Damage to DNA. A large number of studies have examined multiple types of genotoxicity in a wide range of experimental test systems. Many of the specific investigations have been previously reviewed by IARC (Ex. 35–43), Klein (Ex. 35–134), ATSDR (Ex. 35–41), and the K.S. Crump Group (Ex. 35–47) and will only be briefly summarized here. The body of evidence establishes that both soluble and insoluble forms of Cr(VI) cause structural DNA damage that can lead to genotoxic events such as mutagenisis, clastogenisis, inhibition of DNA replication and transcription, and altered gene expression, all of which probably play a role in neoplastic transformation. The reactive intermediates and products that occur from intracellular reduction of Cr(VI) cause a wide variety of DNA lesions. The type(s) of DNA damage that are most critical to the carcinogenic process is an area of active investigation.

Many Cr(VI) compounds are mutagenic in bacterial and mammalian test systems (Ex. 35–118). In the bacterial Salmonella typhimurium strains, soluble Cr(VI) caused base pair substitutions at A–T sites as well as frame shift mutations (Ex. 35–161). Nestmann *et al.* also reported forward and frame shift mutations in Salmonella typhimurium with pre-solubilized lead chromate (Ex. 35–162). Several Cr(VI) compounds have produced mutagenic responses at various genetic loci in mammalian cells (Ex. 12–7). Clastogenic damage, such as sister chromatid exchange and chromosomal aberrations, have also been reported for insoluble Cr(VI) and soluble Cr(VI) (Exs. 35–132; 35–115). Mammalian cells undergo neoplastic transformation following treatment with soluble Cr(VI) or insoluble Cr(VI), including a number of slightly soluble zinc and insoluble lead chromate pigments (Exs. 12–5; 35–186).

Genotoxicity has been reported from Cr(VI) administration to animals *in vivo.* Soluble Cr(VI) induced micronucleated erythrocytes in mice following intraperitoneal (IP) administration (Ex. 35–150). It also increased the mutation frequency in liver and bone marrow following IP administration to lacZ transgenic mice (Exs. 35–168; 35–163). Izzotti *et al.* reported DNA damage in the lungs of rats exposed to soluble Cr(VI) by intratracheal instillation (Ex. 35–170). Intratracheal instillation of soluble Cr(VI) produced a time- and dose-dependant elevation in mutant frequency in the lung of Big Blue transgenic mice (Ex. 35–174). Oral administration of soluble Cr(VI) in animals did not produce genotoxicity in several studies probably due to route-specific differences in absorption. OSHA is not aware of genotoxicity studies from *in vivo* administration of insoluble Cr(VI). Studies of chromosomal and DNA damage in workers exposed to Cr(VI) vary in their findings. Some studies reported higher levels of chromosomal aberrations, sister chromatid exchanges, or DNA strand breaks in peripheral lymphocytes of stainless steel welders (Exs. 35–265; 35–160) and electroplaters (Ex. 35–164). Other studies were not able to find excess damage in DNA from the blood lymphocytes of workers exposed to Cr(VI) (Exs. 35–185; 35–167). These reports are difficult to interpret since co-exposure to other genotoxic agents (*e.g.*, other metals, cigarette smoke) likely existed and the extent of Cr(VI) exposures were not known.

Because of the consistent positive response across multiple assays in a wide range of experimental systems from prokaryotic organisms (*e.g.*, bacteria) to human cells *in vitro* and animals *in vivo*, OSHA regards Cr(VI) as an agent able to induce carcinogenesis through a genotoxic mode of action. Both soluble and insoluble forms of Cr(VI) are reported to cause genotoxicity and neoplastic transformation. On the other hand, Cr(III) compounds do not easily cause genotoxicity in intact cellular systems, presumably due to the inability of Cr(III) to penetrate cell membranes (Exs. 12–7; 35–186).

There has been a great deal of research to identify the types of damage to DNA caused by Cr(VI), the reactive

intermediates that are responsible for the damage, and the specific genetic lesions critical to carcinogenesis. It was shown that Cr(VI) was inactive in DNA binding assays with isolated nuclei or purified DNA (Ex. 35–47). However, Cr(III) was able to produce DNA protein cross-links, sister chromatid exchanges, and chromosomal aberrations in an acellular system. Zhitkovich *et al.* showed that incubation of Chinese hamster ovary cells with soluble Cr(VI) produced ternary complexes of Cr(III) cross-linked to cysteine, other amino acids, or glutathione and the DNA phosphate backbone (Ex. 312). Utilizing the pSP189 shuttle vector plasmid, they showed these DNA-Cr(III)-amino acid cross-links were mutagenic when introduced in human fibroblasts (Ex. 35–131).

Another research group showed that plasmid DNA treated with Cr(III) produced intrastrand crosslinks and the production of these lesions correlated with DNA polymerase arrest (Ex. 35–126). The same intrastrand crosslinks and DNA polymerase arrest could also be induced by Cr(VI) in the presence of ascorbate as a reducing agent to form Cr(III) (Ex. 35–263). These results were confirmed in a cell system by treating human lung fibroblasts with soluble Cr(VI), isolating genomic DNA, and demonstrating dose-dependent guanine-specific arrest in a DNA polymerase assay (Ex. 35–188). Cr(V) may also form intrastrand crosslinks since Cr(V) interacts with DNA *in vitro* (Ex. 35–178). The Cr(V)-DNA crosslinks are probably readily reduced to Cr(III) in cell systems. Intrastrand crosslinks have also been implicated in inhibition of RNA polymerase and DNA topoisomerase, leading to cell cycle arrest, apoptosis and possibly other disturbances in cell growth that contribute to the carcinogenic pathway (Ex. 35–149).

DNA strand breaks and oxidative damage result from the one electron reduction/oxidation cycling of Cr(VI), Cr(V), and Cr(IV). Shi *et al.* showed that soluble Cr(VI) in the presence of ascorbate and H_2O_2 caused DNA double strand breaks and 8-hydroxy deoxyguanine (8-OHdG, a marker for oxidative DNA damage) in vitro (Ex. 35–129). Leonard *et al.* showed that the DNA strand breaks were reduced by several experimental conditions including an O_2-free atmosphere, catabolism of H_2O_2 by catalase, ROS depletion by free radical scavengers, and chelation of Cr(V). They concluded that the strand breaks and 8-OHdG resulted from DNA damage caused by hydroxyl radicals from Cr(VI) reduction/oxidation cycling (Ex. 31–22–17). Generation of ROS-dependant DNA damage could also be shown with insoluble Cr(VI) (Ex. 35–137). DNA strand breaks and related damage caused by soluble Cr(VI) have been reported in Chinese hamster cells (Ex. 35–128), human fibroblasts (Ex. 311), and human prostate cells (Ex. 35–255). Pretreatment of Chinese hamster cells with a metal chelator suppressed Cr(V) formation from Cr(VI) and decreased DNA strand breaks (Ex. 35–197). Chinese hamster cells that developed resistance to H_2O_2 damage also had reduced DNA strand breaks from Cr(VI) treatment compared to the normal phenotype (Ex. 35–176).

Several researchers have been able to modulate Cr(VI)-induced DNA damage using cellular reductants such as ascorbate, GSH and the free radical scavenger tocopherol (vitamin E). This has provided insight into the relationships between DNA damage, reduced chromium forms and ROS. Sugiyama *et al.* showed that Chinese hamster cells pretreated with ascorbate decreased soluble Cr(VI)-induced DNA strand damage (*e.g.*, alkali-labile sites), but enhanced DNA-amino acid crosslinks (Ex. 35–133). Standeven and Wetterhahn reported that elimination of ascorbate from rat lung cytosol prior to *in vitro* incubation with soluble Cr(VI) completely inhibited Cr-DNA binding (Ex. 35–180). However, not all types of Cr-DNA binding are enhanced by ascorbate. Bridgewater *et al.* found that high ratios of ascorbate to Cr(VI) actually decreased intrastrand crosslinks *in vitro* while low ratios induced their formation (Ex. 35–263). This finding is consistent with research by Stearns and Watterhahn who showed that excessive ascorbate relative to Cr(VI) leads to two-electron reduction of Cr(III) and formation of Cr(III)-DNA monoadducts and DNA-Cr(III)-amino acid crosslinks (Ex. 35–166). Low amounts of ascorbate primarily cause one-electron reduction to intermediates Cr(V) and Cr(IV) that form crosslinks with DNA and ROS responsible for DNA strand breaks, alkali-labile sites, and clastogenic damage. This explains the apparent paradox that extracellular Cr(VI) reduction by ascorbate to Cr(III) reduces Cr(VI)-induced DNA binding but intracellular Cr(VI) reduction by ascorbate to Cr(III) enhances Cr-DNA binding. The aforementioned studies used soluble forms of Cr(VI), but Blankenship *et al.* showed that ascorbate pretreatment inhibited chromosomal aberrations in Chinese hamster ovary cells caused by both insoluble lead chromate particles as well as soluble Cr(VI) (Ex. 35–115). Pretreatment with the free radical scavenger tocopherol also inhibits chromosomal aberrations and alkali-labile sites in Cr(VI)-treated cells (Exs. 35–115; 35–128).

Studies of the different types of DNA damage caused by Cr(VI) and the modulation of that damage inside the cell demonstrate that Cr(VI) itself is not biologically active. Cr(VI) must undergo intracellular reduction to Cr(V), Cr(IV), and Cr(III) before the damage to DNA can occur. The evidence suggests that Cr(III) can cause DNA-Cr-amino acid, DNA-Cr-DNA crosslinks and Cr-DNA monoadducts. Cr(V) and possibly Cr(IV) contribute to intrastrand crosslinks and perhaps other Cr-DNA binding. ROS generated during intracellular reduction of Cr(VI) lead to lesions such as chromosomal aberrations, DNA strand breaks, and oxidative DNA damage. The specific DNA lesions responsible for neoplastic transformation have yet to be firmly established so all forms of DNA damage should, at this time, be regarded as potential contributors to carcinogenicity.

d. Cr(VI)-induced Disturbances in the Regulation of Cell Replication. Recent research has begun to elucidate how Cr(VI)-induced oxidative stress and DNA lesions trigger cell signaling pathways that regulate the cell growth cycle. The complex regulation of the cell growth cycle by Cr(VI) involves activation of the p53 protein and other transcription factors that respond to oxidative stress and DNA damage. The cellular response ranges from a temporary pause in the cell cycle to terminal growth arrest (*i.e.*, viable cells that have lost the ability to replicate) and a programmed form of cell death, known as apoptosis. Apoptosis involves alterations in mitochondrial permeability, release of cytochrome c and the action of several kinases and caspases. Less is known about the molecular basis of terminal growth arrest. Terminal growth arrest and apoptosis serve to eliminate further growth of cells with unrepaired Cr(VI)-induced genetic damage. However, it is believed that cells which escape these protective mechanisms and regain replicative competence eventually become resistant to normal growth regulation and can transform to a neoplastic phenotype (Exs. 35–121; 35–122; 35–120).

Blankenship *et al.* first described apoptosis as the primary mode of cell death following a two hour treatment of Chinese hamster ovary cells with high concentrations (>150 μM) of soluble Cr(VI) (Ex. 35–144). Apoptosis also occurs in human lung cells following short-term treatment with soluble Cr(VI)

(Ex. 35–125) as well as longer term treatment (*e.g.*, 24 hours) with lower concentrations of soluble Cr(VI) (*e.g.*, 10 μM) and insoluble Cr(VI) in the form of lead chromate (Ex. 35–166). Ye *et al.* found that the Cr(VI) treatment that caused apoptosis also activated expression of p53 protein (Ex. 35–125). This apoptotic response was substantially reduced in a p53-deficient cell line treated with Cr(VI), suggesting that the p53 activation was required for apoptosis. Other studies using p53 null cells from mice and humans confirmed that Cr(VI)-induced apoptosis is p53-dependent (Ex. 35–225).

The p53 protein is a transcription factor known to be activated by DNA damage, lead to cell cycle arrest, and regulate genes responsible for either DNA repair or apoptosis. Therefore, it is likely that the p53 activation is a response to the Cr(VI)-induced DNA damage. Apoptosis (*i.e.*, programmed cell death) is triggered once the Cr(VI)-induced DNA damage becomes too extensive to successfully repair. In this manner, apoptosis serves to prevent replication of genetically damaged cells.

Several researchers have gone on to further elucidate the molecular pathways involved in Cr(VI)-induced apoptosis. ROS produced by intracellular Cr(VI) reduction/oxidation cycling have been implicated in the activation of p53 and apoptosis (Exs. 35–255; 35–122). Using specific inhibitors, Pritchard *et al.* showed that mitochondrial release of cytochrome c is critical to apoptotic death from Cr(VI) (Ex. 35–159). Cytochrome c release from mitochondria could potentially result from either direct membrane damage caused by Cr(VI)-induced ROS or indirectly by enhanced expression of the p53-dependent apoptotic proteins, Bax and Nova, known to increase mitochondrial membrane permeability.

Cr(VI) causes cell cycle arrest and reduces clonogenic potential (*i.e.*, normal cell growth) at very low concentrations (*e.g.*, 1 μM) where significant apoptosis is not evident. Xu *et al.* showed that human lung fibroblasts treated with low doses of Cr(VI) caused guanine-guanine intrastrand crosslinks, guanine-specific polymerase arrest, and inhibited cell growth at the G_1/S phase of the cell cycle (Ex. 35–188). Zhang *et al.* described a dose-dependent increase in growth arrest at the G_2/M phase of the cell cycle in a human lung epithelial cell line following 24 hour Cr(VI) treatment over a concentration range of 1 to 10 μM (Ex. 35–135). The cell cycle arrest could be partially eliminated by reducing production of Cr(VI)-induced ROS. Apoptosis was not detected in these cells until a concentration of 25 μM Cr(VI) had been reached. These data suggest that low cellular levels of Cr(VI) are able to cause DNA damage and disrupt the normal cell growth cycle.

Pritchard *et al.* studied the clonogenicity over two weeks of human fibroblasts treated 24 hours with soluble Cr(VI) concentrations from 1 to 10 μM (Ex. 35–120). They reported a progressive decline in cell growth with increasing Cr(VI) concentration. Terminal growth arrest (*i.e.*, viable cells that have lost the ability to replicate) was primarily responsible for the decrease in clonogenic survival below 4 μM Cr(VI). At higher Cr(VI) concentrations, apoptosis was increasingly responsible for the loss in clonogenicity. Pritchard *et al.* and other research groups have suggested that a subset of cells that continue to replicate following Cr(VI) exposure could contain unrepaired genetic damage or could have become intrinsically resistant to processes (*e.g.*, apoptosis, terminal growth arrest) that normally control their growth (Exs. 35–121; 35–122; 35–120). These surviving cells would then be more prone to neoplastic progression and have greater carcinogenic potential.

e. Summary. Respirable chromate particulates are taken up by target cells in the bronchoalveolar region of the lung, become intracellularly reduced to several reactive genotoxic species able to damage DNA, disrupt normal regulation of cell division and cause neoplastic transformation. Scientific studies indicate that both water soluble and insoluble Cr(VI) can be transported into the cell. In fact, cell surface interactions with slightly soluble and insoluble chromates may create a concentrated microenvironment of chromate ion, especially in the case of the slightly soluble Cr(VI) compounds that more readily dissociate. The higher concentration of chromate ion in close proximity to the lung cells will likely result in higher intracellular Cr(VI) than would occur from the highly water-soluble chromates. This is consistent with the studies of respiratory tract carcinogenesis in animals that indicate the most tumorigenic chromates had low to moderate water solubility. Once inside the cell, Cr(VI) is converted to several lower oxidation forms able to bind to and crosslink DNA. ROS are produced during intracellular reduction/oxidation of Cr(VI) that further damage DNA. These structural lesions are functionally translated into a impaired DNA replication, mutagenesis, and altered gene expression that ultimately lead to neoplastic transformation.

9. Conclusion

In the NRPM, OSHA preliminarily concluded that the weight of evidence supports the determination that all Cr(VI) compounds should be regarded as carcinogenic to workers (69 FR at 59351). This conclusion included the highly water soluble chromates, such as sodium chromate, sodium dichromate, and chromic acid; chromates of slight and intermediate water solubility such as calcium chromate, strontium chromates, and many zinc chromates (e.g. zinc yellow); and chromates that have very low water solubility and are generally considered to be water insoluble such as barium chromate and lead chromates. The strongest evidence supporting this conclusion comes from the many cohort studies reporting excess lung cancer mortality among workers engaged in the production of soluble chromates (Exs. 7–14; 31–22–11; 23; 31–18–4), chromate pigments (Exs. 7–36; 7–42; 7–46), and chrome plating (Exs. 35–62; 35–271). Chromate production workers were principally exposed to the highly soluble sodium chromate and dichromate (Ex. 35–61) although lesser exposure to other chromates, such as highly soluble chromic acid and slightly soluble calcium chromate probably occurred. Pigment production workers were principally exposed Cr(VI) in the form of lead and zinc chromates. Significantly elevated lung cancer mortality was found in two British chromium electroplating cohorts (Exs. 35–62; 35–271). These workers were exposed to Cr(VI) in the form of chromic acid mist. Therefore, significantly elevated lung cancer rates have been observed in working populations exposed to a broad range of Cr(VI) compounds.

Cellular research has shown that both highly water soluble (e.g. sodium chromate) Cr(VI) and water insoluble (e.g. lead chromate) Cr(VI) enter lung cells (see Section V.8.a) and undergo intracellular reduction to several lower oxidation forms able to bind to and crosslink DNA as well as generate reactive oxygen species that can further damage DNA (see Section V.8.b). Soluble and insoluble Cr(VI) compounds are reported to cause mutagenesis, clastogenesis, and neoplastic transformation across multiple assays in a wide range of experimental systems from prokaryotic organisms to human cells *in vitro* and animals *in vivo* (see Section V.8.c).

The carcinogenicity of various Cr(VI) compounds was examined after instillation in the respiratory tract of rodents. Slightly water soluble Cr(VI)

compounds, strontium chromate, calcium chromate, and some zinc chromates produced a greater incidence of respiratory tract tumors than highly water soluble (e.g. sodium dichromate and chromic acid) and water insoluble (e.g. barium chromate and lead chromates) Cr(VI) compounds under similar experimental protocol and conditions (see Section V.7). This likely reflects the greater tendency for chromates of intermediate water solubility to provide a persistent high local concentration of solubilized Cr(VI) in close proximity to the target cell. Highly soluble chromates rapidly dissolve and diffuse in the aqueous fluid lining the epithelia of the lung. Thus, these chromates are less able to achieve the higher local concentrations within close proximity of the lung cell surface than the slightly water soluble chromates. However, it has been shown that water-soluble Cr(VI) can still enter lung cells, damage DNA, and cause cellular effects consistent with carcinogenesis (Ex. 31–22–18; 35–125; 35–135; 35–142). Like the slightly water soluble chromates, water insoluble Cr(VI) particulates are able to come in close contact with the lung cell surface and slowly dissolve into readily absorbed chromate ion. For example, water insoluble lead chromate has been shown to enter human airway cells both through extracellular solubilization as chromate ion (Exs. 35–66; 35–327; 47–12–3) as well as internalization as unsolubilized particulate (Exs. 35–66; 47–19–7). However, the rate of solubilization and uptake of water insoluble Cr(VI) is expected to be more limited than chromates with moderate solubility. Once chromate ion is inside lung cells, studies have shown that similar cellular events believed critical to initiating neoplastic transformation occur regardless of whether the source is a highly soluble or insoluble Cr(VI) compound (Ex. 35–327).

a. Public Comment on the Carcinogenicity of Cr(VI) Compounds

In the NRPM, OSHA requested comment on whether currently available epidemiologic and experimental studies supported the determination that all Cr(VI) compounds possess carcinogenic potential and solicited additional information that should be considered in evaluating relative carcinogenic potency of the different Cr(VI) compounds (69 FR 59307). Several comments supported the view that sufficient scientific evidence exists to regard all Cr(VI) compounds as potential occupational carcinogens (Exs. 38–106–2; 38–222; 39–73–2; 40–10–2; 42–2). The AFL–CIO stated that " * * * the agency has fully demonstrated that Cr(VI) is a human carcinogen and that exposed workers are at risk of developing lung cancer" (Ex. 38–222). NIOSH stated that "the epidemiologic and experimental studies cited by OSHA support the carcinogenic potential of all Cr(VI) compounds (i.e. water soluble, insoluble, and slightly soluble)" (Ex. 40–10–2, p. 4). Peter Lurie of Public Citizen testified:

> As we heard repeatedly in the course of this hearing, scientific experts, in fact, agree. They agree that the most reasonable approach to the regulation is to consider them all [Cr(VI) compounds] to be carcinogenic (Tr. 710).

Several commenters agreed that the evidence supported the qualitative determination that Cr(VI) compounds were carcinogenic but wished to make clear that the information was inadequate to support quantitative statements about relative potency of the individual chromates (Exs. 38–106–2; 40–10–2; 42–2). For example, the Boeing Company in their technical comments stated:

> The available data does support the conclusion that the low solubility hexavalent chromium compounds [e.g. strontium chromate] can cause cancer but evidence to support a quantitative comparison of carcinogenic potency based on differences in solubility is lacking (Ex. 38–106–2, p. 18).

Pigment Manufacturers' Comments on Carcinogenicity of Lead Chromate—One group that did not regard all Cr(VI) compounds as occupational carcinogens was the color pigment manufacturers who manufacture and market lead chromate pigments which are primarily used in industrial coatings and colored plastic articles. The color pigment manufacturers maintain that their lead chromate products are unreactive in biological systems, are not absorbed into the systemic circulation by any route, and can not enter lung cells (Ex. 38–205, p. 14). Their principal rationale is that lead chromate is virtually insoluble in water, is unable to release chromate ion into aqueous media, and therefore, is incapable of interacting with biological systems (Exs. 38–205, p. 95; 38–201–1, p. 9). The color pigment manufacturers assert that their lead chromate pigment products are double encapsulated in a resin/plastic matrix surrounded by a silica coating and that the encapsulated pigment becomes even less "bioavailable" than unencapsulated "less stabilized" lead chromates. They believe the extreme stability and non-bioavailable nature of their products makes them a non-carcinogenic form of Cr(VI) (Ex. 38–205, p. 106).

According to the Color Pigment Manufacturers Association (CPMA), several pieces of scientific evidence support their position, namely, the lack of a significant excess of lung cancer mortality in three cohorts of pigment workers engaged in the production of water-insoluble lead chromate (Ex. 38–205, pp. 88–91) and the lack of statistically significant elevated tumor incidence following a single instillation of lead chromate in the respiratory tract of rats (Ex. 38–205, pp. 88–92). They dismiss as irrelevant other animal studies that produced statistically significant increases in tumors when lead chromate was repeatedly injected by other routes. In addition, CPMA claims that the lead chromate used in cellular studies that report genotoxicity was reagent grade, was contaminated with soluble chromate, and was inappropriately solubilized using strong acids and bases prior to treatment (Exs. 38–205, pp. 93–94; 47–31, pp. 9–13). They are especially critical of studies conducted by the Environmental and Genetic Toxicology group at the University of Southern Maine that report lead chromate particulates to be clastogenic in human lung cells (Exs. 34–6–1; 38–205, pp. 98–102 & appendix D; 47–22). Instead, they rely on two *in vitro* studies of lead chromate pigments that report a lack of genotoxicity in cultured bacterial and hamster ovary cells, respectively (Exs. 47–3 Appendix C; 38–205, p. 94).

OSHA addresses many of the CPMA claims in other sections of the preamble. The bioavailability issue of encapsulated lead chromate is addressed in Section V.A.2. The CPMA request to consider the lack of excess lung cancer mortality among pigment workers exposed exclusively to lead chromate is discussed in Section V.B.2. The CPMA assertions that animal studies are evidence that lead chromates are not carcinogenic to workers are addressed in Section V.B.7. The studies documenting uptake of lead chromate into lung cells are described in Section V.B.8.a. Section V.B.8.c describes evidence that lead chromate is genotoxic. As requested by CPMA, OSHA will pull these responses together and expand on their concerns below.

Lung Cancer Mortality in Pigments Workers Exposed to Lead Chromate—Comments and testimony from NIOSH and others cite evidence of excess lung cancer among pigment workers and support the results of OSHA's preliminary risk assessment for color pigments in general and for lead chromate in particular (Tr. 135–146, 316, 337, Ex. 40–18–1, p. 2). However, comments submitted by the CPMA and

the Dominion Colour Corporation (DCC) attributed the excess lung cancer risk observed in pigment worker studies to zinc chromate (Tr. 1707, 1747, Exs. 38–201–1, p. 13; 38–205, p. 90; 40–7, p. 92). For example, the CPMA stated that:

> When lead chromate and zinc chromate exposures occur simultaneously, there appears to be a significant cancer hazard. However, when lead chromate pigments alone are the source of chromium exposure, a significant carcinogenic response has never been found (Ex. 40–7, p. 92).

The latter statement refers to the Davies *et al.* (1984) study of British pigment workers, the Cooper *et al.* (1983) study of U.S. pigment workers, and the Kano *et al.* (1993) study of pigment workers in Japan, all of which calculated separate observed and expected lung cancer deaths for workers exposed exclusively to lead chromate (Ex. 38–205, p. 89). DCC and the Small Business Administration's Office of Advocacy similarly stated that the excess lung cancer risk observed among workers exposed to both zinc chromate and lead chromate cannot necessarily be attributed to lead chromate (Exs. 38–201–1, p. 13; 38–7, p. 4).

OSHA agrees with CPMA and DCC that the excess lung cancer observed in most pigment worker studies taken alone cannot be considered conclusive evidence that lead chromate is carcinogenic. Given that the workers were exposed to both zinc chromate and lead chromate, it is not possible to draw strong conclusions about the effects of either individual compound using only these studies. However, based on the overall weight of available evidence, OSHA believes that the excess lung cancer found in these studies is most likely attributable to lead chromate as well as zinc chromate exposure. Lead chromate was the primary source of Cr(VI) for several worker cohorts with excess lung cancer (*e.g.*, Davies *et al.* (1984), Factory A; Hayes *et al.* (1989); and Deschamps *et al.* (1995)) (Exs. 7–42; 7–46; 35–234), and as previously discussed, there is evidence from animal and mechanistic studies supporting the carcinogenicity of both zinc chromate and lead chromate. Considered in this context, the elevated risk of lung cancer observed in most chromate pigment workers is consistent with the Agency's determination that all Cr(VI) compounds—including lead chromate—should be regarded as carcinogenic.

Moreover, OSHA disagrees with the CPMA and DCC interpretation of the data on workers exposed exclusively to lead chromate. In the Preamble to the Proposed Rule, OSHA stated that ''[t]he number of lung cancer deaths [in the Davies, Cooper, and Kano studies] is too small to be meaningful'' with respect to the Agency's determination regarding the carcinogenicity of lead chromate (FR 69 at 59332). The CPMA subsequently argued that:

> [b]y this rationale, OSHA could never conclude that a compound such as lead chromate pigment exhibits no carcinogenic potential because there can never be enough lung cancer deaths to produce a ''meaningful'' result. This is an arbitrary and obviously biased assessment which creates an insurmountable barrier. Since the lead chromate pigments did not create an excess of lung cancer, there cannot be a significant enough mortality from lung cancer to be meaningful (Ex. 38–205, p. 90).

OSHA believes that these comments reflect a misunderstanding of the sense in which the Davies, Cooper, and Kano studies are too small to be meaningful, and also a misunderstanding of the Agency's position.

Contrary to CPMA's argument, a study with no excess in lung cancer mortality can provide evidence of a lack of carcinogenic effect if the confidence limits for the measurement of effect are close to the null value. In other words, the measured effect must be close to the null and the study must have a high level of precision. In the case of the Davies, Cooper, and Kano studies, the standardized mortality ratio (SMR) is the measurement of interest and the null value is an SMR of 1. Table V.10 below shows that the SMRs for these study populations are near or below 1; however, the 95% confidence intervals for the SMRs are quite wide, indicating that the estimated SMRs are imprecise. The Kano data, for example, are statistically consistent with a ''true'' SMR as low as 0.01 or as high as 2.62. The results of these studies are too imprecise to provide evidence for or against the hypothesis that lead chromate is carcinogenic.

Table V.10: Summary of Lead Chromate Cohort Studies

Study	*Number of Workers*	*Person-Years of Observation*	*Oberved/Expected Lung Cancer Deaths*	*SMR (95% C.I.)*
Davies (Plant C, high/med exposure)	180	3395	4/5.07	0.79 (0.20 - 2.00)
Davies (Plant C, low exposure)	34	813	3/1.38	2.17 (0.4-6.3)
Cooper (Plant 1)	246	4768	3/2.31	1.30 (0.27 - 3.81)
Kano (workers exposed only to Pb Cr(VI)	not reported	not reported	1/2.14	0.47 (0.01 - 2.62)

This lack of precision may be partly explained by the small size of the studies, as reflected in the low numbers of expected lung cancers. However, it is the issue of precision, and not the number of lung cancer deaths *per se*, that led OSHA to state in the preamble to the proposed rule that the Davies, Cooper, and Kano studies cannot serve as the basis of a meaningful analysis of lead chromate carcinogenicity (Exs. 7–42; 2–D–1; 7–118). In contrast, a study population that has confidence limits close to or below 1 would provide evidence to support the DCC claim that '' * * * if lead chromate pigments possess any carcinogenic potential at all, it must be extremely small'' (Ex. 38–201–1, p. 14) at the exposure levels experienced by that population. While this standard of evidence has not been met in the epidemiological literature for pigment workers exposed exclusively to lead chromate (*i.e.*, the Davies, Cooper, and Kano studies), it is hardly an ''insurmountable barrier'' that sets up an impossible standard of proof for those who contend that lead chromate is not carcinogenic.

Some comments suggested that the Davies, Cooper, and Kano studies should be combined to derive a summary risk measure for exposure to lead chromate (see *e.g.* Ex. 38–201–1, pp. 13–14). However, OSHA believes that these studies do not provide a

suitable basis of meta-analysis. There is little information with which to assess factors recognized by epidemiologists as key to meta-analysis, for example sources of bias or confounding in the individual studies and comparability of exposures and worker characteristics across studies, and to verify certain conditions required for comparability of SMRs across these studies (see *e.g. Modern Epidemiology*, Rothman and Greenland, p. 655). In addition, the inclusion criteria and length of follow-up differ across the three studies. Finally, each of the studies is extremely small. Even if it were appropriate to calculate a 'summary' SMR based on them, the precision of this SMR would not be much improved compared to those of the original studies.

In their written testimony, DCC suggested that OSHA should aggregate the data from the Davies, Cooper, and Kano studies in order to determine whether there is a discrepancy between the results of these three studies, taken together, and OSHA's preliminary risk assessment (Ex. 38–201–1, pp. 13–14). DCC performed a calculation to compare OSHA's risk model with the observed lung cancer in the three cohorts. DCC stated that:

> OSHA estimates a chromate worker's risk of dying from lung cancer due to occupational exposure as about one chance in four * * * [Assuming that there were about] 200 workers in the Kano study, the total in the three studies would be 600. A calculation of one quarter would be 150 deaths. To compensate for a working life of less than OSHA's 45 years [an assumption of 20 years] provides * * * a refined estimate of about 70 deaths. An observed number less than this could be due either to exposures already in practice averaging much less than the current PEL of 52, or to lead chromate having much less potential (if any) for carcinogenicity than other chromates. In any event the actual incidence of death from lung cancer would appear to be no more than one tenth of OSHA's best estimate (Ex. 38–201–1, pp. 15–16).

The method suggested by DCC is not an appropriate way to assess the carcinogenicity of lead chromate, to identify a discrepancy between the pigment cohort results and OSHA's risk estimates, or to determine an exposure limit for lead chromate. Among other problems, DCC's calculation does not make a valid comparison between OSHA's risk estimates and the results of the Davies, Cooper, and Kano studies. OSHA's 'best estimate' of lung cancer risk for any given Cr(VI)-exposed population depends strongly on factors including exposure levels, exposure duration, population age, and length of follow-up. The 'one in four' prediction cited by DCC applies to one specific risk scenario (lifetime risk from 45 years of occupational exposure at the previous PEL of 52 μg/m^3). OSHA's best estimate of risk would be lower for a population with lower exposures (as noted by DCC), shorter duration of exposure, or less than a lifetime of follow-up. Without adequate information to adjust for each of these factors, a valid comparison cannot be drawn between OSHA's risk predictions and the results of the lead chromate cohort studies.

The importance of accounting for cohort age and follow-up time may be illustrated using information provided in the Cooper *et al.* study. As shown in Table V–11 below, approximately three-fourths of the Cooper et al. Plant 1 cohort members were less than 60 years old at the end of follow-up.

Table V-11: Followup of Workers in Cooper et al. (Plant 1)

year of birth	number of workers	age at end of followup*	percent of cohort
1950 - 1954	8	25 - 29	3.3%
1945 - 1949	18	30 - 34	7.3%
1940 - 1944	19	35 - 39	7.7%
1935 - 1939	19	40 - 44	7.7%
1930 - 1934	29	45 - 49	11.8%
1925 - 1929	53	50 - 54	21.5%
1920 - 1924	36	55 - 59	14.6%
1915 - 1919	33	60 - 64	13.4%
1910 - 1914	17	65 - 69	6.9%
1905 - 1909	8	70 - 74	3.3%
1900 - 1904	5	75 - 79	2.0%
1895 - 1899	1	80 - 84	0.4%

* age of follow-up based on birthyear, assuming survival and follow-up to 1979;
actual follow-up will be shorter for 14 deceased workers and 9 lost to follow-up

For a population of 600 with approximately the same distribution of follow-up time as described in the Cooper et al. publication (e.g., 0.4% of workers are followed to age 84, 2% to age 79, etc.), OSHA's risk model predicts about 3–15 excess lung cancers (making the DCC assumption that workers are exposed for 20 years at 52 μg/m^3), rather than the 70 deaths calculated by the DCC. If the workers were typically exposed for less than 20 years or at levels lower than 52 μg/m^3, OSHA s model would predict still lower risk. A precise comparison between OSHA's risk model and the observed lung cancer risk in the Davies, Cooper and Kano cohorts is not possible without demographic, work history and exposure information on the lead chromate workers. (In particular, note that year 2000 background lung cancer rates were used in the calculation above, as it was not feasible to reconstruct appropriate reference rates without work history information on the cohorts.) However, this exercise illustrates that DCC's assertion of a large discrepancy between OSHA's risk model and the available data on workers exposed exclusively to lead chromate is not well-founded. To make a valid comparison between the OSHA risk

model and the lung cancer observed in the lead chromate cohorts would require more information on exposure and follow-up than is available for these cohorts.

OSHA received comments and testimony from NIOSH and others supporting of the Agency's interpretation of the epidemiological literature on Cr(VI) color pigments, including lead chromate (Tr. 135–146, 316, 337, Ex. 40–18–1, p. 2). At the hearing, Mr. Robert Park of NIOSH stated that the available studies of workers exposed to chromate pigments show '' * * * a general pattern of excess [lung cancer] * * * '' and pointed out that ''[i]n several of the studies, lead [chromate] was by far the major component of production, like 90 percent * * * So I don't think there is any epidemiological evidence at this point that gets lead off the hook'' (Tr. 337). Regarding the lack of statistically significant excess lung cancer in several pigment worker cohorts, Mr. Park identified study attributes that may have obscured an excess in lung cancer, such as the high percentage of workers lost to follow-up among immigrant workers in the Davies et al. study (Tr. 337) or a healthy worker effect in the Hayes et al. study (Tr. 316). Dr. Paul Schulte of NIOSH explained that

> * * * a lot of these studies that appear to be negative were either of low power or had [some] other kind of conflicting situation [so] that we can't really consider them truly negative studies (Tr. 338).

Dr. Herman Gibb testified that the epidemiological studies relied on by CPMA and DCC to question the carcinogenicity of lead chromate have very low expected numbers of lung cancer deaths, so they '' * * * really don't have a lot of ability to be able to detect a risk'' (Tr. 135–136). Public Citizen agreed with OSHA's preliminary conclusion that lead chromate is carcinogenic. Based on the major pigment worker cohorts identified by OSHA in the Preamble to the Proposed Rule, Public Citizen's Health Research Group concluded that

> * * * inadequately-powered studies, the standardized mortality ratios for exposed workers are significantly elevated (range 1.5–4.4) and a relationship between extent of exposure (whether measured by duration of exposure or factory) generally emerges; [moreover,] [t]hese studies must be placed in the context * * * of the animal carcinogenicity studies * * * and the mechanistic studies reviewed by OSHA (Ex. 40–18–1, p. 2).

Tumor Incidence in Experimental Animals Administered Lead Chromate—CPMA also claims that the absence of evidence for carcinogenicity found among the three cited cohorts of lead chromate pigment workers '' * * * is further confirmed by the rat implantation studies of Levy'' (Ex. 38–205, p. 98). They argue that these studies which involved implantation into rat lungs '' * * * indicated no increased incidence of tumors for lead chromate pigment, although more soluble chromates exhibited varying degrees of carcinogenicity'' (Ex. 38–205, p. 93). They dismissed other animal studies involving intramuscular and subcutaneous injection of lead chromate which did report increased incidence of tumors because they believe these techniques

> * * * are of questionable relevance in relation to human workplace exposure conditions in industry, whereas tests involving implantation in rat lung * * * are relevant to inhalation in industrial exposures (Ex. 38–205, p. 93).

In a more recent submission, CPMA remarked that the intramuscular and subcutaneous injection studies with lead chromate were contradictory and '' * * * problematic in that false positive results frequently occur during the study procedure (Ex. 47–31, p. 13).

The rat implantation studies of Levy involved the surgical placement of a Cr(VI)-containing pellet in the left bronchus of an anesthetized rat (Exs. 10–1; 11–12; 11–2). This pellet procedure was an attempt to deliver Cr(VI) compounds directly to the bronchial epithelium and mimic continuous chronic *in vivo* dosing at the tissue target site in order to assess the relative ability of different Cr(VI) compounds to induce bronchogenic carcinoma. Histopathological evaluation of the rat lung was conducted after a two year exposure time. In most cases, approximately 100 rats were implanted with a single pellet for each Cr(VI) test compound. The total lifetime dose of Cr(VI) received by the animal was generally between 0.2 and 1.0 mg depending on the compound. The amount of Cr(VI) that actually leached from the cholesterol pellet and remained near the lung tissue was never determined. At least 20 different commercially relevant Cr(VI) compounds ranging from water insoluble to highly water soluble were tested using this intrabronchial implantation protocol.

The results of these studies are described in preamble section V.B.7 and tables V–7, V–8, and V–9. Reagent grade lead chromate and six different lead chromate pigments were tested. The lead chromate pigments were a variety of different chrome yellows, including a silica encapsulated chrome yellow, and molybdenum orange. The incidence of bronchogenic cancer in the rats under this set of experimental conditions was one percent or less for all the lead chromates tested. This incidence was not statistically different from the negative controls (i.e. rats implanted with a cholesterol pellet containing no test compound) or rats administered either the water-insoluble barium chromate or the highly soluble chromic acid and sodium dichromate. The percent incidence of bronchogenic cancer in lead chromate-treated rats was substantially less than that of rats treated with slightly soluble strontium chromates (about 52 percent) and calcium chromate (24 percent). The type of bronchogenic cancer induced in these experiments was almost entirely squamous cell carcinomas.

OSHA does not agree with the CPMA position that absence of a significant tumor incidence in the intrabronchial implantation studies confirms that lead chromates lack carcinogenic activity and, therefore, should not be subject to the OSHA Cr(VI) standard. The bioassay protocol used approximately 100 test animals per experimental group. This small number of animals limits the power of the bioassay to detect tumor incidence below three to four percent with an acceptable degree of statistical confidence. Three of the lead chromates, in fact, produced a tumor incidence of about one percent (e.g. 1 tumor in 100 rats examined) which was not statistically significant. The researchers only applied a single 2 mg [approximately 0.3 mg Cr(VI)] dose of lead chromate to the bronchus of the rats. Since it was not experimentally confirmed that the lead chromate pigments were able to freely leach from the cholesterol pellet, the amount of Cr(VI) actually available to the lung tissue is not entirely clear. Therefore, OSHA believes a more appropriate interpretation of the study findings is that lead chromates delivered to the respiratory tract at a dose of about 0.3 mg Cr(VI) (maybe lower) lead to a less than three percent tumor incidence.

However, OSHA agrees that the intrabronchial implantation protocol does provide useful information regarding the relative carcinogenicity of different Cr(VI) compounds once they are delivered and deposited in the respiratory tract. No other study examines the carcinogenicity of such a broad range of commercial Cr(VI) compounds under the same experimental conditions in the relevant target organ to humans (i.e. respiratory tract) following *in vivo* administration. OSHA agrees with CPMA that the results of this study provide credible

evidence that water insoluble lead chromates are less carcinogenic than some of the more moderately soluble chromates. Specifically, this includes the slightly soluble zinc chromates (e.g. zinc yellow, zinc potassium chromates, basic zinc chromates) as well as strontium chromate and calcium chromate. Intrabronchial implantation of chromic acid and other highly soluble Cr(VI) salts, such as sodium chromates, did not induce a significant number of tumors. Therefore, these experiments do not indicate lead chromate are less carcinogenic than the highly water soluble Cr(VI) compounds.

If the histopathology data from the intrabronchial implantation is examined more closely, all lead chromates increased the incidence of squamous metaplasia relative to controls, and, for some lead chromates, squamous dysplasia of the bronchial epithelium occurred (Table 2, Ex. 11–2). Squamous metaplasia and dysplasia are generally considered to be transformed cellular states from which a neoplasm (e.g. carcinomas) can arise (Ex. 11–12). Increased squamous metaplasia was common among all tested Cr(VI) compounds but not among Cr(III)-containing materials or the negative controls (Ex. 11–12). The increased metaplasia induced by lead chromates is unlikely to be due to bronchial inflammation since the degree of inflammation was no greater than that observed in the cholesterol-implanted controls (Table 2, Ex. 11–2).

The squamous metaplasia and dysplasia in the rat lung model following low dose lead chromate administration is consistent with a low carcinogenic response (e.g. incidence of one percent or less) not able to be detected under the conditions of the animal bioassay. This explanation is supported by studies (discussed later in the section) that show lead chromate can enter lung cells, damage DNA, and cause genotoxic events leading to neoplastic transformation.

Lead chromate carcinogenicity is also supported by the animal studies that CPMA dismisses as problematic and of questionable relevance. These studies administered lead chromates to rodents by either the subcutaneous (Exs. 8–25, 5–2, 8–37) or intramuscular routes (Ex. 10–2). While OSHA agrees that these routes may be less relevant to occupational inhalation than implantation in the respiratory tract, the studies exposed rats to a larger dose of lead chromate. The higher amounts of Cr(VI) produced a significant incidence of tumors at the injection site (see section V.B.7.c).

The lead chromate pigments, chrome yellow and chrome orange, induced injection site rhabdomyosarcomas and fibrosarcomas in 65 percent of animals following a single 30 mg injection in a saline suspension (Ex. 8–37). The rats received a roughly ten fold higher dose of Cr(VI) than in the intrabronchial bioassay. Rats injected with saline alone did not develop injection site tumors. Only two percent or less of rats receiving equal quantities of the inorganic pigments iron yellow and iron red developed these tumors. The iron oxides are not considered to be carcinogenic and do not give a significant neoplastic response in this bioassay. OSHA has no reason to believe the experimental procedure was problematic or given to frequent false positives.

A similarly high incidence (i.e. 70 percent) of the same injection site sarcomas were found in an independent study in which rats were injected intramuscularly with reagent grade lead chromate once a month for nine months (Ex. 10–2). Each injection contained approximately 1.3 mg of Cr(VI) and the total dose administered was over 30 times higher than the intrabronchial implantation. The lead chromate was administered in a glycerin vehicle. The vehicle produced less than a two percent incidence of injection site sarcomas when administered alone.

Contrary to statements by Eurocolour (Ex. 44–3D), lead chromate did produce a low incidence of site-of-contact tumors in rats in an earlier study when administered by either intramuscular or intrapleural implantation (Ex. 10–4). There was no tumor incidence in the control animals. The dose of lead chromate in this early publication was not stated.

Based on the increase in pre-neoplastic changes from the single low dose intrabronchial implantation and the high incidence of malignant tumors resulting from larger doses administered by subcutaneous and intramuscular injection, it is scientifically reasonable to expect that larger doses of lead chromate may have produced a higher incidence of tumors in the more relevant intrabronchial implantation procedure. The highly soluble sodium dichromate produced a small (statistically insignificant) incidence of squamous cell carcinoma (i.e. one percent) upon single low dose intrabronchial implantation similar to the lead chromates (Ex. 11–2). In another study, sodium dichromate caused a significant 17 percent increase in the incidence of respiratory tract tumors when instilled once a week for 30 months in the trachea of rats (Ex. 11–7). The weekly-administered dose for this repeated instillation was about ⅕th the dose of that used in the intrabronchial implantation assay but the total administered dose after 30 months was about 25 times higher. Rats that received a lower total dose of sodium dichromate or the same total dose in more numerous instillations (i.e. lower dose rate) developed substantially fewer tumors that were statistically indistinguishable from the saline controls. A third study found a 15 percent increase (not statistically significant) in lung tumor incidence when rats repeatedly inhaled aerosolized sodium dichromate for 18 months at the highest air concentrations tested (Ex. 10–11). These sodium dichromate studies are further described in section V.B.7.a. The findings suggest that the lack of significant carcinogenic activity in the intrabronchial implantation study reflects, in part, the low administered dose employed in the bioassay.

In his written testimony to OSHA, Dr. Harvey Clewell directly addressed the issue of interpreting the absence of carcinogenicity in an animal study as it relates to significant risk.

> First, the ability to detect an effect depends on the power of the study design. A statistically-based No Observed Adverse Effect Level (NOAEL) in a toxicity study does not necessarily mean that there is no risk of adverse effect. For example, it has been estimated that a NOAEL in a typical animal study can actually be associated with the presence of an effect in as many as 10% to 30% of the animals. Thus the failure to observe a statistically significant increase in tumor incidence at a particular exposure does not rule out the presence of a substantial carcinogenic effect at that exposure * * *. Similarly the failure of Levy et al. (1986) to detect an increase in tumors following intrabronchial instillation of lead chromate does not in itself demonstrate a lack of carcinogenic activity for that compound. It only demonstrates a lower activity than for other compounds that showed activity in the same experimental design. Presumably this lower activity is primarily due to its low solubility; evidence of solubilization, cellular uptake, and carcinogenic activity of this compound [i.e. lead chromate] is provided in other studies (Maltoni et al. 1974, Furst et al., 1976, Blankenship et al., 1997; Singh et al., 1999; Wise et al., 2004) (Ex. 44.5, p. 13–14).

OSHA agrees with Dr. Clewell that the inability to detect a statistically significant incidence of tumors in one study that administers a single low dose of lead chromate to a limited number of animals is not evidence that this Cr(VI) compound lacks carcinogenic activity. This is especially true when there exists an elevation in pre-neoplastic lesions and other studies document significant

tumor incidence in animals administered higher doses of lead chromate.

Cellular Uptake and Genotoxicity of Lead Chromate—CPMA disputes the many studies that report lead chromate to be genotoxic or clastogenic in cellular test systems (Exs. 35–162; 12–5; 35–119; 35–188; 35–132; 35–68; 35–67; 35–115; 35–66; 47–22–1; 47–12–3; 35–327; 35–436). They claim that the studies inappropriately solubilized the lead chromate '' * * * in non-biological conditions such as strong alkali or strong acid that causes the chemical breakdown of the lead chromate crystal'' (Ex. 38–205, p. 94) and the ''lead chromate had been dissolved * * * using aggressive substances'' (Ex. 38–205, p. 99). In a later submission, CPMA states state that some of the cellular studies used reagent grade lead chromate that is only ≥98 percent pure and may contain up to 2 percent soluble chromate (Ex. 47–31, p. 11). They speculate that the interactions (e.g. chromate ion uptake, chromosomal aberrations, DNA adducts, etc.) described in studies using cell cultures treated with lead chromate are either due to the presumed contamination of soluble chromate or some other undefined ''reactive nature'' of lead chromate. CPMA adds that '' * * * the studies referenced by OSHA [that use reagent grade lead chromate] have no relevance to occupational exposures to commercial lead chromate pigments'' (Ex. 38–205, p. 11–12).

OSHA agrees that studies involving lead chromate pre-solubilized in solutions of hydrochloric acid, sodium hydroxide or other strong acids and bases prior to treatment with cells are not particularly relevant to the inhalation of commercial lead chromate particulates. However, several relevant cellular studies have demonstrated that lead chromate particulates suspended in biological media and not can enter lung cells, damage DNA, and cause altered gene expression as described below.

Beginning in the late 1980s, there has been a consistent research effort to characterize the genotoxic potential of lead chromate particulate in mammalian cells. The lead chromate was not pre-solubilized prior to cell treatment in any of these investigations. In most of the studies, lead chromate particles were rinsed with water and then acetone. The rinses cleansed the particles of water- and acetone-soluble contaminants before cell treatment. This served to remove any potential water-soluble Cr(VI) present that might confound the study results. In most instances, the lead chromate particles were filtered, stirred or sonicated in suspension to break up the aggregated particles into monomeric lead chromate particulates. These lead chromate particulates were primarily less than 5 μm in diameter. This is consistent with the inhaled particle size expected to deposit in the bronchial and alveolar regions of the lung where lung cancer occurs. Air-dried lead chromate particulates were introduced to the cell cultures in a suspension of either saline-based media or acetone. Lead chromate particulate is considered to be insoluble in both solvents so significant solubilization is not expected during the process of creating a homogenous suspension.

The initial research showed that lead chromate particulate morphologically transformed mouse and hamster embryo cells (Exs. 35–119; 12–5). One study tested a variety of lead chromate pigments of different types (e.g. chrome yellows, chrome oranges, molybdate oranges) as well as reagent grade lead chromate (Ex. 12–5). The transformed cells displayed neoplastic properties (e.g. growth in soft agar) and were tumorigenic when injected into animals (Ex. 35–119; 12–5). While lead chromate particulate transformed mouse embryo cells, it is important to note that lead chromate particulate was not found to be mutagenic in these cells suggesting that other types of genetic lesions (e.g. clastogenicity) may be involved (Ex. 35–119).

Follow-on research established that lead chromate particulate caused DNA-protein crosslinks, DNA strand breaks, and chromosomal aberrations (i.e. chromatid deletions and achromatic lesions combined) in mammalian cells rather than DNA nucleotide binding often associated with base substitution and frameshift mutations captured in a standard Ames assay (Exs. 35–132; 35–188). This distinguishes lead chromate particulate from high concentrations of soluble Cr(VI) compounds or pre-solubilized lead chromate which can cause these mutations.

Lead chromate particulate enters mammalian embryo cells by two distinct pathways (Ex. 35–68). It partially dissolves in the culture medium (i.e. biological saline solution) to form chromate ion, which is then transported into the cell. The rate of particle dissolution was shown to be time- and concentration-dependent. The measured chromate ion concentration was consistent with that predicted from the lead chromate solubility constant in water. Lead chromate particulates were shown to adhere to the embryo cell surface enhancing chromate ion solubilization leading to sustained intracellular chromium levels and measurable chromosomal damage (Ex. 35–67).

Lead chromate particulates are also internalized into embryo cells, without dissolution, by a phagocytic process (Ex. 35–68). The lead chromate particles appeared to remain undissolved in tight vacuoles (*i.e.* phagosomes) within the cell over a 24 hour period. Treatment of embryo cells with lead chromate particulates in the presence of a reducing agent (*i.e.* ascorbate) substantially reduced cellular uptake of dissolved chromate ions and the chromosomal damage, but did not impact the internalization of lead chromate particulates (Ex. 35–68). This suggests that chromosomal damage by lead chromate was the result of extracellular particle dissolution and not internalization under the particular experimental conditions. Embryo cell treatment with large amounts of lead glutamate that produced high intracellular lead in the absence of Cr(VI) did not cause chromosomal damage further implicating intracellular chromium as the putative clastogenic agent (Ex. 35–67).

As the ability to maintain human tissue cells in culture improved in the 1990s, dissolution and internalization of lead chromate particulates, uptake of chromate ion, and the resulting chromosomal damage were verified in human lung cells (Exs. 35–66; 47–22–1; 47–12–3; 35–327; 35–436). Lead chromate particulates are internalized, form chromium adducts with DNA, and trigger dose-dependent apoptosis in human small airway epithelial cells (Ex. 35–66). They also cause dose-dependent increases in intracellular chromium, internalized lead chromate particulates and chromosomal damage in human lung fibroblasts (Exs. 47–22–1; 47–12–3). The chromosomal damage from lead chromate in these human lung cells is dependent on the extracellular dissolution and cell uptake of the chromate, rather than lead, in a manner similar to dilute concentrations of the highly soluble sodium chromate (Ex. 47–12–3; 35–327). Another water insoluble Cr(VI) compound, barium chromate particulate, produces very similar responses in human lung fibroblasts (Ex. 35–328). Human lung macrophages can phagocytize lead chromate particulates and trigger oxidation-reduction of Cr(VI) to produce reactive oxygen species capable of damaging DNA and altering gene expression (Ex. 35–436).

OSHA finds these recent studies to be carefully conceived and executed by reputable academic laboratories. The scientific findings have been published in well-respected peer reviewed

molecular cancer and toxicology journals, such as Carcinogenesis (Exs. 12–5, 35–68), Cancer Research (Ex. 35–119), Toxicology and Applied Pharmacology (Exs. 35–66; 25–115), and Mutation Research (Exs. 35–132; 47–22–1; 35–327). Contrary to statements by CPMA, the results indicate that lead chromate particulates are able to dissociate in the presence of biological media without the aid of aggressive substances. The resulting chromate ion is bioavailable to enter lung cells, damage genetic material and initiate events critical to carcinogenesis. These effects can not be attributed to small amounts of soluble chromate contaminants since these substances are usually removed as part of the test compound preparation prior to cell treatment.

As one of the study authors, Dr. John Wise of the University of Southern Maine, stated in his post-hearing comments:

> At no time did we dissolve lead chromate particles prior to administration. At the initial onset of the administration of lead chromate particles in our studies, the cells encountered intact lead chromate particles. Any dissolution that occurred was the natural result of the fate of lead chromate particles in a biological environment (Ex. 47–12, p. 3).

Other scientists concurred that the methods and findings of the cellular research with lead chromate were reasonable. Dr. Kathleen MacMahon, a biologist from NIOSH stated:

> NIOSH believes that the methods that were used in the [lead chromate] studies were credible and we support the results and conclusions from those studies (Tr. 342).

Dr. Clewell said:

> As I recall, it [lead chromate particles] was suspended in acetone and ultrasonically shaken to reduce it to submicron particles, which seems like a reasonably good thing to do. There are actually a couple of studies besides the Wise studies that have looked at the question of the uptake of lead chromate. I have looked at those studies and I don't really see any basic flaws in what they did. It is obviously a challenge to reproduce inhalation exposure *in vitro* (Tr. 180–181).

Chromosal Aberrations and Lead Chromate—Several submissions contained testimony from another researcher, Dr. Earle Nestmann of CANTOX Health Sciences International, that criticized the methodology and findings of a study published by the research group at the University of Southern Maine (Exs. 34–6–1; 38–205D; 47–12–1; 47–22). Dr. Nestmann viewed as inappropriate the practice of combining the chromatid deletions and achromatic lesions together as chromosomal aberrations. He indicated the standard practice was to score these two types of lesions separately and that only the deletions had biological relevance. According to Dr. Nestmann, achromatic lesions are chromatid gaps (i.e. lesion smaller than the width of one chromatid) that have no clastogenic significance and serve to inflate the percentage of cells with chromosomal aberrations (i.e. chromatid deletions or breaks). Dr. Nestmann criticized the studies for not including a positive control group that shows the experimental system responds to a 'true' clastogenic effect (i.e. a compound that clearly increases chromosomal deletions without contribution from chromatid gaps).

Dr. John Wise, the Director of the research laboratory at the University of Southern Maine, responded that distinguishing chromatid gaps from breaks is a subjective distinction (e.g. requiring judgment as to the width of a lesion relative to the width of a chromatid) and pooling these lesions simply reduces this potential bias (Ex. 47–12; 47–12–1). He stated that there is no consensus on whether gaps should or should not be scored as a chromosomal aberration and that gaps have been included as chromosomal aberrations in other publications. Dr. Wise also points out that achromatic lesions have not been shown to lack biological significance and that the most recent research indicates that they may be related to DNA strand breaks, a scientifically accepted genotoxic endpoint. Dr. Wise further believed that a positive control was unnecessary in his experiments since the purpose was not to determine whether lead chromate was a clastogenic agent, which had already been established by other research. Rather, the purpose of his studies was to assess Cr(VI) uptake and chromosomal damage caused by water-insoluble lead chromate compared to that of highly water soluble sodium chromate using a relevant *in vitro* cell model (i.e. human lung cells).

OSHA is not in a position to judge whether achromatic lesions should be scored as a chromosomal aberration. However, OSHA agrees with Dr. Nestmann that combining gaps and breaks together serves to increase the experimental response rate in the studies. Given the lack of consensus on the issue, it would have been of value to record these endpoints separately. OSHA is not aware of data that show achromatic gaps to be of no biological significance. The experimental data cited above indicate that soluble and insoluble Cr(VI) compounds clearly increase achromatic gaps in a concentration-dependent manner. The chromatid lesions (gaps and breaks) may be chromosomal biomarkers indicative of genetic damage that is critical to neoplastic transformation. Furthermore, OSHA agrees with Dr. Wise that other evidence establishes lead chromate as an agent able to cause DNA damage and transform cells. The Agency considers the use of sodium chromate-treated cells in the above set of experiments to be the appropriate comparison group and does not find the absence of an additional positive control group to be a technical deficiency of the studies. OSHA considers the research conducted at the University of Southern Maine documenting chromosomal damage in human lung cells following treatment with lead chromate particulates to be consistent with results from other studies (see Section V.B.8) and, thus, contributes to the evidence that water insoluble lead chromate, like other chromates, is able to enter lung cells and damage DNA.

In post-hearing comments, CPMA provided a Canadian research laboratory report that tested the lead chromate Pigment Yellow 34 for chromosomal aberrations in a hamster embryo cell system (Ex. 47–3, appendix C). The research was sponsored by DCC and its representative Dr. Nestmann. Lead chromate particles over the concentration range of 0.1 μ/cm^2 to 10 μ/cm^2 were reported to not induce chromosomal aberrations under the experimental test conditions. Chromatid structural and terminal gaps were not scored as aberrations in this study, even though the percentage of cells with these lesions increased in a dose-dependent manner from two percent in the absence of lead chromate to over thirteen percent in cells treated with 1 μ/cm^2 lead chromate pigment particles.

This result is consistent with other experimental data that show lead chromate particulates cause chromosomal lesions when administered to mammalian embryo cells (Exs. 35–188; 35–132; 35–68; 35–67). The key difference is how the various researchers interpreted the data. The George Washington University group (i.e. Pateirno, Wise, Blankenship *et al.*) considered the dose-dependent achromatic lesions (i.e. chromatid gaps) as a clastogenic event and included them as chromosomal damage. The Canadian test laboratory (i.e. Nucrotechnics) reported achromatic lesions but did not score them as chromosomal aberrations. Reporting achromatic lesions but not scoring them as chromosomal aberrations is consistent with regulatory test guidelines as currently recommended by EPA and OECD. The Nucrotechnics

data suggest that the tested lead chromate pigment caused a similar degree of chromosomal damage (i.e. dose-dependent achromatic lesions and chromosomal aberrations combined) in mammalian cells. This result was similar to results produced by reagent grade lead chromate in previous studies.

Mutagenicity and Lead Chromate—CPMA also relied on a study that reported a lack of mutagenicity for lead chromate pigments in a bacterial assay using Salmonella Typhimurium TA 100 (Ex. 11–6). As previously mentioned, this assay specifically measures point and frameshift mutations usually caused by DNA adduct formation. The assay is not sensitive to chromosomal damage, DNA strand breaks, or DNA crosslinks most commonly found with low concentrations of Cr(VI) compounds. Large amounts (50 to 500 μg/plate) of highly soluble sodium dichromate and slightly soluble calcium, strontium, and zinc chromates, were found to be mutagenic in the study, but not the water insoluble barium chromate and lead chromate pigments. However, mutagenicity was observed when the acidic chelating agent, nitrilotriacetic acid (NTA), was added to the assay to help solubilize the water insoluble Cr(VI) compounds. The chelating agent was unable to solubilize sufficient amounts of lead chromate pigments to cause bacterial mutagenicity, if these pigments were more than five percent encapsulated (weight to weight) with amorphous silica.

OSHA finds the results of this study to be consistent with the published literature that shows Cr(VI) mutagenicity requires high concentrations of solubilized chromate ion (Exs. 35–118; 35–161). Large amounts of water-soluble and slightly soluble Cr(VI) compounds produce a mutagenic response in most studies since these Cr(VI) compounds can dissociate to achieve a high concentration of chromate ion. Insoluble lead chromate usually needs to be pre-solubilized under acidic or alkaline conditions to achieve sufficient chromate ion to cause mutagenicity (Ex. 35–162). The above study found highly and slightly soluble chromates to be mutagenic as well as water insoluble lead chromate pigments pre-solubilized with NTA. The lack of mutagenicity for silica encapsulated lead chromate pigments under these experimental conditions is likely the result of their greater resistance to acidic digestion than unencapsulated lead chromate pigment.

Failure to elicit a mutagenic response in a bacterial assay, with or without NTA, is not a convincing demonstration that chromate ion can not partially dissociate from encapsulated lead chromate in biological media, enter mammalian cells, and elicit other types of genotoxicity. As described above, chromosomal damage, believed to result from DNA strand breaks and crosslinks, appears to be the critical genotoxic endpoint for low concentrations of Cr(VI) compounds. Research has shown that lead chromate and lead chromate pigment particulates in biological media can cause chromosomal lesions and cell transformation without the aid of strongly acidic or basic substances (Exs. 12–5; 35–119; 35–188; 35–132; 35–68; 35–67; 47–12–3; 35–327). While silica-encapsulated lead chromate pigments have not been as thoroughly investigated as the unencapsulated pigments or reagent grade lead chromate, one study reported that lead silicochromate particles did have low solubility in biological culture media and transformed hamster embryo cells (Ex. 12–5).

Information is not available in the record to adequately demonstrate the efficiency and stability of the encapsulation process, despite OSHA statements that such information would be of value in its health effects evaluation and its request for such information (69 FR 59315–59316, 10/4/2004; Ex. 2A). In the absence of data to the contrary, OSHA believes it prudent and plausible that encapsulated lead chromate pigments are able to partially dissociate into chromate ion available for lung cell uptake and/or be internalized in a manner similar to other lead chromate particulates. The resulting intracellular Cr(VI) leads to genotoxic damage and cellular events critical to carcinogenesis.

Public Comments on Carcinogenicity of Slightly Water Soluble Cr(VI) Compounds—In its written comments to the NPRM, Boeing Corporation stated that ''there is no persuasive scientific evidence for OSHA's repeated assertion that low solubility hexavalent chromium compounds [e.g. strontium and zinc chromates] are more potent carcinogens than [highly] soluble [Cr(VI)] compounds'' (Ex. 38–106, p. 2). Boeing and others in the aerospace industry are users of certain slightly soluble Cr(VI) compounds, particularly strontium chromate, found in the protective coatings applied to commercial and military aircraft.

Boeing argues that OSHA, along with IARC, ACGIH and others, have exclusively relied on intrabronchial implantation studies in animals that are both not representative of inhalation exposures in the workplace and are not consistent with the available animal inhalation data (Ex. 38–106–2, p. 26). Boeing asserts that there is no evidence that slightly soluble chromates behave differently in terms of their absorption kinetics than highly soluble chromates when instilled in the lungs of rats (Ex. 38–106–2, p. 19). Boeing believes the OSHA position that slightly soluble Cr(VI) compounds are retained in the lung, associate with cells, and cause high uptake or high local concentrations to be inconsistent with other data showing these Cr(VI) compounds quickly disperse in water (Ex. 38–106–2, p. 26). Boeing concludes:

> There is no basis for the conclusion that low solubility [i.e. slightly soluble] chromates could be more potent than [highly] soluble, and some evidence the opposite may be the case. As a worst case OSHA should conclude that there is inadequate evidence to conclude that [highly] soluble and low-solubility compounds differ in carcinogenic potency. It is critical that OSHA maintain a distinction between low-solubility chromates and highly insoluble chromates based on this data. (Ex. 38–106–2, p. 26)

As noted earlier, OSHA as well as other commenters agree with Boeing that the animal intrabronchial and intratracheal instillation studies are not appropriate for quantitatively predicting lung cancer risk to a worker breathing Cr(VI) dust and aerosols. However, many stakeholders disagreed with the Boeing view and believed these animal studies can be relied upon as qualitative evidence of relative carcinogenic potency. CPMA, which relies on the rat intrabronchial implantation results as evidence that lead chromate is non-carcinogenic, states ''tests involving implantation in rat lung, as carried out by Levy *et al.* in 1986, are relevant to inhalation in industrial exposures'' (Ex. 38–205, p. 93). In their opening statement NIOSH agreed with the preliminary OSHA determination that ''the less water soluble [Cr(VI)] compounds may be more potent than the more water soluble [Cr(VI)] compounds'' (Tr. 299). NIOSH identified the rat intrabronchial implantation findings as the basis for their position that the slightly soluble Cr(VI) compounds appear to be more carcinogenic than the more soluble and insoluble Cr(VI) compounds (Tr. 334). Dr. Clewell testified that:

> Some animal studies suggest the solubility of hexavalent chromium compounds influences their carcinogenic potency with slightly soluble compounds having the higher potencies than highly soluble or insoluble compounds. However, the evidence is inadequate to conclude that specific hexavalent chromium compounds are not carcinogenic. Moreover the designs of the studies were not sufficient to quantitatively

estimate comparative potencies (Ex. 44–5, p. 15).

Respiratory Tract Instillation of Slightly Soluble Cr(VI) Compounds in Rats—OSHA agrees that animal intrabronchial and intratracheal implantation studies provide persuasive evidence that slightly soluble Cr(VI) are more carcinogenic than the highly soluble Cr(VI) compounds. As mentioned previously, these studies provide useful information regarding the relative carcinogenicity of different Cr(VI) compounds once they are delivered and deposited in the respiratory tract. For example, one study examined the carcinogenicity of over twenty different Cr(VI) compounds in rats, spanning a broad range of solubilities, under the same experimental conditions in the relevant target organ to humans (i.e. respiratory tract) following *in vivo* administration (Ex. 11–2). A single administration of each Cr(VI) test compound was instilled in the lower left bronchus of approximately 100 rats. The results were dramatic. Roughly 50 and 25 percent of the rats receiving the slightly soluble strontium and calcium chromates, respectively, developed bronchogenic carcinoma. No other Cr(VI) compounds produced more than five percent tumor incidence. The highly soluble sodium dichromate under the same experimental conditions caused bronchogenic carcinoma in only a single rat.

The higher relative potency of the slightly soluble calcium chromate compared to the highly soluble sodium dichromate was confirmed in another study in which each test compound was instilled at a low dose level (i.e., 0.25 mg/kg) in the trachea of 80 rats five times weekly for 30 months (Ex. 11–7). Using this experimental protocol, 7.5 percent of the slightly soluble calcium chromate-treated animals developed brochioalveolar adenomas while none of the highly soluble sodium dichromate-treated rats developed tumors. The tumor incidence at this lower dose level occurred in the absence of serious lung pathology and is believed to reflect the tumorigenic potential of the two Cr(VI) compounds at workplace exposures of interest to OSHA. On the other hand, a five-fold higher dose level that caused severe damage and chronic inflammation to the rat lungs produced a similar fifteen percent lung tumor incidence in both calcium and sodium chromate treated rats. OSHA, as well as the study authors, believe the later tumor response with the higher dose level did not result from direct Cr(VI) interaction with cellular genes, but, instead, was primarily driven by the cellular hyperplasia secondary to the considerable damage to the lung tissue. Boeing also seems to attribute this result to tissue damage stating ''most of the tumors were found in areas of chronic inflammation and scarring, suggesting an effect that is secondary to tissue damage'' (Ex. 38–106–2, p. 21).

OSHA does not agree with some study interpretations advanced by Boeing in support of their position that slightly soluble Cr(VI) compounds are no more carcinogenic than highly soluble Cr(VI). For example, Boeing claims that the intrabronchial implantation experiments cannot be relied upon because the results do not correspond to findings from animal inhalation studies (Ex. 38–106–2, p. 24–25). The primary basis for the Boeing comparison were two rodent bioassays that reported tumor incidence from the inhalation of different Cr(VI) compounds (Exs. 10–8; 10–11). In one study over 200 mice inhaled slightly soluble calcium chromate powder for five hours per day, five days per week for roughly two years (Ex. 10–8). In the other study, 19 rats inhaled an aqueous sodium dichromate liquid aerosol virtually around the clock for 22 hours a day, seven days a week for eighteen months (Ex. 10–11). The two studies reported a similar tumor incidence despite the lower total weekly Cr(VI) dose of sodium dichromate in the second study. OSHA believes the vastly different experimental protocols employed in these studies do not allow for a legitimate comparison of carcinogenic potency between Cr(VI) compounds. First, mouse and rat strains can differ in their susceptibility to chemical-induced lung tumors. Second, the proportion of respirable Cr(VI) may differ between a liquid aerosol of aqueous sodium dichromate mist and an aerosol solid calcium chromate particles suspended in air. Third, the opportunity for Cr(VI) clearance will undoubtedly differ between a Cr(VI) dose inhaled nearly continuously (e.g., 22 hours per day, seven days a week) and inhaled intermittently (e.g., five hours a day, five days a week) over the course of a week. These experimental variables can be expected to have a major influence on tumor response and, thus, will obscure a true comparison of carcinogenic potency. Boeing acknowledges that ''these [inhalation] studies used very different protocols and are not directly comparable'' (Ex. 38–106–2, p.24). On the other hand, slightly soluble Cr(VI) compounds were found to cause a greater incidence of lung tumors than highly soluble Cr(VI) compounds in two independent studies in which the test compounds were instilled under the same dosing regime in the same rodent models in research specifically designed to assess relative Cr(VI) carcinogenic potency (Exs. 11–2; 11–7). Therefore, OSHA believes any apparent lack of correspondence between animal inhalation and instillation studies is due to an inability to compare inhalation data from vastly different experimental protocols and should not diminish the relevance of the instillation findings.

Epidemiological Studies of Slightly Soluble Cr(VI) Compounds—Boeing further argues that the greater carcinogenic potency experienced by rats intrabronchially instilled with slightly soluble chromates compared to rats instilled with highly soluble and water-insoluble Cr(VI) compounds ''do not correspond qualitatively to observed lung cancer in occupational exposure'' (Ex. 38–106–2, p. 21). Several other industry stakeholders disagree. In explaining the excess lung cancer mortality among pigment production workers, CPMA commented:

> [water-insoluble] Lead chromate pigments must be differentiated from [slightly soluble] zinc chromate corrosion inhibitor additives, which are consistently shown to be carcinogenic in various studies. When [water insoluble] lead chromate and [slightly soluble] zinc chromate exposures occur simultaneously, there appears to be a significant cancer hazard. However, when lead chromate pigments alone are the source of chromium exposure, a significant cancer response has never been found (Ex. 38–205, p. 91).

In explaining the excess lung cancer mortality among chromate production workers in the Gibb and Luippold cohorts, the Electric Power Research Institute states that:

> One important distinction is that workers of the historical chromate production industry were exposed to sparingly soluble forms of calcium chromate in the roast mix, which are recognized to have greater carcinogenic potential as compared to soluble forms of Cr(VI) based on animal implantation studies (Ex. 38–8, p. 12).

Deborah Proctor of Exponent also testified:

> Several studies of chromate production worker cohorts have demonstrated that the excess cancer risk is reduced when less lime is added to the roast mixture, reducing worker exposure to the sparingly soluble calcium chromate compounds'' (Ex. 40–12–5).

OSHA believes there is merit to the above comments that workplace exposure to slightly soluble Cr(VI) compounds may have contributed to the higher lung cancer mortality in both pigments workers producing mixed zinc and lead chromate pigments as well as

chromate production workers exposed to calcium chromate from high lime production processes in the 1930s and 1940s. Other factors, such as greater Cr(VI) exposure, probably also contributed to the higher lung cancer mortality observed in these cohorts. In any case, these epidemiological findings support the Boeing contention that the epidemiological findings are inconsistent with the results from animal intrabronchial implantation studies (Ex. 38–106–2, p. 26).

Clearance, Retention, and Dissolution of Slightly Soluble Cr(VI) Compounds in the Lung—Boeing argues that animal experiments that examined the absorption, distribution and excretion of Cr(VI) compounds after intratracheal instillation of Cr(VI) compounds in rats do not show that highly soluble Cr(VI) is cleared more rapidly or retained in the lung for shorter periods than slightly soluble Cr(VI) compounds (Ex. 38–106–2, p. 18–19). The results of one study found that larger amounts of water-insoluble lead chromate were retained in the lungs of rats at both 30 minutes and at 50 days after instillation than for highly soluble sodium chromate or slightly soluble zinc chromate (Ex. 35–56). Although the authors concluded that slightly soluble zinc chromate was more slowly absorbed from the lung than the highly soluble sodium chromate, the excretion and distribution of the absorbed chromium from the zinc and sodium chromate instillations was similar. Furthermore, there was little difference in the amounts of zinc and sodium chromate retained by the lung at the two extreme time points (e.g., 30 minutes and 50 days) measured in the study. OSHA agrees with Boeing that these findings indicate slower clearance and longer retention in the lung of the water insoluble lead chromate relative to highly soluble sodium chromate, but not in the case of the slightly soluble zinc chromate. Slower clearance and longer residence time in the lung will generally enhance carcinogenic potential assuming other dosimetric variables such as lung deposition, Cr(VI) concentration at the lung cell surface, and dissociation into chromate ion are unchanged.

Boeing asserts that a study of strontium chromate dissociation from paint primer contradicts the notion that slightly soluble are more likely than highly soluble Cr(VI) compounds to concentrate and dissociate at the lung cell surface (Ex. 38–106–2, p. 25). This experimental research found that roughly 75 and 85 percent of strontium chromate contained in metal surface primer coating particles was solubilized in water after one and 24 hours, respectively (Ex. 31–2–1). The primer particles were generated using a high volume, low pressure spray gun according to manufacturer specifications, and collected in water impingers. The authors concluded that their study demonstrated that chromate dissociation from primer particles into the aqueous fluid lining lung cells would be modestly hindered relative to highly water soluble Cr(VI) aerosols.

The slower dissociation of the slightly soluble Cr(VI) compound, strontium chromate, plausibly explains its higher carcinogenicity in animal implantation studies. The 'modest hindrance' allows the undissociated chromate to achieve higher concentrations at the surface of the lung cells facilitating chromate transport into the cell. The unhindered, instantaneous dispersion of highly water soluble chromates in aqueous fluid lining of the respiratory tract is less likely to achieve a high chromate concentration at the lung cell membrane. OSHA believes the results of the above study support, not contradict, that slightly soluble Cr(VI) may lead to higher chromium uptake into lung cells than highly soluble Cr(VI) compounds.

In summary, slightly soluble Cr(VI) compounds have consistently caused higher lung tumor incidence in animal instillation studies specifically designed to examine comparative carcinogenic potency in the respiratory tract. The higher carcinogenic activity of slightly soluble Cr(VI) is consistent with cellular studies that indicate that chromate dissociation in close proximity to the lung cell surface may be a critical feature to efficient chromate ion uptake. This is probably best achieved by Cr(VI) compounds that have intermediate water solubility rather than by highly water-soluble Cr(VI) that rapidly dissolves and diffuses in the aqueous fluid layers lining the respiratory tract. The higher carcinogenicity of slightly soluble Cr(VI) may contribute, along with elevated Cr(VI) workplace exposures, to the greater lung cancer mortality in certain occupational cohorts exposed to both slightly soluble and other forms of Cr(VI). The vastly different study protocols employed in the few animal inhalation bioassays do not allow a valid comparison of lung tumor incidence between slightly soluble and highly soluble Cr(VI) compounds.

b. Summary of Cr(VI) Carcinogenicity

After carefully considering all the epidemiological, animal and mechanistic evidence presented in the rulemaking record, OSHA regards all Cr(VI) compounds as agents able to induce carcinogenesis through a genotoxic mode of action. This position is consistent with findings of IARC, EPA, and ACGIH that classified Cr(VI) compounds as known or confirmed human carcinogens. Based on the above animal and experimental evidence, OSHA believes that slightly soluble Cr(VI) compounds are likely to exhibit a greater degree of carcinogenicity than highly water soluble or water insoluble Cr(VI) when the same dose is delivered to critical target cells in the respiratory tract of the exposed worker. In its evaluation of different Cr(VI) compounds, ACGIH recommended lower occupational exposure limits for the slightly soluble strontium chromate (TLV of 0.5 $\mu g/m^3$) and calcium chromate (TLV of 1 $\mu g/m^3$) than either water insoluble (TLV of 10 $\mu g/m^3$) or water soluble (TLV of 50 $\mu g/m^3$) forms of Cr(VI) based on the animal instillation studies cited above. While these animal instillation studies are useful for hazard identification and qualitative determinations of relative potency, they cannot be used to determine a reliable quantitative estimate of risk for human workers breathing these chromates during occupational exposure. This was due to use of inadequate number of dose levels (e.g., single dose level) or a less appropriate route of administration (e.g., tracheal instillation).

It is not clear from the animal or cellular studies whether the carcinogenic potency of water insoluble Cr(VI) compounds would be expected to be more or less than highly water soluble Cr(VI). However, it was found that a greater percentage of water insoluble lead chromate remains in the lungs of rats for longer periods than the highly water soluble sodium chromate when instilled intratracheally at similar doses (Ex. 35–56). Since water insoluble lead chromate can persist for long periods in the lung and increase intracellular levels of Cr and damage DNA in human lung cells at low doses (e.g., 0.1 $\mu g/cm^2$), OSHA believes that based on the scientific evidence discussed above it is reasonable to regard the water insoluble Cr(VI) to be of similar carcinogenic potency to highly soluble Cr(VI) compounds. No convincing scientific evidence was introduced into the record that shows lead chromate to be less carcinogenic than highly soluble chromate compounds.

C. Non-cancer Respiratory Effects

The following sections describe the evidence from the literature on nasal irritation, nasal ulcerations, nasal perforations, asthma, and bronchitis following inhalation exposure to water

soluble Cr(VI) compounds. The evidence clearly demonstrates that workers can develop impairment to the respiratory system (nasal irritation, nasal ulceration, nasal perforation, and asthma) after workplace exposure to Cr(VI) compounds below the previous PEL.

It is very clear from the evidence that workers may develop nasal irritation, nasal tissue ulcerations, and nasal septum perforations at occupational exposures level at or below the current PEL of 52 μg/m³. However, it is not clear what occupational exposure levels lead to the development of occupational asthma or bronchitis.

1. Nasal Irritation, Nasal Tissue Ulcerations and Nasal Septum Perforations

Occupational exposure to Cr(VI) can lead to nasal tissue ulcerations and nasal septum perforations. The nasal septum separates the nostrils and is composed of a thin strip of cartilage. The nostril tissue consists of an overlying mucous membrane known as the mucosa. The initial lesion after Cr(VI) exposure is characterized by localized inflammation or a reddening of the affected mucosa, which can later lead to atrophy. This may progress to an ulceration of the mucosa layer upon continued exposure (Ex. 35–1; Ex. 7–3). If exposure is discontinued, the ulcer progression will stop and a scar may form. If the tissue damage is sufficiently severe, it can result in a perforation of the nasal septum, sometimes referred to chrome hole. Individuals with nasal perforations may experience a range of signs and symptoms, such as a whistling sound, bleeding, nasal discharge, and infection. Some individuals may experience no noticeable effects.

Several cohort and cross-sectional studies have described nasal lesions from airborne exposure to Cr(VI) at various electroplating and chrome production facilities. Most of these studies have been reviewed by the Center for Disease Control's Agency for Toxic Substances and Disease Registry (ATSDR) toxicological profile for chromium (Ex. 35–41). OSHA reviewed the studies summarized in the profile, conducted its own literature search, and evaluated studies and comments submitted to the rulemaking record. In its evaluation, OSHA took into consideration the exposure regimen and experimental conditions under which the studies were performed, including exposure levels, duration of exposure, number of animals, and the inclusion of appropriate control groups. Studies were not included if they did not contribute to the weight of evidence either because of inadequate documentation or because of poor quality. This section only covers some of the key studies and reviews. OSHA has also identified two case reports demonstrating the development of nasal irritation and nasal septum perforations, and these case reports are summarized as well. One case report shows how a worker can develop the nasal perforations from direct contact (*i.e.*, touching the inner surface of the nose with contaminated fingers).

Lindberg and Hedenstierna examined the respiratory symptoms and effects of 104 Swedish electroplaters (Ex. 9–126). Of the 104 electroplaters, 43 were exposed to chromic acid by inhalation. The remaining 61 were exposed to a mixture of chromic acid and nitric acid, hydrochloric acid, boric acid, nickel, and copper salts. The workers were evaluated for respiratory symptoms, alterations in the condition of the nasal tissue, and lung function. All workers were asked to fill out a detailed questionnaire on their history of respiratory symptoms and function. Physicians performed inspections of the nasal passages of each worker. Workers were given a pulmonary function test to assess lung function. For those 43 workers exposed exclusively to chromic acid, the median exposure time was 2.5 years, ranging from 0.2 to 23.6 years. The workers were divided into two groups, a low exposure group (19 workers exposed to eight-hour time weighted average levels below 2 μg/m³) and a high exposure group (24 workers exposed to eight-hour time weighted average levels above 2 μg/m³). Personal air sampling was conducted on 11 workers for an entire week at stations close to the chrome baths to evaluate peak exposures and variations in exposure on different days over the week. Nineteen office employees who were not exposed to Cr(VI) were used as controls for nose and throat symptoms, and 119 auto mechanics (no car painters or welders) whose lung function had been evaluated using similar techniques to those used on Cr(VI) exposed workers were used as controls for lung function.

The investigators reported nasal tissue ulcerations and septum perforations in a group of workers exposed to chromic acid as Cr(VI) at peak exposure ranging from 20 μg/m³ to 46 μg/m³. The prevalence of ulceration/perforation was statistically higher than the control group. Of the 14 individuals in the 20–46 μg/m³ exposure group, 7 developed nasal ulcerations. In addition to nasal ulcerations, 2 of the 7 also had nasal perforations. Three additional individuals in this group developed nasal perforations in the absence of ulcerations. None of the 14 workers in the 20–46 μg/m³ exposure group were reported to have nasal tissue atrophy in the absence of the more serious ulceration or perforation.

At average exposure levels from 2 μg/m³ to 20 μg/m³, half of the workers complained of ''constantly running nose,'' ''stuffy nose,'' or ''there was a lot to blow out.'' (Authors do not provide details of each complaint). Nasal tissue atrophy, in the absence of ulcerations or perforations, was observed in 66 percent of occupationally exposed workers (8 of 12 subjects) at relatively low peak levels ranging from 2.5 μg/m³ to 11 μg/m³. No one exposed to levels below 1 μg/m³ (time-weighted average, TWA) complained of respiratory symptoms or developed lesions.

The authors also reported that in the exposed workers, both forced vital capacity and forced expiratory volume in one second were reduced by 0.2 L, when compared to controls. The forced mid-expiratory flow diminished by 0.4 L/second from Monday morning to Thursday afternoon in workers exposed to chromic acid as Cr(VI) at daily TWA average levels of 2 μg/m³ or higher. The effects were small, not outside the normal range and transient. Workers recovered from the effects after two days. There was no difference between the control and exposed group after the weekend. The workers exposed to lower levels (2 μg/m³ or lower, TWA) showed no significant changes.

Kuo *et al.* evaluated nasal septum ulcerations and perforations in 189 electroplaters in 11 electroplating factories (three factories used chromic acid, six factories used nickel-chromium, and two factories used zinc) in Taiwan (Ex. 35–10). Of the 189 workers, 26 used Cr(VI), 129 used nickel-chromium, and 34 used zinc. The control group consisted of electroplaters who used nickel and zinc. All workers were asked to fill out a questionnaire and were given a nasal examination including a lung function test by a certified otolaryngologist. The authors determined that 30% of the workers (8/26) that used chromic acid developed nasal septum perforations and ulcerations and 38% (10/26) developed nasal septum ulcers. Using the Mantel Extension Test for Trends, the authors also found that chromium electroplaters had an increased likelihood of developing nasal ulcers and perforations compared to electroplating workers using nickel-chromium and zinc. Personal sampling of airborne Cr(VI) results indicated the highest levels (32 μg/m³ ± 35 μg/m³, ranging from 0.1 μg/m³–119 μg/m³) near the electroplating tanks of the Cr(VI) electroplating

factories (Ex. 35–11). Much lower personal sampling levels were reported in the ''other areas in the manufacturing area'' and in the ''administrative area'' (TWA 0.16 ± 0.10 μg/m³) of the Cr(VI) electroplating plant. The duration of sampling was not indicated. The lung function tests showed that Cr(VI) electroplaters had significantly lower forced vital capacity and forced expiratory volume when compared to other exposure groups.

Cohen *et al.* examined respiratory symptoms of 37 electroplaters following inhalation exposure to chromic acid (Ex. 9–18). The mean length of employment for the 37 electroplaters was 26.9 months (range from 0.3 to 132 months). Fifteen workers employed in other parts of the plant were randomly chosen for the control group (mean length of employment was 26.1 months; range from 0.1 to 96). All workers were asked to fill out a questionnaire on their respiratory history and to provide details about their symptoms. An otolaryngologist then examined each individual's nasal passages and identified ulcerations and perforations. Air samples to measure Cr(VI) were collected for electroplaters. The air sampling results of chromic acid as Cr(VI) concentrations for electroplaters was a mean of 2.9 μg/m³ (range from non-detectable to 9.1 μg/m³). The authors found that 95% of the electroplaters developed pathologic changes in nasal mucosa. Thirty-five of the 37 workers who were employed for more than 1 year had nasal tissue damage. None of these workers reported any previous job experience involving Cr(VI) exposure. Four workers developed nasal perforations, 12 workers developed ulcerations and crusting of the septal mucosa, 11 workers developed discoloration of the septal mucosa, and eight workers developed shallow erosion of septal mucosa. The control group consisted of 15 workers who were not exposed to Cr(VI) at the plant. All but one had normal nasal mucosa. The one individual with an abnormal finding was discovered to have had a previous Cr(VI) exposure while working in a garment manufacturing operation as a fabric dyer for three years. In addition to airborne exposure, the authors observed employees frequently wiping their faces and picking their noses with contaminated hands and fingers. Many did not wear any protective gear, such as gloves, glasses, or coveralls.

Lucas and Kramkowsi conducted a Health Hazard Evaluation (HHE) on 11 chrome platers in an industrial electroplating facility (Ex. 3–84). The electroplaters worked for about 7.5 years on average. Physicians evaluated each worker for chrome hole scars, nasal septum ulceration, mucosa infection, nasal redness, perforated nasal septum, and wheezing. Seventeen air samples for Cr(VI) exposure were collected in the chrome area. Cr(VI) air concentrations ranged from 1 to 20 μg/m³, with an average of 4 μg/m³. In addition to airborne exposure, the authors observed workers being exposed to Cr(VI) by direct ''hand to nose'' contact, such as touching the nose with contaminated hands. Five workers had nasal mucosa that became infected, two workers had nasal septum ulcerations, two workers had atrophic scarring (author did not provide explanation), possibly indicative of presence of past ulcerations, and four workers had nasal septum perforations.

Gomes evaluated 303 employees from 81 electroplating operations in Sao Paulo, Brazil (Ex. 9–31). Results showed that more than two-thirds of the workers had nasal septum ulcerations and perforations following exposure to chromic acid at levels greater than 100 μg/m³, but less than 600 μg/m³ (precise duration of exposure was not stated). These effects were observed within one year of employment.

Lin *et al.* examined nasal septum perforations and ulcerations in 79 electroplating workers from seven different chromium electroplating factories in Taipei, Taiwan (Ex.35–13). Results showed six cases of nasal septum perforations, four having scar formations, and 38 cases of nasal septum ulcerations following inhalation exposure to chromic acid. Air sampling near the electroplating tanks had the highest range of chromic acid as Cr(VI) (mean of 28 μg/m³; range from 0.7 to 168.3 μg/m³). In addition to airborne exposures, the authors also observed direct ''hand to nose'' contact where workers placed contaminated fingers in their nose. The authors attributed the high number of cases to poor industrial hygiene practices in the facilities. Five of the seven factories did not have adequate ventilation systems in place. Workers did not wear any PPE, including respirators.

Bloomfield and Blum evaluated nasal tissue damage and nasal septum perforations in 23 workers employed at six chromium electroplating plants (Ex. 9–13). They found that daily exposure to chromic acid as Cr(VI) at levels of 52 μg/m³ or higher can lead to nasal tissue damage. Three workers developed nasal ulcerations, two workers had nasal perforations, nine workers had nose bleeds, and nine workers had inflamed mucosa.

Kleinfeld and Rosso found that seven out of nine of chrome electroplaters had nasal septum ulcerations (Ex. 9–41). The nine workers were exposed to chromic acid as Cr(VI) by inhalation at levels ranging from 93 μg/m³ to 728 μg/m³. Duration of exposure varied from two weeks to one year. Nasal septum ulcerations were noted in some workers who had been employed for only one month.

Royle, using questionnaire responses from 997 British electroplaters exposed to chromic acid, reported a significant increase in the prevalence of nasal ulcerations. The prevalence increased the longer the worker was exposed to chromic acid (*e.g.*, from 14 cases with exposure less than one year to 62 cases with exposure over five years) (Ex. 7–50). In all but 2 cases, air samples revealed chromic acid concentrations of 0.03 mg/m³ (*i.e.*, 30 μg/m³).

Gibb *et al.* reported nasal irritations, nasal septum bleeding, nasal septum ulcerations and perforations among a cohort of 2,350 chrome production workers in a Baltimore plant (Ex. 31–22–12). A description of the cohort is provided in detail in the cancer health effects section V.B. of this preamble. The authors found that more than 60% of the cohort had experienced nasal ulcerations and irritations, and that the workers developed these effects for the first time within the first three months of being hired (median). Gibb *et al.* found that the median annual exposure to Cr(VI) during first diagnosis of irritated and/or ulcerated nasal septum was 10 μg/m³. About 17% of the cohort reported nasal perforations. Based on historical data, the authors believe that the nasal findings are attributable to Cr(VI) exposure.

Gibb *et al.* also used a Proportional Hazard Model to evaluate the relationship between Cr(VI) exposure and the first occurrence of each of the clinical findings. Cr(VI) data was entered into the model as a time dependent variable. Other explanatory variables were calendar year of hire and age of hire. Results of the model indicated that airborne Cr(VI) exposure was associated with the occurrence of nasal septum ulceration ($p = 0.0001$). The lack of an association between airborne Cr(VI) exposure and nasal perforation and bleeding nasal septum may reflect the fact that Cr(VI) concentrations used in the model represent annual averages for the job, in which the worker was involved in at the time of the findings, rather than a short-term average. Annual averages do not factor in day-to-day fluctuations or extreme episodic occurrences. Also, the author believed that poor housekeeping

and hygiene practices may have contributed to these health effects as well as Cr(VI) air borne concentrations.

Based on their hazard model, Gibb *et al.* estimated the relative risks for nasal septum ulcerations would increase 1.2 for each 52 μg of Cr(VI)/m³ increase in Cr(VI) air levels. They found a reduction in the incidence of nasal findings in the later years. They found workers from the earlier years who did not wear any PPE had a greater risk of developing respiratory problems. They believe that the reduction in ulcerations was possibly due to an increased use of respirators and protective clothing and improved industrial hygiene practices at the facility.

The U.S. Public Health Service conducted a study of 897 chrome production workers in seven chromate producing plants in the early 1950s (Ex. 7–3). The findings of this study were used in part as justification for the current OSHA PEL. Workers were exposed by inhalation to various water soluble chromates and bichromate compounds. The total mean exposure to the workers was a TWA of 68 μg/m³. Of the 897 workers, 57% (or 509 workers) were found to have nasal septum perforations. Nasal septum perforations were even observed in workers during their first year on the job.

Case reports provide further evidence that airborne exposure and direct ''hand to nose'' contact of Cr(VI) compounds lead to the development of nasal irritation and nasal septum perforations.

For example, a 70-year-old man developed nasal irritation, incrustation, and perforation after continuous daily exposure by inhalation to chromium trioxide (doses were not specified, but most likely quite high given the nature of his duties). This individual inhaled chromium trioxide daily by placing his face directly over an electroplating vessel. He worked in this capacity from 1934 to 1982. His symptoms continued to worsen after he stopped working. By 1991, he developed large perforations of the nasal septum and stenosis (or constriction) of both nostrils by incrustation (Ex. 35–8).

Similarly, a 30-year-old female jigger (a worker who prepares the items prior to electroplating by attaching the items to be plated onto jigs or frames) developed nasal perforation in her septum following continuous exposure (doses in this case were not provided) to chromic acid mists. She worked adjacent to the automated Cr(VI) electroplating shop. She was also exposed to chromic acid from direct contact when she placed her contaminated fingers in her nose. Her hands became contaminated by handling wet components in the jigging and de-jigging processes (Ex. 35–24).

Evidence of nasal septum perforations has also been demonstrated in experimental animals. Adachi exposed 23 C57BL mice to chromic acid by inhalation at concentrations of 1.81 mg Cr(VI)/m³ for 120 min per day, twice a week and 3.63 mg Cr(VI)/m³ for 30 minutes per day, two days per week for up to 12 months (Ex. 35–26). Three of the 23 mice developed nasal septum perforations in the 12 month exposure group.

Adachi *et al.* also exposed 50 ICR female mice to chromic acid by inhalation at concentrations of 3.18 mg Cr(VI)/m³ for 30 minutes per day, two days per week for 18 months (Ex. 35–26–1). The authors used a miniaturized chromium electroplating system to mimic electroplating processes and exposures similar to working experience. Nasal septum perforations were found in six mice that were sacrificed after 10 months of exposure. Of those mice that were sacrificed after 18 months of exposure, nasal septum perforations were found in three mice.

2. Occupational Asthma

Occupational asthma is considered ''a disease characterized by variable airflow limitation and/or airway hyperresponsiveness due to causes and conditions attributable to a particular occupational environment and not to stimuli encountered outside the workplace'' (Ex. 35–15). Asthma is a serious illness that can damage the lungs and in some cases be life threatening. The common symptoms associated with asthma include heavy coughing while exercising or when resting after exercising, shortness of breath, wheezing sound, and tightness of chest (Exs. 35–3; 35–6).

Cr(VI) is considered to be an airway sensitizer. Airway sensitizers cause asthma through an immune response. The sensitizing agent initially causes production of specific antibodies that attach to cells in the airways. Subsequent exposure to the sensitizing agent, such as Cr(VI), can trigger an immune-mediated narrowing of the airways and onset of bronchial inflammation. All exposed workers do not become sensitized to Cr(VI) and the asthma only occurs in sensitized individuals. It is not clear what occupational exposure levels of Cr(VI) compounds lead to airway sensitization or the development of occupational asthma.

The strongest evidence of occupational asthma has been demonstrated in four case reports. OSHA chose to focus on these four case reports because the data from other occupational studies do not exclusively implicate Cr(VI). The four case reports have the following in common: (1) The worker has a history of occupational exposure exclusively to Cr(VI); (2) a physician has confirmed a diagnosis that the worker has symptoms consistent with occupational asthma; and (3) the worker exhibits functional signs of air restriction (*e.g.*, low forced expiratory volume in one second or low peak expiratory flow rate) upon bronchial challenge with Cr(VI) compounds. These case reports demonstrate, through challenge tests, that exposure to Cr(VI) compounds can cause asthmatic responses. The other general case reports below did not use challenge tests to confirm that Cr(VI) was responsible for the asthma; however, these reports came from workers similarly exposed to Cr(VI) such that Cr(VI) is likely to have been a contributing factor in the development of their asthmatic symptoms.

DaReave reported the case of a 48-year-old cement floorer who developed asthma from inhaling airborne Cr(VI) (Ex. 35–7). This worker had been exposed to Cr(VI) as a result of performing cement flooring activities for more than 20 years. The worker complained of dyspnea, shortness of breath, and wheezing after work, especially after working in enclosed spaces. The Cr(VI) content in the cement was about 12 ppm. A bronchial challenge test with potassium dichromate produced a 50% decrease in forced expiratory volume in one second. The occupational physician concluded that the worker's asthmatic condition, triggered by exposure to Cr(VI) caused the worker to develop bronchial constriction.

LeRoyer reported a case of a 28-year-old roofer who developed asthma from breathing dust while sawing material made of corrugated fiber cement containing Cr(VI) for nine years (Ex. 35–12). This worker demonstrated symptoms such as wheezing, shortness of breath, coughing, rhinitis, and headaches while working. Skin prick tests were all negative. Several inhalation challenges were performed by physicians and immediate asthmatic reactions were observed after nebulization of potassium dichromate. A reduction (by 20%) in the forced expiratory volume in one second after exposure to fiber cement dust was noted.

Novey *et al.* reported a case of a 32-year-old electroplating worker who developed asthma from working with chromium sulfate and nickel salts (Ex. 35–16). He began experiencing coughs,

wheezing, and dyspnea within the first week of exposure. Separate inhalation challenge tests given by physicians using chromium sulfate and nickel salts resulted in positive reactions. The worker immediately had difficulty breathing and started wheezing. The challenges caused the forced expiratory volume in 1 second to decrease by 22% and the forced expiratory volume in 1 second/forced vital capacity ratio to decrease from 74.5% to 60.4%. The author believes the worker's bronchial asthma was induced from inhaling chromium sulfate and nickel salts. Similar findings were reported in a different individual by Sastre (Ex.35–20).

Shirakawa and Morimoto reported a case of a 50-year-old worker who developed asthma while working at a metal-electroplating plant (Ex. 35–21). Bronchial challenge by physicians produced positive results when using potassium bichromate, followed by a rapid recovery within 5 minutes, when given no exposures. The worker's forced expiratory volume in one second dropped by 37% after inhalation of potassium bichromate. The individual immediately began wheezing, coughing with dyspnea, and recovered without treatment within five minutes. The author believes that the worker developed his asthma from inhaling potassium bichromate.

In addition to the case reports confirming that Cr(VI) is responsible for the development of asthma using inhalation challenge tests, there are several other case reports of Cr(VI) exposed workers having symptoms consistent with asthma where the symptoms were never confirmed by using inhalation challenge tests.

Lockman reported a case of a 41-year-old woman who was occupationally exposed to potassium dichromate during leather tanning (Ex. 35–14). The worker developed an occupational allergy to potassium dichromate. This allergy involved both contact dermatitis and asthma. The physicians considered other challenge tests using potassium dichromate as the test agent (*i.e.*, peak expiratory flow rate, forced expiratory volume in 1 second and methacholine or bronchodilator challenge), but the subject changed jobs before the physicians could administer these tests. Once the subject changed jobs, all her symptoms disappeared. It was not confirmed whether the occupational exposure to Cr(VI) was the cause of the asthma.

Williams reported a 23-year-old textile worker who was occupationally exposed to chromic acid. He worked near two tanks of chromic acid solutions (Ex. 35–23) and inhaled fumes while frequently walking through the room with the tanks. He developed both contact dermatitis and asthma. He believes the tank was poorly ventilated and was the source of the fumes. He stopped working at the textile firm on the advice of his physician. After leaving, his symptoms improved greatly. No inhalation bronchial challenge testing was conducted to confirm that chromic acid was causing his asthmatic attacks. However, as noted above, chromic acid exposure has been shown to lead to occupational asthma, and thus, chromic acid was likely to be a causative agent in the development of asthma.

Park *et al.* reported a case of four workers who worked in various occupations involving exposure to either chromium sulfate or potassium dichromate (Ex. 35–18). Two worked in a metal electroplating factory, one worked at a cement manufacturer, and the other worked in construction. All four developed asthma. One individual had a positive response to a bronchial provocation test (with chromium sulfate as the test agent). This individual developed an immediate reaction, consisting of wheezing, coughing and dyspnea, upon being given chromium sulfate as the test agent. Peak expiratory flow rate decreased by about 20%. His physician determined that exposure to chromium sulfate was contributing to his asthma condition. Two other individuals had positive reactions to prick skin tests with chromium sulfate as the test agent. Two had positive responses to patch tests using potassium dichromate as the testing challenge agent. Only one out of four underwent inhalation bronchial challenge testing (with a positive result to chromium sulfate) in this report.

3. Bronchitis

In addition to nasal ulcerations, nasal septum perforations, and asthma, there is also limited evidence from reports in the literature of bronchitis associated with Cr(VI) exposure. It is not clear what occupational exposure levels of Cr(VI) compounds would lead to the development of bronchitis.

Royle found that 28% (104/288) of British electroplaters developed bronchitis upon inhalation exposure to chromic acid, as compared to 23% (90/299) controls (Ex. 7–50). The workers were considered to have bronchitis if they had symptoms of persistent coughing and phlegm production. In all but two cases of bronchitis, air samples revealed chromic acid at levels of 0.03 mg/m^3. Workers were asked to fill out questionnaires to assess respiratory problems. Self-reporting poses a problem in that the symptoms and respiratory health problems identified were not medically confirmed by physicians. Workers in this study believe they were developing bronchitis, but it is not clear from this study whether the development of bronchitis was confirmed by physicians. It is also difficult to assess the bronchitis health effects of chromic acid from this study because the study results for the exposed (28%) and control groups (23%) were similar.

Alderson *et al.* reported 39 deaths of chromate production workers related to chronic bronchitis from three chromate producing factories (Bolton, Eaglescliffe, and Rutherglen) from 1947 to 1977 (Ex. 35–2). Neither the specific Cr(VI) compound nor the extent or frequency with which the workers were exposed were specified. However, workers at all three factories were exposed to sodium chromate, chromic acid, and calcium chromate at one time or another. The authors did not find an excess number of bronchitis related deaths at the Bolton and Eaglescliffe factories. At Rutherglen, there was an excess number of deaths (31) from chronic bronchitis with a ratio of observed/expected of 1.8 ($p<0.001$). It is difficult to assess the respiratory health effects of Cr(VI) compounds from this study because there are no exposure data, there are no data on smoking habits, nor is it clear the extent, duration, and amount of specific Cr(VI) compound to which the workers were exposed during the study.

While the evidence supports an association between bronchitis and Cr(VI) exposure is limited, studies in experimental animals demonstrate that Cr(VI) compounds can cause lung irritation, inflammation in the lungs, and possibly lung fibrosis at various exposure levels. Glaser *et al.* examined the effects of inhalation exposure of chromium (VI) on lung inflammation and alveolar macrophage function in rats (Ex. 31–18–9). Twenty, 5-week-old male TNO–W–74 Wistar rats were exposed via inhalation to 25–200 μg Cr(VI)/m^3 as sodium dichromate for 28 days or 90 days for 22 hours per day, 7 days per week in inhalation chambers. Twenty, 5-week-old male TNO–W–74 Wistar rats also served as controls. All rats were killed at the end of the inhalation exposure period. The authors found increased lung weight in the 50–200 μg/m^3 groups after the 90-day exposure period. They also found that 28-day exposure to levels of 25 and 50 μg/m^3 resulted in ''activated'' alveolar macrophages with stimulated phagocytic activities. A more pronounced effect on the activation of

alveolar macrophages was seen during the 90-day exposure period of 25 and 50 μg/m^3.

Glaser *et al.* exposed 150 male, 8-week-old Wistar rats (10 rats per group) continuously by inhalation to aerosols of sodium dichromate at concentrations of 50, 100, 200, and 400 μg Cr(VI)/m^3 for 22 hours per day, 7 days a week, for continuous exposure for 30 days or 90 days in inhalation chambers (Ex. 31–18–11). Increased lung weight changes were noticeable even at levels as low as 50 and 100 μg Cr(VI)/m^3 following both 30 day and 90 day exposures. Significant accumulation of alveolar macrophages in the lungs was noted in all of the exposure groups. Lung fibrosis occurred in eight rats exposed to 100 μg Cr(VI)/m^3 or above for 30 days. Most lung fibrosis disappeared after the exposure period had ceased. At 50 μg Cr(VI)/m^3 or higher for 30 days, a high incidence of hyperplasia was noted in the lung and respiratory tract. The total protein in bronchoalveolar lavage (BAL) fluid, albumin in BAL fluid, and lactate dehydrogenase in BAL fluid were significant at elevated levels of 200 and 400 μg Cr(VI)/m^3 in both the 30 day and 90 day exposure groups (as compared to the control group). These responses are indicative of severe injury in the lungs of animals exposed to Cr(VI) dose levels of 200 μg Cr(VI)/m^3 and above. At levels of 50 and 100 μg Cr(VI)/m^3, the responses are indicative of mild inflammation in the lungs. The authors concluded that these results suggest that the severe inflammatory reaction may lead to more chronic and obstructive lesions in the lung.

4. Summary

Overall, there is convincing evidence to indicate that Cr(VI) exposed workers can develop nasal irritation, nasal ulcerations, nasal perforations, and asthma. There is also some limited evidence that bronchitis may occur when workers are exposed to Cr(VI) compounds at high levels. Most of the studies involved exposure to water-soluble Cr(VI) compounds. It is very clear that workers may develop nasal irritations, nasal ulcerations, and nasal perforations at levels below the current PEL of 52 μg/m^3. However, it is not clear what occupational exposure levels lead to disorders like asthma and bronchitis.

There are numerous studies in the literature showing nasal irritations, nasal perforations, and nasal ulcerations resulting from Cr(VI) inhalation exposure. It also appears that direct hand-to-nose contact (*i.e.*, by touching inner nasal surfaces with contaminated fingers) can contribute to the incidence of nasal damage. Additionally, some studies show that workers developed these nasal health problems because they did not wear any PPE, including respiratory protection. Inadequate area ventilation and sanitation conditions (lack of cleaning, dusty environment) probably contributed to the adverse nasal effects.

There are several well documented case reports in the literature describing occupational asthma specifically triggered by Cr(VI) in sensitized workers. All involved workers who frequently suffered symptoms typical of asthma (e.g. dyspnea, wheezing, coughing, etc.) while working in jobs involving airborne exposure to Cr(VI). In some of the reports, a physician diagnosed bronchial asthma triggered by Cr(VI) after specific bronchial challenge with a Cr(VI) aerosol produced characteristic symptoms and asthmatic airway responses. Several national and international bodies, such as the National Institute for Occupational Safety and Health, the World Health Organization's International Programme on Chemical Safety, and the United Kingdom Health and Safety Executive have recognized Cr(VI) as an airway sensitizer that can cause occupational asthma. Despite the widespread recognition of Cr(VI) as an airway sensitizer, OSHA is not aware of any well controlled occupational survey or epidemiological study that has found a significantly elevated prevalence of asthma among Cr(VI)-exposed workers. The level of Cr(VI) in the workplace that triggers the asthmatic condition and the number of workers at risk are not known.

The evidence that workers breathing Cr(VI) can develop respiratory disease that involve inflammation, such as asthma and bronchitis is supported by experimental animal studies. The 1985 and 1990 Glaser *et al.* studies show that animals experience irritation and inflammation of the lungs following repeated exposure by inhalation to water-soluble Cr(VI) at air concentrations near the previous PEL of 52 μg/m^3.

D. Dermal Effects

Occupational exposure to Cr(VI) is a well-established cause of adverse health effects of the skin. The effects are the result of two distinct processes: (1) Irritant reactions, such as skin ulcers and irritant contact dermatitis, and (2) delayed hypersensitivity (allergic) reactions. Some evidence also indicates that exposure to Cr(VI) compounds may cause conjunctivitis.

The mildest skin reactions consist of erythema (redness), edema (swelling), papules (raised spots), vesicles (liquid spots), and scaling (Ex. 35–313, p. 295). The lesions are typically found on exposed areas of the skin, usually the hands and forearms (Exs. 9–9; 9–25). These features are common to both irritant and allergic contact dermatitis, and it is generally not possible to determine the etiology of the condition based on histopathologic findings (Ex. 35–314). Allergic contact dermatitis can be diagnosed by other methods, such as patch testing (Ex. 35–321, p. 226). Patch testing involves the application of a suspected allergen to the skin, diluted in petrolatum or some other vehicle. The patch is removed after 48 hours and the skin examined at the site of application to determine if a reaction has occurred.

Cr(VI) compounds can also have a corrosive, necrotizing effect on living tissue, forming ulcers, or ''chrome holes'' (Ex. 35–315). This effect is apparently due to the oxidizing properties of Cr(VI) compounds (Ex. 35–318, p. 623). Like dermatitis, chrome ulcers generally occur on exposed areas of the body, chiefly on the hands and forearms (Ex. 35–316). The lesions are initially painless, and are often ignored until the surface ulcerates with a crust which, if removed, leaves a crater two to five millimeters in diameter with a thickened, hardened border. The ulcers can penetrate deeply into tissue and become painful. Chrome ulcers may penetrate joints and cartilage (Ex. 35–317, p. 138). The lesions usually heal in several weeks if exposure to Cr(VI) ceases, leaving a flat, atrophic scar (Ex. 35–318, p.623). If exposure continues, chrome ulcers may persist for months (Ex. 7–3).

It is generally believed that chrome ulcers do not occur on intact skin (Exs. 35–317, p. 138; 35–315; 35–25). Rather, they develop readily at the site of small cuts, abrasions, insect bites, or other injuries (Exs. 35–315; 35–318, p. 138). In experimental work on guinea pigs, Samitz and Epstein found that lesions were never produced on undamaged skin (Ex. 35–315). The degree of trauma, as well as the frequency and concentration of Cr(VI) application, was found to influence the severity of chrome ulcers.

The development of chrome ulcers does not appear to be related to the sensitizing properties of Cr(VI). Edmundson provided patch tests to determine sensitivity to Cr(VI) in 56 workers who exhibited either chrome ulcers or scars (Ex. 9–23). A positive response to the patch test was found in only two of the workers examined.

Parkhurst first identified Cr(VI) as a cause of allergic contact dermatitis in 1925 (Ex. 9–55). Cr(VI) has since been

confirmed as a potent allergen. Kligman (1966) used a maximization test (a skin test for screening possible contact allergens) to assess the skin sensitizing potential of Cr(VI) compounds (Ex. 35–327). Each of the 23 subjects was sensitized to potassium dichromate. On a scale of one to five, with five being the most potent allergen, Cr(VI) was graded as five (*i.e.*, an extreme sensitizer). This finding was supported by a guinea pig maximization test, which assigned a grade of four to potassium chromate using the same scale (Ex. 35–328).

1. Prevalence of Dermal Effects

Adverse skin effects from Cr(VI) exposure have been known since at least 1827, when Cumin described ulcers in two dyers and a chromate production worker (Ex. 35–317, p. 138). Since then, skin conditions resulting from Cr(VI) exposure have been noted in a wide range of occupations. Work with cement is regarded as the most common cause of Cr(VI)-induced dermatitis (Exs. 35–313, p. 295; 35–319; 35–320). Other types of work where Cr(VI)-related skin effects have been reported include chromate production, chrome plating, leather tanning, welding, motor vehicle assembly, manufacture of televisions and appliances, servicing of railroad locomotives, aircraft production, and printing (Exs. 31–22–12; 7–50; 9–31; 9–100; 9–63; 9–28; 9–95; 9–54; 35–329; 9–97; 9–78; 9–9; 35–330). Some of the important studies on Cr(VI)-related dermal effects in workers are described below.

a. Cement Dermatitis

Many workers develop cement dermatitis, including masons, tile setters, and cement workers (Ex. 35–318, p. 624). Cement, the basic ingredient of concrete, may contain several possible sources of chromium (Exs. 35–317, p.148; 9–17). Clay, gypsum, and chalk that serve as ingredients may contain traces of chromium. Ingredients may be crushed using chrome steel grinders that, with wear, contribute to the chromium content of the concrete. Refractory bricks in the kiln and ash residues from the burning of coal or oil to heat the kiln serve as additional sources. Trivalent chromium from these sources can be converted to Cr(VI) in the kiln (Ex. 35–317. p. 148).

The prevalence of cement dermatitis in groups of workers with regular contact with wet cement has been reported to be from 8 to 45 percent depending on the countries of origin, type of construction industry, and criteria used to diagnose dermatitis (Exs. 46–74, 9–131; 35–317, 9–57, 40–10–10). Cement dermatitis can be caused by direct irritation of the skin, by sensitization to Cr(VI), or both (Ex. 35–317, p. 147). The reported proportion of allergic and irritant contact dermatitis varies considerably depending on the information source. In a review of 16 different data sets, Burrows (1983) found that, on average, 80% of cement dermatitis cases were sensitized to Cr(VI) (Ex. 35–317, p. 148). The studies were mostly conducted prior to 1970 on European construction workers. More recent occupational studies suggest that Cr(VI) allergy may make up a smaller proportion of all dermatitis in construction workers, depending on the Cr(VI) content of the cement. For example, examination of 1238 German and Austrian construction workers in dermatitis units found about half those with occupational dermatitis were skin sensitized to Cr(VI) (Ex. 40–10–10). Several other epidemiological investigations conducted in the 1980s and 1990s also reported that allergic contact dermatitis made up 50 percent or less of all dermatitis cases in various groups of construction workers exposed to wet cement (Ex. 46–74).

Cement is alkaline, abrasive, and hydroscopic (water-absorbing), and it is likely that the irritant effect resulting from these properties interferes with the skin's defenses, permitting penetration and sensitization to take place more readily (Ex. 35–318, p. 624). Dry cement is considered relatively innocuous because it is not as alkaline as wet cement (Exs. 35–317, p. 147; 9–17). When water is mixed with cement the water liberates calcium hydroxide, causing a rise in pH (Ex. 35–317, p. 147).

Flyvholm *et al.* (1996) noted a correlation between the Cr(VI) concentration in the local cement and the frequency of allergic contact dermatitis (Ex. 35–326, p. 278). Because the Cr(VI) content depends partially upon the chromium concentration in raw materials, there is a great variability in the Cr(VI) content in cement from different geographical regions. In locations with low Cr(VI) content, the prevalence of Cr(VI)-induced allergic contact dermatitis was reported to be approximately one percent, while in regions with higher chromate concentrations the prevalence was reported to rise to between 9 to 11% of those exposed (Ex. 35–326, p. 278). For example, only one of 35 U.S. construction workers with confirmed cement dermatitis was reported to have a positive Cr(VI) patch test in a 1970 NIOSH study (Ex. 9–57). However, the same study revealed a low Cr(VI) content in 42 representative cement samples from U.S. companies (e.g 80 percent of the samples with C(VI) < 2 μg/g).

The relationship between Cr(VI) content in cement and the prevalence of Cr(VI)-induced allergic contact dermatitis is supported by the findings of Avnstorp (1989) in a study of Danish workers who had daily contact with wet cement during the manufacture of pre-fabricated concrete products (Ex. 9–131). Beginning in September of 1981, low concentrations of ferrous sulfate were added to all cement sold in Denmark to reduce Cr(VI) to trivalent chromium. Two hundred and twenty seven workers were examined in 1987 for Cr(VI)-related skin effects. The findings from these examinations were compared to the results from 190 workers in the same plants who were examined in 1981. The prevalence of hand eczema had declined from 11.7% to 4.4%, and the prevalence of Cr(VI) sensitization had declined from 10.5% to 2.6%. While the two-to four-fold drop in prevalence was statistically significant, the magnitude of the reduction may be overstated because the amount of exposure time was less in the 1987 than the 1981 group. There is also the possibility that other factors, in addition to ferrous sulfate, may have led to less dermal contact to Cr(VI), such as greater automation or less construction work. However, the study found no significant change in the frequency of irritant dermatitis.

Another study also found lower prevalence of allergic contact dermatitis among Finish construction workers following the 1987 decision to reduce Cr(VI) content of cement used in Finland to less than 2 ppm (Ex. 48–8). Ferrous sulfate was typically added to the cement to meet this requirement. There was a significantly decreased risk of allergic Cr(VI) contact dermatitis reported to the Finnish Occupational Disease Registry post-1987 as compared to pre-1987 (OR=0.4, 95% CI: 0.2–0.7) indicating the occurrence of disease dropped one-third after use of the low Cr(VI) content cement. On the other hand, the occurrence of irritant dermatitis remained stable throughout the study period. Time of exposure was not a significant explanatory variable in the analysis. However, the findings may have been somewhat confounded by changes in diagnostic procedure over time. The Finnish study retested patients previously diagnosed with prior patch test protocols and found several false positives (i.e. false diagnosis of Cr(VI) allergy).

In 2003, the Norwegian National Institute of Occupational Health sponsored an expert peer review of 24

key epidemiological investigations addressing; (1) whether exposure to wet cement containing water soluble Cr(VI) caused allergic contact dermatitis, and (2) whether there was a causal association between reduction of Cr(VI) in cement and reduction in the prevalence of the disease (Ex. 46–74). The panel of four experts concluded that, despite the documented limitations of each individual study, the collective evidence was consistent in supporting ''fairly strong associations between Cr(VI) content in cement and the occurrence of allergic dermatitis * * * it seems unlikely that all these associations reported in the reviewed papers are due to systematic errors only'' (Ex. 46–74, p. 42).

Even though the Norwegian panel felt that the available evidence indicated a relationship between reduced Cr(VI) content of wet cement and lower occurrence of allergic dermatitis, they stated that the epidemiological literature was ''not sufficient to conclude that there is a causal association'' (Ex. 46–74, p. 42). This is somewhat different than the view expressed in a written June 2002 opinion by the Scientific Committee on Toxicity, Ecotoxicity and the Environment (CSTEE) to the European Commission, Directorate for General Health and Consumer Protection (Ex. 40–10–7). In responding to the question of whether it is scientifically justified to conclude that cement containing less than 2 ppm Cr(VI) content could substantially reduce the risk of skin sensitization, the CSTEE stated that ''the available information clearly demonstrates that reduction of chromium VI in cement to less than 2 ppm * * * will reduce the prevalence of allergic contact eczema in workers'' (Ex. 40–10–7, p. 5)

b. Dermatitis Associated With Cr(VI) From Sources Other Than Cement

In 1953 the U.S. Public Health Service reported on hazards associated with the chromium-producing industry in the United States (Ex. 7–3). Workers were examined for skin effects from Cr(VI) exposure. Workers' eyes were also examined for possible effects from splashes of Cr(VI)-containing compounds that had been observed in the plants. Of the 897 workers examined, 451 had skin ulcers or scars of ulcers. Seventeen workers were reported to have skin lesions suggestive of chrome dermatitis. The authors noted that most plants provided adequate washing facilities, and had facilities for providing clean work clothes. A statistically significant increase in congestion of the conjunctiva was also reported in Cr(VI)-exposed workers when compared with non-exposed workers (38.7% vs. 25.8%).

In the Baltimore, Maryland chromate production plant examined by Gibb *et al.* (2000), a substantial number of workers were reported to have experienced adverse skin effects (Ex. 31–22–12). The authors identified a cohort of 2,357 workers first employed at the plant between 1950 and 1974. Clinic and first aid records were examined to identify findings of skin conditions. These clinical findings were identified by a physician as a result of routine examinations or visits to the medical clinic by members of the cohort. Percentages of the cohort with various clinical findings were as follows:

Irritated skin: 15.1%
Dermatitis: 18.5%
Ulcerated skin: 31.6%
Conjunctivitis: 20.0%

A number of factors make these results difficult to interpret. The reported findings are not specifically related to Cr(VI) exposure. They may have been the result of other workplace exposures, or non-workplace factors. The report also indicates the percentage of workers who were diagnosed with a condition during their tenure at the plant; however, no information is presented to indicate the expected incidence of these conditions in a population that is not exposed to Cr(VI).

Measurements of Cr(VI) air concentrations by job title were used to estimate worker exposures. Based on these estimates, the authors used a proportional hazards model to find a statistically significant correlation ($p=0.004$) between ulcerated skin and airborne Cr(VI) exposure. Statistically significant correlations between year of hire and findings of ulcerated skin and dermatitis were also reported. Exposures to Cr(VI) in the plant had generally dropped over time. Median exposure to Cr(VI) at the time of occurrence for most of the findings was said to be about 10 $\mu g/m^3$ Cr(VI) (reported as 20 $\mu g/m^3$ CrO_3). It is unclear, however, what contribution airborne Cr(VI) exposures may have had to dermal effects. Direct dermal contact with Cr(VI) compounds in the plant may have been a contributing factor in the development of these conditions.

Mean and median times on the job prior to initial diagnosis were also reported. The mean time prior to diagnosis of skin or eye effects ranged from 373 days for ulcerated skin to 719 days for irritated skin. Median times ranged from 110 days for ulcerated skin to 221 days for conjunctivitis. These times are notable because many workers in the plant stayed for only a short time. Over 40% worked for less than 90 days. Because these short-term workers did not remain in the workplace for the length of time that was typically necessary for these effects to occur, the results of this study may underestimate the incidence that would occur with a more stable worker population.

Lee and Goh (1988) examined the skin condition of 37 workers who maintained chrome plating baths and compared these workers with a group of 37 control subjects who worked in the same factories but were not exposed to Cr(VI) (Ex. 35–316). Mean duration of employment as a chrome plater was 8.1 (SD±7.9) years. Fourteen (38%) of the chrome platers had some occupational skin condition; seven had chrome ulcers, six had contact dermatitis and one had both. A further 16 (43%) of the platers had scars suggestive of previous chrome ulcers. Among the control group, no members had ulcers or scars of ulcers, and three had dermatitis.

Where ulcers or dermatitis were noted, patch tests were administered to determine sensitization to Cr(VI) and nickel. Of the seven workers with chrome ulcers, one was allergic to Cr(VI). Of the six workers with dermatitis, two were allergic to Cr(VI) and one to nickel. The worker with ulceration and dermatitis was not sensitized to either Cr(VI) or nickel. Although limited by a relatively small study population, this report clearly indicates that Cr(VI)-exposed workers face an increased risk of adverse skin effects. The fact that the majority of workers with dermatitis were not sensitized to Cr(VI) indicates that irritant factors play an important role in the development of dermatitis in chrome plating operations.

Royle (1975) also investigated the occurrence of skin conditions among workers involved in chrome plating (Ex. 7–50). A questionnaire survey completed by 997 chrome platers revealed that 21.8% had experienced skin ulcers, and 24.6% had suffered from dermatitis. No information was presented to indicate the expected incidence in a comparable population that was not exposed to Cr(VI). Of the 54 plants involved in the study, 49 used nickel, another recognized cause of allergic contact dermatitis.

The author examined the relationship between the incidence of these conditions and length of exposure. The plater population was divided into three groups: those with less than one year of Cr(VI) exposure, those with one to five years of Cr(VI) exposure, and those with over five years of Cr(VI) exposure. A statistically significant trend was found

between length of Cr(VI) exposure and incidence of skin ulcers. The incidence of dermatitis, on the other hand, bore no relationship to length of exposure.

In 1973, researchers from NIOSH reported on the results of a health hazard investigation of a chrome plating establishment (Ex. 3–5). In the plating area, airborne Cr(VI) concentrations ranged from less than 0.71 to 9.12 μg/m³ (mean 3.24 μg/m³; SD=2.48 μg/m³). Of the 37 exposed workers who received medical examinations, five were reported to have chrome-induced lesions on their hands. Hygiene and housekeeping practices in this facility were reportedly deficient, with the majority of workers not wearing gloves, not washing their hands before eating or leaving the plant, and consuming food and beverages in work areas.

Gomes (1972) examined Cr(VI)-induced skin lesions among electroplaters in Sao Paulo, Brazil (Ex. 9–31). A clinical examination of 303 workers revealed 88 (28.8%) had skin lesions, while 175 (58.0%) had skin and mucus membrane lesions. A substantial number of employers (26.6%) also did not provide personal protective equipment to workers. The author attributed the high incidence of skin ulcers on the hands and arms to inadequate personal protective equipment, and lack of training for employees regarding hygiene practices.

Fleeger and Deng (1990) reported on an outbreak of skin ulcerations among workers in a facility where enamel paints containing chromium were applied to kitchen range parts (Ex. 9–97). A ground coat of paint was applied to the parts, which were then placed on hooks and transported through a curing oven. In some cases, small parts were places on hooks before paint application. Tiny holes in the oven coils apparently resulted in improper curing of the paint, leaving sharp edges and a Cr(VI)-containing residue on the hooks. Most of the workers who handled the hooks reportedly did not wear gloves, because the gloves were said to reduce dexterity and decrease productivity. As a result, cuts from the sharp edges allowed the Cr(VI) to penetrate the skin, leading to ulcerations (Ex. 9–97).

2. Prognosis of Dermal Effects

Cr(VI)-related dermatitis tends to become more severe and persistent with continuing exposure. Once established, the condition may persist even if occupational exposure ceases. Fregert followed up on cases of occupational contact dermatitis diagnosed over a 10-year period by a dermatology service in Sweden. Based on responses to questionnaires completed two to three years after treatment, only 7% of women and 10% of men with Cr(VI)-related allergic contact dermatitis were reported to be healed (Ex. 35–322). Burrows reviewed the condition of patients diagnosed with work-related dermatitis 10–13 years earlier. Only two of the 25 cases (8%) caused by exposure to cement had cleared (Ex. 35–323).

Hogan *et al.* reviewed the literature regarding the prognosis of contact dermatitis, and reported that the majority of patients had persistent dermatitis (Ex. 35–324). It was reported that job changes did not usually lead to a significant improvement for most patients. The authors surveyed contact dermatitis experts around the world to explore their experience with the prognosis of patients suffering from occupational contact dermatitis of the hands. Seventy-eight percent of the 51 experts who responded to the survey indicated that chromate was one of the allergens associated with the worst possible prognosis.

Halbert *et al.* reviewed the experience of 120 patients diagnosed with occupational chromate dermatitis over a 10-year period (Ex. 35–320). The time between initial diagnosis and the review ranged from a minimum of six months to a maximum of nine years. Eighty-four (70%) of patients were reviewed two or more years after initial diagnosis, and 40 (33%) after five years or more. In the majority of cases (78, or 65%), the dermatitis was attributed to work with cement. For the study population as a whole, 76% had ongoing dermatitis at the time of the review.

When the review was conducted, 62 (58%) patients were employed in the same occupation as when initially diagnosed. Fifty-five (89%) of these workers continued to suffer from dermatitis. Fifty-eight patients (48%) changed occupations after their initial diagnosis. Each of these individuals indicated that they had changed occupations because of their dermatitis. In spite of the change, dermatitis persisted in 40 members of this group (69%).

Lips *et al.* found a somewhat more favorable outcome among 88 construction workers with occupational chromate dermatitis who were removed from Cr(VI) exposure (Ex. 35–325). Follow-up one to five years after removal indicated that 72% of the patients no longer had dermatitis. The authors speculated that this result might be due to strict avoidance of Cr(VI) contact. Nonetheless, the condition persisted in a substantial portion of the affected population.

3. Thresholds for Dermal Effects

In a response to OSHA's RFI submitted on behalf of the Chrome Coalition, Exponent indicated that the findings of Fowler *et al.* (1999) and others provide evidence of a threshold for elicitation of allergic contact dermatitis (Ex. 31–18–1, p. 27). Exponent also stated that because chrome ulcers did not develop in the Fowler *et al.* study, ''more aggressive'' exposures appear to be necessary for the development of chrome ulcers.

The Fowler *et al.* study involved the dermal exposure of 26 individuals previously sensitized to Cr(VI) who were exposed to water containing 25 to 29 mg/L Cr(VI) as potassium dichromate (pH 9.4) (Ex. 31–18–5). Subjects immersed one arm in the Cr(VI) solution, while the other arm was immersed in an alkaline buffer solution as a control. Exposure lasted for 30 minutes and was repeated on three consecutive days. Based on examination of the skin, the authors concluded that the skin response experienced by subjects was not consistent with either irritant or allergic contact dermatitis.

The exposure scenario in the Fowler *et al.* study, however, does not take into account certain skin conditions often encountered in the workplace. While active dermatitis, scratches, and skin lesions served as criteria for excluding both initial and continuing participation in the study, it is reasonable to expect that individuals with these conditions will often continue to work. Cr(VI)-containing mixtures and compounds used in the workplace may also pose a greater challenge to the integrity of the skin than the solution used by Fowler *et al.* Wet cement, for example, may have a pH higher than 9.4, and may be capable of abrading or otherwise damaging the skin. As damaged skin is liable to make exposed workers more susceptible to Cr(VI)-induced skin effects, the suggested threshold is likely to be invalid. The absence of chrome ulcers in the Fowler *et al.* study is not unexpected, because subjects with ''fissures or lesions'' on the skin were excluded from the study (Ex. 31–18–5). As discussed earlier, chrome ulcers are not believed to occur on intact skin.

4. Conclusions

OSHA believes that adverse dermal effects from exposure to Cr(VI), including irritant contact dermatitis, allergic contact dermatitis, and skin ulceration, have been firmly established. The available evidence is not sufficient to relate these effects to any given Cr(VI) air concentration. Rather, it appears that direct dermal contact with Cr(VI) is the

most relevant factor in the development of dermatitis and ulcers. Based on the findings of Gibb *et al.* (Ex. 32–22–12) and U.S. Public Health Service (Ex. 7–3), OSHA believes that conjunctivitis may result from direct eye contact with Cr(VI).

OSHA does not believe that the available evidence is sufficient to establish a threshold concentration of Cr(VI) below which dermal effects will not occur in the occupational environment. This finding is supported not only by the belief that the exposure scenario of Fowler *et al.* is not consistent with occupational exposures, but by experience in the workplace as well. As summarized by Flyvholm *et al.* (1996), numerous reports have indicated that allergic contact dermatitis occurs in cement workers exposed to Cr(VI) concentrations below the threshold suggested by Fowler *et al.* (1999). OSHA considers the evidence of Cr(VI)-induced allergic contact dermatitis in these workers to indicate that the threshold for elicitation of response suggested by Fowler *et al.* (1999) is not applicable to the occupational environment.

E. Other Health Effects

OSHA has examined the possibility of health effect outcomes associated with Cr(VI) exposure in addition to such effects as lung cancer, nasal ulcerations and perforations, occupational asthma, and irritant and allergic contact dermatitis. Unlike the Cr(VI)-induced toxicities cited above, the data on other health effects do not definitively establish Cr(VI)-related impairments of health from occupational exposure at or below the previous OSHA PEL.

There is some positive evidence that workplace inhalation of Cr(VI) results in gastritis and gastrointestinal ulcers, especially at high exposures (generally over OSHA's previous PEL) (Ex. 7–12). This is supported by ulcerations in the gastrointestinal tract of mice breathing high Cr(VI) concentration for long periods (Ex. 10–8). Other studies reported positive effects but significant information was not reported or the confounders made it difficult to draw positive conclusions (Ex. 3–84; Sassi 1956 as cited in Ex. 35–41). Other studies reported negative results (Exs. 7–14; 9–135).

Likewise, several studies reported increases in renal proteins in the urine of chromate production workers and chrome platers (Exs. 35–107; 5–45; 35–105; 5–57). The Cr(VI) air levels recorded in these workers were usually below the previous OSHA PEL (Exs. 35–107; 5–45). Workers with the highest urinary chromium levels tended to also have the largest elevations in renal markers (Ex. 35–107). One study reported no relationship between chromium in urine and renal function parameters, no relationship with age or with duration of exposure, and no relationship between the presence of chromium skin ulcers and chromium levels in urine or renal function parameters (Ex. 5–57). In most studies, the elevated renal protein levels were restricted to only one or two proteins out of several examined per study, generally exhibited small increases (Ex. 35–105) and the effects appeared to be reversible (Ex. 5–45). In addition, it has been stated that low molecular weight proteinuria can occur from other reasons and cannot by itself be considered evidence of chronic renal disease (Ex. 35–195). Other human inhalation studies reported no changes in renal markers (Exs. 7–27; 35–104). Animal inhalation studies did not report kidney damage (Exs. 9–135; 31–18–11; 10–11; 31–18–10; 10–10). Some studies with Cr(VI) administered by drinking water or gavage were positive for increases in renal markers as well as some cell and tissue damage (Exs. 9–143; 11–10). However, it is not clear how to extrapolate such findings to workers exposed to Cr(VI) via inhalation. Well-designed studies of effects in humans via ingestion were not found.

OSHA did not find information to clearly and sufficiently demonstrate that exposures to Cr(VI) result in significant impairment to the hepatic system. Two European studies, positive for an excess of deaths from cirrhosis of the liver and hepatobiliarity disorders, were not able to separate chromium exposures from exposures to the many other substances present in the workplace. The authors also could not rule out the role of alcohol use as a possible contributor to the disorder (Ex. 7–92; Sassi as cited in Ex. 35–41). Other studies did not report any hepatic abnormalities (Exs. 7–27; 10–11).

The reproductive studies showed mixed results. Some positive reproductive effects occurred in some welding studies. However, it is not clear that Cr(VI) is the causative agent in these studies (Exs. 35–109; 35–110; 35–108; 35–202; 35–203). Other positive studies were seriously lacking in information. Information was not given on exposures, the nature of the reproductive complications, or the women's tasks (Shmitova 1980, 1978 as cited in Ex. 35–41, p. 52). ATSDR states that because these studies were generally of poor quality and the results were poorly reported, no conclusions can be made on the potential for chromium to produce adverse reproductive effects in humans (Ex. 35–41, p. 52). In animal studies, where Cr(VI) was administered through drinking water or diet, positive developmental effects occurred in offspring (Exs. 9–142; 35–33; 35–34; 35–38). However, the doses administered in drinking water or given in the diet were high (*i.e.*, 250, 500, and 750 ppm). Furthermore, strong studies showing reproductive or developmental effects in other situations where employees were working exclusively with Cr(VI) were not found. In fact, the National Toxicology Program (NTP) (Exs. 35–40; 35–42; 35–44) conducted an extensive multigenerational reproductive assessment by continuous breeding where the chromate was administered in the diet. The assessment yielded negative results (Exs. 35–40; 35–42; 35–44). Animal inhalation studies were also negative (Exs. 35–199; 9–135; 10–10; Glaser 1984 as cited in Ex. 31–22–33;). Thus, it cannot be concluded that Cr(VI) is a reproductive toxin for normal working situations.

VI. Quantitative Risk Assessment

A. Introduction

The Occupational Safety and Health (OSH) Act and some landmark court cases have led OSHA to rely on quantitative risk assessment, where possible, to support the risk determinations required to set a permissible exposure limit (PEL) for a toxic substance in standards under the OSH Act. Section 6(b)(5) of the Act states that ''The Secretary [of Labor], in promulgating standards dealing with toxic materials or harmful agents under this subsection, shall set the standard which most adequately assures, to the extent feasible, on the basis of the best available evidence, that no employee will suffer material impairment of health or functional capacity even if such employee has regular exposure to the hazard dealt with by such standard for the period of his working life.'' (29 U.S.C. 651 *et seq.*)

In a further interpretation of the risk requirements for OSHA standard setting, the United States Supreme Court, in the 1980 ''benzene'' decision, (*Industrial Union Department, AFL–CIO* v. *American Petroleum Institute,* 448 U.S. 607 (1980)) ruled that the OSH Act requires that, prior to the issuance of a new standard, a determination must be made that there is a significant risk of material impairment of health at the existing PEL and that issuance of a new standard will significantly reduce or eliminate that risk. The Court stated that ''before he can promulgate any

permanent health or safety standard, the Secretary is required to make a threshold finding that a place of employment is unsafe in the sense that significant risks are present and can be eliminated or lessened by a change in practices'' [448 U.S. 642]. The Court also stated ''that the Act does not limit the Secretary's power to require the elimination of significant risks'' [488 U.S. 644]. While the Court indicated that the use of quantitative risk analysis was an appropriate means to establish significant risk, they made clear that ''OSHA is not required to support its finding that a significant risk exists with anything approaching scientific certainty.''

The Court in the Cotton Dust case, (*American Textile Manufacturers Institute* v. *Donovan,* 452 U.S. 490 (1981)) found that Section 6(b)(5) of the OSH Act places benefits to worker health above all other considerations except those making attainment of the health benefits unachievable and, therefore, only feasibility analysis of OSHA health standards is required and not cost-benefit analysis. It reaffirmed its previous position in the ''benzene'' case, however, that a risk assessment is not only appropriate but should be used to identify significant health risk in workers and to determine if a proposed standard will achieve a reduction in that risk. Although the Court did not require OSHA to perform a quantitative risk assessment in every case, the Court implied, and OSHA as a matter of policy agrees, that assessments should be put into quantitative terms to the extent possible.

The determining factor in the decision to perform a quantitative risk assessment is the availability of suitable data for such an assessment. As reviewed in section V.B. on Carcinogenic Effects, there are a substantial number of occupational cohort studies that reported excess lung cancer mortality in workers exposed to Cr(VI) in several industrial operations. Many of these found that workers exposed to higher levels of airborne Cr(VI) for a longer period of time had greater standardized mortality ratios (SMRs) for lung cancer.

OSHA believes that two recently studied occupational cohorts by Gibb *et al.* (Ex. 31–22–11) and Luippold *et al.* (Ex. 33–10) have the strongest data sets on which to quantify lung cancer risk from cumulative Cr(VI) exposure (*i.e.*, air concentration x exposure duration). A variety of exposure-response models were fit to these data, including linear relative risk, quadratic relative risk, log-linear relative risk, additive risk, and Cox proportional hazards models. Using a linear relative risk model on these data to predict excess lifetime risk, OSHA estimated that the lung cancer risk from a 45 year occupational exposure to Cr(VI) at an 8-hour TWA at the previous PEL of 52 μg/m^3 is 101 to 351 excess deaths per 1000. Quantitative lifetime risk estimates from a working lifetime exposure at several lower alternative PELs under consideration by the Agency were also estimated. The sections below discuss the selection of the appropriate data sets and risk models, the estimation of lung cancer risks based on the selected data sets and models, the uncertainty in the risk estimates, and the key issues that were raised in comments received during the public hearing process.

A preliminary quantitative risk assessment was previously published in the Notice of Proposed Rulemaking (69 FR at 59306, 10/4/2004). This was peer-reviewed by three outside experts in the fields of occupational epidemiology and risk assessment. Their comments were discussed in the NPRM (69 FR at 59385–59388). They commented on the suitability of several occupational data sets for exposure-response analysis, the choice of exposure metric and risk model, the appropriateness of the risk estimates, and the characterization of key issues and uncertainties. The reviewers agreed that the soluble chromate production cohorts described by Gibb *et al.* and Luippold *et al.* provided the strongest data sets for quantitative risk assessment. They concurred that a linear model using cumulative exposure based on time-weighted average Cr(VI) air concentrations by job title and employment history was the most reasonable risk assessment approach. The experts showed less enthusiasm for average monthly Cr(VI) air concentrations as an appropriate exposure metric or for an exposure threshold below which there is no lung cancer risk. They found the range of excess lifetime lung cancer risks presented by OSHA to be sound and reasonable. They offered suggestions regarding issues such as the impact of cigarette smoking and the healthy worker effect on the assessment of risk. OSHA revised the preliminary quantitative risk assessment in several respects based on these peer review comments.

In contrast to the more extensive occupational cohort data on Cr(VI) exposure-response, data from experimental animal studies are less suitable for quantitative risk assessment of lung cancer. Besides the obvious species difference, most of the animal studies administered Cr(VI) to the respiratory tract by less relevant routes, such as instillation or implantation. The few available inhalation studies in animals were limited by a combination of inadequate exposure levels, abbreviated durations, and small numbers of animals per dose group. Despite these limitations, the animal data do provide semi-quantitative information with regard to the relative carcinogenic potency of different Cr(VI) compounds. A more detailed discussion can be found in sections V.B.7 and V.B.9.

The data that relate non-cancer health impairments, such as damage to the respiratory tract and skin, to Cr(VI) exposure are also not well suited for quantitative assessment. There are some data from cross-sectional studies and worker surveys that group the prevalence and severity of nasal damage by contemporary time-weighted average (TWA) Cr(VI) air measurements. However, there are no studies that track either incidence or characterize exposure over time. Nasal damage is also more likely influenced by shorter-term peak exposures that have not been well characterized. While difficult to quantify, the data indicate that the risk of damage to the nasal mucosa will be significantly reduced by lowering the previous PEL, discussed further in section VII on Significance of Risk.

There are even less suitable exposure-response data to assess risk for other Cr(VI)-induced impairments (*e.g.*, mild renal damage, gastrointestinal ulceration). With the possible exception of respiratory tract effects (*e.g.*, nasal damage, occupational asthma), the risk of non-cancer adverse effects that result from inhaling Cr(VI) are expected to be very low, except as a result of long-term regular airborne exposure around or above the previous PEL (52 μg/m^3). Since the non-cancer effects occur at relatively high Cr(VI) air concentrations, OSHA has concluded that lowering the PEL to reduce the risk of developing lung cancer over a working lifetime will also eliminate or reduce the risk of developing these other health impairments. As discussed in section V.E., adverse effects to the skin primarily result from dermal rather than airborne exposure.

B. Study Selection

The more than 40 occupational cohort studies reviewed in Section VI.B on carcinogenic effects were evaluated to determine the adequacy of the exposure-response information for the quantitative assessment of lung cancer risk associated with Cr(VI) exposure. The key criteria were data that allowed for estimation of input variables,

specifically levels of exposure and duration of exposure (*e.g.*, cumulative exposure in mg/m^3-yr); observed numbers of cancers (deaths or incident cases) by exposure category; and expected (background) numbers of cancer deaths by exposure category.

Additional criteria were applied to evaluate the strengths and weaknesses of the available epidemiological data sets. Studies needed to have well-defined cohorts with identifiable cases. Features such as cohort size and length of follow-up affect the ability of the studies to detect any possible effect of Cr(VI) exposure. Potential confounding of the responses due to other exposures was considered. Study evaluation also considered whether disease rates from an appropriate reference population were used to derive expected numbers of lung cancers. One of the most important factors in study evaluation was the ascertainment and use of exposure information (*i.e.*, well-documented historical exposure data). Both level and duration of exposure are important in determining cumulative dose, and studies are often deficient with respect to the availability or use of such information.

Two recently studied cohorts of chromate production workers, the Gibb cohort and the Luippold cohort, were found to be the strongest data sets for quantitative assessment (Exs. 31–22–11; 33–10). Of the various studies, these two had the most extensive and best documented Cr(VI) exposures spanning three or four decades. Both cohort studies characterized observed and expected lung cancer mortality and reported a statistically significant positive association between lung cancer risk and cumulative Cr(VI) exposure. For the remainder of this preamble the Gibb and Luippold cohorts are referred to as the ''preferred cohorts'', denoting that they are the cohorts used to derive OSHA's model of lung cancer risk from exposure to Cr(VI).

Four other cohorts (Mancuso, Hayes *et al.*, Gerin *et al.*, and Alexander *et al.*) had less satisfactory data for quantitative assessments of lung cancer risk (Exs. 7–11; 23; 7–14; 7–120; 31–16–3). These cohorts include chromate production workers, stainless steel welders, and aerospace manufacturing workers. While the lung cancer response in these cohorts was stratified across multiple exposure groups, there were limitations to these data that affected their reliability for quantitative risk assessment. OSHA therefore did not consider them to be preferred cohorts (*i.e.*, they were not used to derive OSHA's model of lung cancer risk from exposure to Cr(VI)). However, OSHA believes that quantitative analysis of these cohorts provides valuable information to the risk assessment, especially for the purpose of comparison with OSHA's risk model based on the preferred Gibb and Luippold cohorts. Analyses based on the Mancuso, Hayes *et al.*, Gerin *et al.*, and Alexander *et al.* cohorts, referred to as ''additional cohorts'' for the remainder of this preamble, were compared with the assessments based on the Gibb and Luippold cohorts. The strengths and weaknesses of all six cohorts as a basis for exposure-response analysis are discussed in more detail below.

1. Gibb Cohort

The Gibb *et al.* study was a particularly strong study for quantitative risk assessment, especially in terms of cohort size and historical exposure data (Exs. 31–22–11; 33–11). Gibb *et al.* studied an updated cohort from the same Baltimore chromate production plant previously studied by Hayes *et al.* (see section VI.B.4). The cohort included 2357 male workers (white and non-white) first employed between 1950 and 1974. Follow-up was through the end of 1992 for a total of 70,736 person-years and an average length of 30 years per cohort member. Smoking status and amount smoked in packs per day at the start of employment was available for the majority of the cohort members.

A significant advantage of the Gibb data was the availability of a large number of personal and area sampling measurements from a variety of locations and job titles which were collected over the years during which the cohort members were exposed (from 1950 to 1985, when the plant closed). Using these concentration estimates, a job exposure matrix was constructed giving annual average exposures by job title. Based on the job exposure matrix and work histories for the cohort members, Gibb *et al.* computed the person-years of observation, the observed numbers of lung cancer deaths, and the expected numbers of lung cancer deaths categorized by cumulative Cr(VI) exposure and age of death. They found that cumulative Cr(VI) exposure was a significant predictor of lung cancer risk over the exposure range of 0 to 2.76 (mean±SD = 0.70±2.75) mg/m^3-yr. This included a greater than expected number of lung cancer deaths among relatively young workers. For example, chromate production workers between 40 and 50 years of age with mean cumulative Cr(VI) exposure of 0.41 mg CrO_3/m^3-yr (equivalent to 0.21 mg Cr(VI)/m^3-yr) were about four times more likely to die of lung cancer than a State of Maryland resident of similar age (Ex. 31–22–11, Table V).

The data file containing the demographic, exposure, smoking, and mortality data for the individual cohort members was made available to OSHA (Ex. 295). These data were used in several reanalyses to produce several different statistical exposure-response models and to explore various issues raised in comments to OSHA, such as the use of linear and nonlinear exposure-response models, the difference between modern and historical levels of Cr(VI) exposure, and the impact of including or excluding short-term workers from the exposure-response analysis. The Agency's access to the dataset and to reanalyses of it performed by several different analysts has been a tremendous advantage in its consideration of these and other issues in the development of the final risk assessment.

2. Luippold Cohort

The other well-documented exposure-response data set comes from a second cohort of chromate production workers. Luippold *et al.* studied a cohort of 482 predominantly white, male employees who started work between 1940 and 1972 at the same Painesville, Ohio plant studied earlier by Mancuso (Ex. 33–10) (see subsection VI.B.3). Mortality status was followed through 1997 for a total of 14,048 person-years. The average worker had 30 years of follow-up. Cr(VI) exposures for the Luippold cohort were based on 21 industrial hygiene surveys conducted at the plant between 1943 and 1971, yielding a total of more than 800 area samples (Ex. 35–61). A job exposure matrix was computed for 22 exposure areas for each month of plant operation starting in 1940 and, coupled with detailed work histories available for the cohort members, cumulative exposures were calculated for each person-year of observation. Luippold *et al.* found significant dose-related trends for lung cancer SMRs as a function of year of hire, duration of employment, and cumulative Cr(VI) exposure. Risk assessments on the Luippold *et al.* study data performed by Crump *et al.* had access to the individual data and, therefore, had the best basis for analysis of this cohort (Exs. 31–18–1; 35–205; 35–58).

While the Luippold cohort was smaller and less racially diverse than the Gibb cohort, the workforce contained fewer transient, short-term employees. The Luippold cohort consisted entirely of workers employed over one year. Fifty-five percent worked

for more than five years. In comparison, 65 percent of the Gibb cohort worked for less than a year and 15 percent for more than five years at the Baltimore plant. There was less information about the smoking behavior (smoking status available for only 35 percent of members) of the Luippold cohort than the Gibb cohort.

One aspect that the Luippold cohort had in common with the Gibb cohort was extensive and well-documented air monitoring of Cr(VI). The quality of exposure information for both the Gibb and Luippold cohorts was considerably better than that for the Mancuso, Hayes *et al.*, Gerin *et al.*, and Alexander *et al.* cohorts. The cumulative Cr(VI) exposures for the Luippold cohort, which ranged from 0.003 to 23 (mean±SD = 1.58±2.50) mg Cr(VI)/m^3-yr, were generally higher but overlapped those of the Gibb cohort. The use of individual work histories to define exposure categories and presentation of mean cumulative doses in the exposure groups provided a strong basis for a quantitative risk assessment. The higher cumulative exposure range and the longer work duration of the Luippold cohort serve to complement quantitative data available on the Gibb cohort.

3. Mancuso Cohort

Mancuso (Ex. 7–11) studied the lung cancer incidence of an earlier cohort of 332 white male employees drawn from the same plant in Painesville, Ohio that was evaluated by the Luippold group. The Mancuso cohort was first employed at the facility between 1931 and 1937 and followed up through 1972, when the plant closed. Mancuso (Ex. 23) later extended the follow-up period through 1993, yielding a total of 12,881 person-years of observation for an average length of 38.8 years and a total of 66 lung cancer deaths. Since the Mancuso workers were first employed in the 1930s and the Luippold workers were first employed after 1940, the two cohorts are completely different sets of individuals.

A major limitation of the Mancuso study is the uncertainty of the exposure data. Mancuso relied exclusively on the air monitoring reported by Bourne and Yee (Ex. 7–98) conducted over a single short period of time during 1949. Bourne and Yee presented monitoring data as airborne insoluble chromium, airborne soluble chromium, and total airborne chromium by production department at the Painesville plant. The insoluble chromium was probably Cr(III) compounds with some slightly water-soluble and insoluble chromates. The soluble chromium was probably highly water-soluble Cr(VI). Mancuso (Exs. 7–11; 23) calculated cumulative exposures (mg/m^3-yr) for each cohort member based on the 1949 mean chromium concentrations, by production department, under the assumption that those levels reflect exposures during the entire duration of employment for each cohort member, even though employment may have begun as early as 1931 and may have extended to 1972. Due to the lack of air measurements spanning the full period of worker exposure and the lack of adequate methodology to distinguish chromium valence states (*i.e.*, Cr(VI) vs. Cr(III)), the exposure data associated with the Mancuso cohort were not as well characterized as data from the Luippold or Gibb cohorts.

Mancuso (Exs. 7–11; 23)reported cumulative exposure-related increases in age-adjusted lung cancer death rates for soluble, insoluble, or total chromium. Within a particular range of exposures to insoluble chromium, lung cancer death rates also tended to increase with increasing total cumulative chromium. However, the study did not report whether these tendencies were statistically significant, nor did it report the extent to which exposures to soluble and insoluble chromium were correlated. Thus, it is possible that the apparent relationship between insoluble chromium (*e.g.*, primarily Cr(III)) and lung cancer may have arisen because both insoluble chromium concentrations and lung cancer death rates were positively correlated with Cr(VI) concentrations. Further discussion with respect to quantitative risk estimation from the Mancuso cohort is provided in section VI.E.1 on additional risk assessments.

4. Hayes Cohort

Hayes *et al.* (Ex. 7–14) studied a cohort of employees at the same chromate production site in Baltimore examined by Gibb *et al.* The Hayes cohort consisted of 2101 male workers who were first hired between 1945 and 1974, excluding those employed for less than 90 days. The Gibb cohort had different but partially overlapping date criteria for first employment (1950–1974) and no 90 day exclusion. Hayes *et al.* reported SMRs for respiratory tract cancer based on workers grouped by time of hire, employment duration, and high or low exposure groups. Workers who had ever worked at an older plant facility and workers whose location of employment could not be determined were combined into a single exposure group referred to as ''high or questionable'' exposure. Workers known to have been employed exclusively at a newer renovated facility built in 1950 and 1951 were considered to have had ''low'' exposure. A dose-response was observed in the sense that higher SMRs for respiratory cancer were observed among long-term workers (workers who had worked for three or more years) than among short-term workers.

Hayes *et al.* did not quantify occupational exposure to Cr(VI) at the time the cohort was studied, but Braver *et al.* (Ex. 7–17) later estimated average cumulative soluble chromium (presumed by the authors to be Cr(VI)) exposures for four subgroups of the Hayes cohort first employed between 1945 and 1959. The TWA Cr(VI) concentrations were determined from a total of 555 midget impinger air measurements that were collected at the older plant from 1945 to 1950. The cumulative exposures for the subgroups were estimated from the yearly average Cr(VI) exposure for the entire plant and the subgroups' average duration of employment rather than job-specific Cr(VI) concentrations and individual work histories. Such ''group level'' estimation of cumulative exposure is less appropriate than the estimation based on individual experiences as was done for the Gibb and Luippold cohorts.

A more severe limitation of this study is that exposures attributed to many workers in the newly renovated facility at the Baltimore site throughout the 1950s were based on chromium measurements from an earlier period (*i.e.*, 1949–1950) at an older facility. Samples collected at the new facility and reviewed by Gibb *et al.* (Exs. 25, 31–22–12) show that the exposures in the new facility were substantially lower than assumed by Braver *et al.* Braver *et al.* (Ex. 7–17) discussed a number of other potential sources of uncertainty in the Cr(VI) exposure estimates, such as the possible conversion to Cr(III) during sample collection and the likelihood that samples may have been collected mainly in potential problem areas.

5. Gerin Cohort

Gerin *et al.* (Ex. 7–120) developed a job exposure matrix that was used to estimate cumulative Cr(VI) exposures for male stainless steel welders who were part of the International Agency for Research on Cancer's (IARC) multi-center historical cohort study (Ex. 7–114). The IARC cohort included 11,092 welders. However, the number of cohort members who were stainless steel welders, for which Cr(VI) exposures were estimated, could not be determined from their report. Gerin *et al.* used occupational hygiene surveys reported in the published literature, including a limited amount of data collected from 8 of the 135 companies

that employed welders in the cohort, to estimate typical eight-hour TWA Cr(VI) breathing zone concentrations for various combinations of welding processes and base metal. The resulting exposure matrix was then combined with information about individual work history, including time and length of employment, type of welding, base metal welded, and information on typical ventilation status for each company (*e.g.*, confined area, use of local exhaust ventilation, etc.) to estimate the cumulative Cr(VI) exposure. Individual work histories were not available for about 25 percent of the stainless steel welders. In these cases, information was assumed based on the average distribution of welding practices within the company. The lack of Cr(VI) air measurements from most of the companies in the study and the limitations in individual work practice information for this cohort raise questions concerning the accuracy of the exposure estimates.

Gerin *et al.* reported no upward trend in lung cancer mortality across four cumulative Cr(VI) exposure categories for stainless steel welders, each accumulating between 7,000 and 10,000 person-years of observation. The welders were also known to be exposed to nickel, another potential lung carcinogen. Co-exposure to nickel may obscure or confound the Cr(VI) exposure-response relationship. As discussed further in Sections VI.E.3 and VI.G.4, exposure misclassification in this cohort may obscure an exposure-response relationship. This is the primary reason that the Gerin *et al.* cohort was not considered a preferred cohort (*i.e.*, it was not used to derive OSHA's quantitative risk estimates), although a quantitative analysis of this cohort was performed for comparison with the preferred cohorts.

6. Alexander Cohort

Alexander *et al.* (Ex. 31–16–3) conducted a retrospective cohort study of 2429 aerospace workers employed in jobs entailing chromate exposure (*e.g.*, spray painting, sanding/polishing, chrome plating, etc.) between 1974 and 1994. The cohort included workers employed as early as 1940. Follow-up time was short, averaging 8.9 years per cohort member; in contrast, the Gibb and Luippold cohorts accumulated an average 30 or more years of follow-up. Long-term follow-up of cohort members is particularly important for determining the risk of lung cancer, which typically has an extended latency period of twenty years or more.

Industrial hygiene data collected between 1974 and 1994 were used to classify jobs in categories of ''high'' exposure, ''moderate'' exposure, or ''low'' exposure to Cr(VI). The use of respiratory protection was accounted for when setting up the job exposure matrix. These exposure categories were assigned summary TWA concentrations and combined with individual job history records to estimate cumulative exposures for cohort members over time. As further discussed in section VI.E.4, it was not clear from the study whether exposures are expressed in units of Cr(VI) or chromate (CrO_3). Exposures occurring before 1974 were assumed to be at TWA levels assigned to the interval from 1974 to 1985.

Alexander *et al.* presented lung cancer incidence data for four cumulative chromate exposure categories based on worker duration and the three (high, moderate, low) exposure levels. Lung cancer incidence rates were determined using a local cancer registry, part of the National Cancer Institute (NCI) Surveillance Epidemiology and End Results (SEER) program. The authors reported no positive trend in lung cancer incidence with increasing Cr(VI) exposure. Limitations of this cohort study include the young age of the cohort members (median = 42) and lack of information on smoking. As discussed above, the follow-up time (average < 9 years) was probably too short to capture lung cancers resulting from Cr(VI) exposure. Finally, the available Cr(VI) air measurement data did not span the entire employment period of the cohort (*e.g.*, no data for 1940 to 1974) and was heavily grouped into a relatively small number of ''summary'' TWA concentrations that may not have fully captured individual differences in workplace exposures to Cr(VI). For the above reasons, in particular the insufficient follow-up time for most cohort members, the Alexander cohort was not considered a preferred dataset for OSHA's quantitative risk analysis. However, a quantitative analysis of this cohort was performed for comparison with the preferred cohorts.

7. Studies Selected for the Quantitative Risk Assessment

The epidemiologic database is quite extensive and contains several studies with exposure and response data that could potentially be used for quantitative risk assessment. OSHA considers certain studies to be better suited for quantitative assessment than others. The Gibb and Luippold cohorts are the preferred sources for quantitative risk assessment because they are large, have extensive follow-up, and have documentation of historical Cr(VI) exposure levels superior to the Mancuso, Hayes, Gerin and Alexander cohorts. In addition, analysts have had access to the individual job histories of cohort members and associated exposure matrices. OSHA's selection of the Gibb and Luippold cohorts as the best basis of exposure-response analysis for lung cancer associated with Cr(VI) exposure was supported by a variety of commenters, including for example NIOSH (Tr. 314; Ex. 40–10–2, p. 4), EPRI (Ex. 38–8, p.6), and Exponent (Ex. 38–215–2, p. 15). It was also supported by the three external peer reviewers who reviewed OSHA's preliminary risk assessment, Dr. Gaylor (Ex. 36–1–4–1, p. 24), Dr. Smith (Ex. 36–1–4–2 p. 28), and Dr. Hertz-Picciotto (Ex. 36–1–4–4, pp. 41–42).

The Mancuso cohort and the Hayes cohort were derived from workers at the same plants as Luippold and Gibb, respectively, but have limitations associated with the reporting of quantitative information and exposure estimates that make them less suitable for risk assessment. Similarly, the Gerin and Alexander cohorts are less suitable, due to limitations in exposure estimation and short follow-up, respectively. For these reasons, OSHA did not rely upon the Mancuso, Hayes, Gerin, and Alexander cohorts to derive its exposure-response model for the risk of lung cancer from Cr(VI).

Although the Agency did not rely on the Mancuso, Hayes, Gerin, and Alexander studies to develop its exposure-response model, OSHA believes that evaluating risk among several different worker cohorts and examining similarities and differences between them adds to the overall completeness and quality of the assessment. The Agency therefore analyzed these datasets and compared the results with the preferred Gibb and Luippold cohorts. This comparative analysis is discussed in Section VI.E. In light of the extensive worker exposure-response data, there is little additional value in deriving quantitative risk estimates from tumor incidence results in rodents, especially considering the concerns with regard to route of exposure and study design.

OSHA received a variety of public comments regarding the overall quality of the Gibb and Luippold cohorts and their suitability as the preferred cohorts in OSHA's quantitative risk analysis. Some commenters raised concerns about the possible impact of short-term workers in the Gibb cohort on the risk assessment (Tr. 123; Exs. 38–106, p. 10, 21; 40–12–5, p. 9). The Gibb cohort's inclusion of many workers employed for short periods of time was cited as a

''serious flaw'' by one commenter, who suggested that many lung cancers among short-term workers in the study were caused by unspecified other factors (Ex. 38–106, p. 10, p. 21). Another commenter stated that the Davies cohort of British chromate production workers ''gives greater credence to the Painesville cohort as it showed that brief exposures (as seen in a large portion of the Baltimore cohort) did not have an increased risk of lung cancer'' (Ex. 39–43, p. 1). However, separate analyses of the short-term (< 1 year employment) and longer-term (1 year) Gibb cohort members indicated that restriction of the cohort to workers with tenures of at least one year did not substantially impact estimates of excess lung cancer mortality (Ex. 31–18–15–1 , p. 29). At the public hearing, Ms. Deborah Proctor of Exponent, Inc. stated that ''the short term workers did not affect the results of the study'' (Tr. 1848). OSHA agrees with Ms. Proctor's conclusion, and does not believe that the inclusion of short term workers in the Gibb cohort is a source of substantial uncertainty in the Agency's risk estimates.

Some commenters expressed concern that the Gibb study did not control for smoking (Exs. 38–218, pp. 20–21; 38–265, p. 28; 39–74, p. 3). However, smoking status at the time of employment was ascertained for approximately 90% of the cohort (Ex. 35–435) and was used in statistical analyses by Gibb *et al.*, Environ Inc., and Exponent Inc. to adjust for the effect of smoking on lung cancer in the cohort (Exs. 25; 31–18–15–1; 35–435). NIOSH performed similar analyses using more detailed information on smoking level (packs per day) that was available for 70% of the cohort (Ex. 35–435, p.1100). OSHA believes that these analyses appropriately addressed the potential confounding effect of smoking in the Gibb cohort. Issues and analyses related to smoking are further discussed in Section VI.G.3.

Other issues and uncertainties raised about the Gibb and Luippold cohorts include a lack of information necessary to estimate deposited dose of Cr(VI) for workers in either cohort and a concern that the Luippold exposure data were based on exposures to ''airborne total soluble and insoluble chromium* * * rather than exposures to Cr(VI)'' (Ex. 38–218, pp. 20–21). However, the exposure estimates for the Luippold (2003) cohort were recently developed by Proctor *et al.* using measurements of airborne Cr(VI), not the total chromium measurements used previously in Mancuso *et al.*'s analysis (Exs. 35–58, p. 1149; 35–61). And, while it is true that the Gibb and Luippold (2003) datasets do not lend themselves to construction of deposited dose measures, the extensive Cr(VI) air monitoring data available on these cohorts are more than adequate for quantitative risk assessment. In the case of the Gibb cohort, the exposure dataset is extraordinarily comprehensive and well-documented (Tr. 709–710; Ex. 44–4, p.2), even ''exquisite'' according to one NIOSH expert (Tr. 312). Further discussion of the quality and reliability of the Gibb and Luippold (2003) exposure data and related comments appears in Section VI.G.1.

OSHA received several comments regarding a new epidemiological study conducted by Environ, Inc. for the Industrial Health Foundation, Inc. of workers hired after the institution of process changes and industrial hygiene practices designed to limit exposure to Cr(VI) in two chromate production plants in the United States and two plants in Germany (Exs. 47–24–1; 47–27, pp. 15–16; 47–35–1, pp. 7–8). These commenters suggested that OSHA should use these cohorts to model risk of lung cancer from low exposures to Cr(VI). Unfortunately, the public did not have a chance to comment on this study because documents related to it were submitted to the docket after the time period when new information should have been submitted. However, OSHA reviewed the study and comments that were submitted to the docket. Based on the information submitted, the Agency does not believe that quantitative analysis of these studies would provide additional information on risk from low exposures to Cr(VI).

A cohort analysis based on the U.S. plants is presented in an April 2005 publication by Luippold *et al.* (Ex. 47–24–2). Luippold *et al.* studied a total of 617 workers with at least one year of employment, including 430 at a plant built in the early 1970s (''Plant 1'') and 187 hired after the 1980 institution of exposure-reducing process and work practice changes in a second plant (''Plant 2''). Workers were followed through 1998. Personal air-monitoring measures available from 1974 to 1988 for the first plant and from 1981 to 1998 for the second plant indicated that exposure levels at both plants were low, with overall geometric mean concentrations below 1.5 $\mu g/m^3$ and area-specific average personal air sampling values not exceeding 10 $\mu g/m^3$ for most years (Ex. 47–24–2, p. 383). By the end of follow-up, which lasted an average of 20.1 years for workers at Plant 1 and 10.1 years at Plant 2, 27 cohort members (4%) were deceased. There was a 41% deficit in all-cause mortality when compared to all-cause mortality from age-specific state reference rates, suggesting a strong healthy worker effect. Lung cancer was 16% lower than expected based on three observed vs. 3.59 expected cases, also using age-specific state reference rates (Ex. 47–24–2, p. 383). The authors concluded that ''[t]he absence of an elevated lung cancer risk may be a favorable reflection of the postchange environment. However, longer follow-up allowing an appropriate latency for the entire cohort will be needed to confirm this conclusion'' (Ex. 47–24–2, p. 381).

OSHA agrees with the study authors that the follow-up in this study was not sufficiently long to allow potential Cr(VI)-related lung cancer deaths to occur among many cohort members. The mean times since first exposure of 10 and 20 years for Plant 1 and Plant 2 employees, respectively, suggest that most workers in the cohort may not have completed the '' * * * typical latency period of 20 years or more'' that Luippold *et al.* suggest is required for occupational lung cancer to emerge (Ex. 47–24–2, p. 384). Other important limitations of this study include the striking healthy worker effect on the SMR analysis, and the relatively young age of most workers at the end of follow-up (approximately 90% < 60 years old) (Ex. 47–24–2, p. 383). OSHA also agrees with the study authors' statements that '' * * * the few lung cancer deaths in this cohort precluded * * * [analyses to] evaluate exposure-response relationships * * *'' (Ex. 47–24–2, p. 384).

Although OSHA's model predicts high excess lung cancer risk for highly exposed individuals (*e.g.*, workers exposed for 45 years at the previous PEL of 52 $\mu g/m^3$), the model would predict much lower risks for workers with low exposures, as in the Luippold (2005) cohorts. To provide a point of comparison between the results of the Luippold *et al.* (2005) 'post-change' study and OSHA's risk model, the Agency used its risk model to generate an estimate of lung cancer risk for a population with exposure characteristics approximately similar to the 'post-change' cohorts described in Luippold *et al.* (2005). It should be noted that since this comparative analysis used year 2000 U.S. reference rates were rather than the state-, race-, and gender-specific historical reference mortality rates used by Luippold *et al.* (2005), this risk calculation provides only a rough estimate of expected excess lung cancer risk for the cohort. The derivation of OSHA's risk model (based on the preferred Gibb and Luippold

(2003) cohorts) is described in Sections VI.C.1 and VI.C.2.

It is difficult to tell from the publication what the average level or duration of exposure was for the cohort. However, personal sampling data reported by Luippold *et al.* (2005) had annual geometric mean 8-hour TWA concentrations ''much less'' than 1.5 μg/m³ in most years (Ex. 47–24–2, p. 383). Most workers also probably had less than 20 years of exposure, given the average follow-up periods of 20 and 10 years reported for the Luippold (2005) Plant 1 and Plant 2, respectively. OSHA assumed that workers had TWA exposures of 1.5 μg/m³ for 20 years, with the understanding that this assumption would lead to somewhat higher estimates of risk than OSHA s model would predict if the average exposure of the cohort was known. Using these assumptions, OSHA's model predicts a 2–9% excess lung cancer risk due to Cr(VI) exposure, or less than four cancers in the population the size and age of the Luippold 2005 cohort.

Since this analysis used year 2000 U.S. reference rates rather than the state-, race-, and gender-specific historical reference mortality rates used by Luippold *et al.* (2005), this risk calculation provides only a rough estimate of the lung cancer risk that OSHA's model would predict for the cohort. Nevertheless, it illustrates that for a relatively young population with low exposures, OSHA's risk model (derived from the preferred Gibb and Luippold 2003 cohorts) predicts lung cancer risk similar to that observed in the low-exposure Luippold 2005 cohort. The small number of lung cancer deaths observed in Luippold 2005 should not be considered inconsistent with the risk estimates derived using models developed by OSHA based on the Gibb and Luippold (2003) cohorts (Ex. 47–24–2, p. 383).

Some commenters believed that analysis of the unpublished German cohorts would demonstrate that lung cancer risk was only increased at the highest Cr(VI) levels and, therefore, could form the basis for an exposure threshold (Exs. 47–24–1; 47–35–1). Although no data were provided to corroborate their comments, the Society of the Plastics Industry requested that OSHA obtain and evaluate the German study as ''new and available evidence which may suggest a higher PEL than proposed'' (Ex. 47–24–1, p. 4).

Following the close of the comment period, OSHA gained access to a 2002 final contract report by Applied Epidemiology Inc. prepared for the Industrial Health Foundation (Ex. 48–1–1; 48–1–2) and a 2005 prepublication by ENVIRON Germany (Ex. 48–4). The 2002 report contained detailed cohort descriptions, exposure assessments, and mortality analyses of 'post-change' workers from the two German chromate production plants referred to above and two U.S. chromate production plants, one of which is plant 1 discussed in the 2005 study by Luippold *et al.* The mortality and multivariate analyses were performed on a single combined cohort from all four plants. The 2005 prepublication contained a more abbreviated description and analysis of a smaller cohort restricted to the two German plants only. The cohorts are referred to as 'post-change' because the study only selected workers employed after the participating plants switched from a high-lime to a no-lime (or very low lime facility, in the case of U.S. plant 1) chromate production process and implemented industrial hygiene improvements that considerably reduced Cr(VI) air levels in the workplace.

The German cohort consisted of 901 post-change male workers from two chromate production plants employed for at least one year. Mortality experience of the cohort was evaluated through 1998. The study found elevated lung cancer mortality (SMR=1.48 95% CI: 0.93–2.25) when compared to the age- and calendar year-adjusted German national population rates (Ex. 48–4). The cohort lacked sufficient job history information and air monitoring data to develop an adequate job-exposure matrix required to estimate individual airborne exposures (Ex. 48–1–2). Instead, the researchers used the large amount of urinary chromium data from routine biomonitoring of plant employees to analyze lung cancer mortality using cumulative urinary chromium as an exposure surrogate, rather than the conventional cumulative Cr(VI) air concentrations. The study reported a statistically significant two-fold excess lung cancer mortality (SMR=2.09; 95% CI: 1.08–3.65; 12 observed lung cancer deaths) among workers in the highest cumulative exposure grouping (*i.e.* >200 μg Cr/L—yr). There was no increase in lung cancer mortality in the lower exposure groups, but the number of lung cancer deaths was small (*i.e.* <5 deaths) and the confidence intervals were wide. Logistic regression modeling in the multi-plant cohort (*i.e.* German and U.S. plants combined) showed an increased risk of lung cancer in the high (OR=20.2; 95% CI: 6.2–65.4; 10 observed deaths) and intermediate (OR=4.9; 95% CI: 1.5–16.0; 9 deaths) cumulative exposure groups when compared to the low exposure group (Ex. 48–1–2, Table 18). The lung cancer risks remained unchanged when smoking status was controlled for in the model, indicating that the elevated risks were unlikely to be confounded by smoking in this study.

OSHA does not believe that the results of the German study provide a basis on which to establish a threshold exposure below which no lung cancer risk exists. Like the U.S. post-change cohort (*i.e.,* Luippold (2005) cohort) discussed above, small cohort size, few lung cancer cases (*e.g.,* 10 deaths in the three lowest exposure groups combined) and limited follow-up (average 17 years) severely limit the power to detect small increases in risk that may be present with low cumulative exposures. The limited power of the study is reflected in the wide confidence intervals associated with the SMRs. For example, there is no apparent evidence of excess lung cancer (SMR=0.95; 95% CI: 0.26–2.44) in workers exposed to low cumulative urine chromium levels between 40–100 μg Cr/L—yr. However, the lack of precision in this estimate is such that a two-fold increase in lung cancer mortality can not be ruled out with a high degree of confidence. Although the study authors state that the data suggest a possible threshold effect, they acknowledge that ''demonstrating a clear (and statistically significant) threshold response in epidemiological studies is difficult especially [where], as in this study, the number of available cases is relatively small, and the precise estimation of small risks requires large numbers'' (Ex. 48–4, p. 8). OSHA agrees that the number of lung cancer cases in the study is too small to clearly demonstrate a threshold response or precisely estimate small risks.

OSHA has relied upon a larger, more robust cohort study for its risk assessment than the German cohort. In comparison, the Gibb cohort has about five times the person-years of observation (70736 vs. 14684) and number of lung cancer cases (122 vs. 22). The workers, on average, were followed longer (30 vs. 17 years) and a greater proportion of the cohort is deceased (36% vs. 14%). Limited air monitoring from the German plants indicate that average plant-wide airborne Cr(VI) roughly declined from about 35 μg Cr(VI)/m³ in the mid 1970s to 5 μg Cr(VI)/m³ in the 1990s (2002 report; Ex. 7–91). This overlaps the Cr(VI) air levels in the Baltimore plant studied by Gibb *et al.* (Ex. 47–8). Furthermore, cumulative exposure estimates for members of the Gibb cohort were individually reconstructed

from job histories and Cr(VI) air monitoring data. These airborne Cr(VI) exposures are better suited than urinary chromium for evaluating occupational risk at the permissible exposure limits under consideration by OSHA. An appropriate conversion procedure that credibly predicts time-weighted average Cr(VI) air concentrations in the workplace from urinary chromium measurements is not evident and, thus, would undoubtedly generate additional uncertainty in the risk estimates. For the above reasons, OSHA believes the Gibb cohort provides a stronger dataset than the German cohort on which to assess the existence of a threshold exposure. This and other issues pertaining to the relationship between the cumulative exposure and lung cancer risk are further discussed in section VI.G.1.a.

C. Quantitative Risk Assessments Based on the Gibb Cohort

Quantitative risk assessments were performed on the exposure-response data from the Gibb cohort by three groups: Environ International (Exs. 33–15; 33–12) under contract with OSHA; the National Institute for Occupational Safety and Health (Ex. 33–13); and Exponent (Ex. 31–18–15–1) for the Chrome Coalition. All reported similar risks for Cr(VI) exposure over a working lifetime despite using somewhat different modeling approaches. The exposure-response data, risk models, statistical evaluation, and risk estimates reported by each group are discussed below.

1. Environ Risk Assessments

In 2002, Environ International (Environ) prepared a quantitative analysis of the association between Cr(VI) exposure and lung cancer (Ex. 33–15) , which was described in detail in the Preamble to the Proposed Rule (69 FR at 59364–59365). After the completion of the 2002 Environ analysis, individual data for the 2357 men in the Gibb *et al.* cohort became available. The new data included cumulative Cr(VI) exposure estimates, smoking information, date of birth, race, date of hire, date of termination, cause of death, and date of the end of follow-up for each individual (Ex. 35–295). The individual data allowed Environ to do quantitative risk assessments based on (1) redefined exposure categories, (2) alternate background reference rates for lung cancer mortality, and (3) Cox proportional hazards modeling (Ex. 33–12). These are discussed below and in the 2003 Environ analysis (Ex. 33–12).

The 2003 Environ analysis presented two alternate groupings with ten cumulative Cr(VI) exposure groups each, six more than reported by Gibb *et al.* and used in the 2002 analysis. One alternative grouping was designed to divide the person-years of follow-up fairly evenly across groups. The other alternative allocated roughly the same number of observed lung cancers to each group. These two alternatives were designed to remedy the uneven distribution of observed and expected cases in the Gibb *et al.* categories, which may have caused parameter estimation problems due to the small number of cases in some groups. The new groupings assigned adequate numbers of observed and expected lung cancer cases to all groups and are presented in Table VI–1.

Environ used a five-year lag to calculate cumulative exposure for both groupings. This means that at any point in time after exposure began, an individual's cumulative exposure would equal the product of chromate concentration and duration of exposure, summed over all jobs held up to five years prior to that point in time. An exposure lag is commonly used in exposure-response analysis for lung cancer since there is a long latency period between first exposure and the development of disease. Gibb *et al.* found that models using five- and ten-year lags provided better fit to the mortality data than lags of zero, two and twenty years (Ex. 31–22–11).

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Table VI-1

Dose-Response Data From Environ (2003, Ex. 33-12): Observed and Expected Lung Cancer Deaths for Gibb Cohort Grouped by Ten Cumulative Cr(VI) Exposure Categories

	Cumulative Cr(VI) Exposure ($\mu g/m^3$-years)	Mean Cr(VI) Exposure ($\mu g/m^3$-yr)	Person-Years	Observed Lung Cancers	Expected Lung Cancers	
					Maryland Rates	Baltimore Rates
Alternative 1: Roughly Equal Observed Cases per Group	0 - 0.151	0.0246	17982	12	10.3	13.37
	0.151 - 0.686	0.395	9314	12	13.0	16.80
	0.686 - 2.08	1.25	8694	12	10.3	13.55
	2.08 - 4.00	2.96	5963	12	7.38	9.42
	4.00 - 8.32	5.89	5102	12	5.63	7.32
	8.32 - 18.2	12.4	5829	13	7.09	9.21
	18.2 - 52	31.1	6679	13	6.83	9.05
	52 - 182	105	6194	12	5.77	7.73
	182 - 572	314	4118	12	5.79	7.66
	>572	979	945	12	2.07	2.62
Alternative 2: Roughly Equal Number of Person-Years per Group	0 - 0.052	0.00052	14282	4	5.08	6.63
	0.052 - 0.273	0.147	6361	11	9.05	11.58
	0.273 - 0.65	0.455	6278	7	8.71	11.33
	0.65 - 1.43	0.996	6194	11	7.30	9.58
	1.43 - 3.12	2.19	6395	12	8.17	10.52
	3.12 - 6.89	4.59	6207	11	6.90	8.95
	6.89 - 16.1	10.7	6296	17	7.77	10.05
	16.1 -41.6	25.9	6230	12	6.50	8.57
	41.6 - 143	81.5	6287	10	5.56	7.52
	>143	384	6289	27	9.17	11.99
TOTAL			70819.38	122	74.2	96.7

The lower bounds of the ranges are inclusive; the upper bounds are exclusive.

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The 2003 Environ analysis also derived expected cases using lung cancer rates from alternative reference populations. In addition to the State of Maryland lung cancer rates that were used by Gibb *et al.*, Environ used age- and race-specific rates from the city of Baltimore, where the plant was located. Baltimore may represent a more appropriate reference population because most of the cohort members

resided in Baltimore and Baltimore residents may be more similar to the cohort members than the Maryland or U.S. populations in their co-exposures and lifestyle characteristics, especially smoking habits and urban-related risk factors. On the other hand, Baltimore may not be the more appropriate reference population if the higher lung cancer rates in the Baltimore population primarily reflect extensive exposure to industrial carcinogens. This could lead to underestimation of risk attributable to Cr(VI) exposure.

The 2003 analysis used two externally standardized models, a relative risk model (model E1 below) and an additive risk model (model E2) defined as follows:

E1. $N_i = C_0 * E_i * (1 + C_1D_i + C_2D_i^2)$

E2. $N_i = C_0 * E_i + PY_i * (C_1D_i + C_2D_i^2)$

where N_i is the predicted number of lung cancers in the ith group; PY_i is the number of person-years for group i; E_i is the expected number of lung cancers in that group, based on the reference population; D_i is the mean cumulative dose for that group; and C_0, C_1, and C_2 are parameters to be estimated. Both models initially included quadratic exposure terms ($C_2D_i^2$) as one way to test for nonlinearity in the exposure-response. Model E1 is a relative risk model, whereas Model E2 is an additive risk model. In the case of additive risk models, the exposure-related estimate of excess risk is the same regardless of the age- and race-specific background rate of lung cancer. For relative risk models, a dose term is multiplied by the appropriate background rate of lung cancer to derive an exposure-related estimate of risk, so that excess risk always depends on the background.

Maximum likelihood techniques were used to estimate the parameters C_0, C_1, and C_2. Likelihood ratio tests were used to determine which of the model parameters contributed significantly to the fit of the model. Parameters were sequentially added to the model, starting with C_1, when they contributed significantly ($p < 0.05$) to improving the fit. Parameters that did not contribute significantly, including the quadratic exposure terms ($C_2D_i^2$), were removed from the models.

Two Cox proportional hazards models were also fit to the individual exposure-response data. The model forms were:

C1. $h(t;z;D) = h_0(t)*\exp(\beta_1 z + \beta_2 D)$

C2. $h(t;z;D) = h_0(t)*[\exp(\beta_1 z)][1 + \beta_2 D]$

where h is the hazard function, which expresses the age-specific rate of lung cancer among workers, as estimated by the model. In addition, t is age, z is a vector of possible explanatory variables other than cumulative dose, D is cumulative dose, $h_0(t)$ is the baseline hazard function (a function of age only), β_2 is the cumulative dose coefficient, and β_1 is a vector of coefficients for other possible explanatory variables—here, cigarette smoking status, race, and calendar year of death (Ex. 35–57). Cox modeling is an approach that uses the experience of the cohort to estimate an exposure-related effect, irrespective of an external reference population or exposure categorization. Because they are internally standardized, Cox models can sometimes eliminate concerns about choosing an appropriate reference population and may be advantageous when the characteristics of the cohort under study are not well matched against reference populations for which age-related background rates have been tabulated. Model C1 assumes the lung cancer response is nonlinear with cumulative Cr(VI) exposure, whereas C2 assumes a linear lung cancer response with Cr(VI) exposure. For the Cox proportional hazards models, C1 and C2, the other possible explanatory variables considered were cigarette smoking status, race, and calendar year of death.

The externally standardized models E1 and E2 provided a good fit to the data ($p \geq 0.40$). The choice of exposure grouping had little effect on the parameter estimates of either model E1 or E2. However, the choice of reference rates had some effect, notably on the ''background'' parameter, C_0, which was included as a fitted parameter in the models to adjust for differences in background lung cancer rates between cohort members and the reference populations. For example, values of C_0 greater than one ''inflate'' the base reference rates, reducing the magnitude of excess risks in the model. Such an adjustment was necessary for the Maryland reference population (the maximum likelihood estimate of C_0 was significantly higher than one), but not for the Baltimore city reference population (C_0 was not significantly different from one). This result suggests that the Maryland lung cancer rates may be lower than the cohort's background lung cancer rates, but the Baltimore city rates may adequately reflect the cohort background rates. The inclusion of the C_0 parameter yielded a cumulative dose coefficient that reflected the effect of exposure and not the effect of differences in background rates, and was appropriate.

The model results indicated a relatively consistent cumulative dose coefficient, regardless of reference population. The coefficient for cumulative dose in the models ranged from 2.87 to 3.48 per mg/m^3-yr for the relative risk model, E1, and from 0.0061 to 0.0071 per mg/m^3-person-yr for the additive risk model, E2. These coefficients determine the slope of the linear cumulative Cr(VI) exposure-lung cancer response relationship. In no case did a quadratic model fit the data better than a linear model.

Based on comparison of the models' AIC values, Environ indicated that the linear relative risk model E1 was preferred over the additive risk model E2. OSHA agrees with Environ's conclusion. The relative risk model is also preferred over an additive risk model because the background rate of lung cancer varies with age. It may not be appropriate to assume, as an additive model does, that increased lung cancer risk at age 25, where background risk is relatively low, would be the same (for the same cumulative dose) as at age 65, where background rates are much higher.

The Cox proportional hazards models, C1 and C2, also fit the data well (although the fit was slightly better for model C2 than C1). Recall that for the Cox proportional hazards models, C1 and C2, the other possible explanatory variables considered were cigarette smoking status, race, and calendar year of death. For both models, addition of a term for smoking status significantly improved the fit of the models to the data ($p<0.00001$). The experience with model C1 indicated that race ($p=0.15$) and year of death ($p=0.4$) were not significant contributors when cumulative dose and smoking status were included in the model. Based on results for model C1, race and year of death were not considered by Environ in the linear model C2. The cumulative dose coefficient, β_2, was 1.00 for model C1 and 2.68 for model C2. A more complete description of the models and variables can be found in the 2003 Environ analysis (Ex. 33–12, p. 10).

Lifetable calculations were made of the number of extra lung cancers per 1000 workers exposed to Cr(VI) based on models E1, E2, C1, and C2, assuming a constant exposure from age 20 through a maximum of age 65. The lifetable accounted for both lung cancer risk and competing mortality through age 100. Rates of lung cancer and other mortality for the lifetable calculations were based, respectively, on 2000 U.S. lung cancer and all-cause mortality rates for both sexes and all races. In addition to the maximum likelihood estimates, 95% confidence intervals for the excess lifetime risk were derived. Details about the procedures used to estimate parameters, model fit, lifetable calculations, and confidence intervals

are described in the 2003 Environ report (Ex. 33–12, p. 8–9).

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Table VI-2

Environ (2003, Ex. 33-12): Model Predictions of Excess Lung Cancer Deaths per 1000 Workers[a] Exposed to Various Cr(VI) Concentrations, by Model, Reference Population, and Exposure Grouping

Model	Reference Population	Exposure Grouping	Cr(VI) Concentration ($\mu g/m^3$) [95% Confidence Interval]						
			0.25	0.5	1.0	5	10	20	52
Relative Risk Model (E1)	Maryland State	Equal Cases/group	1.9 [0.9-3.6]	3.8 [1.8-7.2]	7.5 [3.7-14]	37 [18-69]	72 [36-132]	137 [57-240]	305 [168-471]
		Equal PYRs/group	2.0 [0.6-4.0]	4.0 [1.3-8.0]	8.0 [2.5-16]	39 [12-77]	76 [25-145]	144 [49-258]	318 [120-500]
	Baltimore City	Equal Cases/group	2.1 [1.0-3.6]	4.3 [1.3-8.0]	8.5 [4.1-14]	42 [20-68]	81 [40-130]	153 [78-237]	334 [186-467]
		Equal PYRs/group	2.3 [1.0-3.9]	4.6 [2.0-7.8]	9.1 [4.0-16]	45 [20-75]	86 [39-142]	163 [76-256]	351 [181-493]
Additive Risk Model (E4)	Maryland State	Equal Cases/group	2.4 [1.0-4.0]	4.7 [2.1-8.0]	9.4 [4.1-16]	46 [20-75]	89 [40-146]	170 [79-268]	373 [189-532]
		Equal PYRs/group	2.1 [0.7-3.7]	4.2 [1.5-7.5]	8.4 [3.0-15]	41 [15-72]	80 [29-137]	152 [58-253]	342 [141-511]
	Baltimore City	Equal Cases/group	2.4 [1.2-4.0]	4.8 [2.4-7.9]	10 [4.7-16]	47 [23-76]	92 [46-145]	174 [91-264]	380 [214-530]
		Equal PYRs/group	2.2 [1.0-3.8]	4.4 [2.0-7.5]	8.8 [3.9-15]	43 [19-72]	84 [38-138]	161 [74-254]	356 [181-513]
Cox Model C1	N/A	N/A	0.66 [0.3-0.9]	1.3 [0.6-1.9]	2.7 [1.3-3.8]	15 [6.7-21]	32 [14-49]	N/A	363 [110-606]
Cox Model C2	N/A	N/A	1.8 [0.7-3.4]	3.5 [1.4-6.8]	7.1 [2.7-14]	35 [13-66]	68 [27-125]	129 [52-229]	290 [128-456]

[a] The workers are assumed to start work at age 20 and continue to work for 45 years, at a constant exposure level.

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Table VI–2 shows each model's predictions of excess lifetime lung cancer risk from a working lifetime of exposure to various Cr(VI) air levels. The estimates are very consistent regardless of model, exposure grouping, or reference population. The model that appears to generate results least similar to the others is C1, which yielded one of the higher risk estimates at 52 μg/m^3, but estimated the lowest risks for exposure levels of 10 μg/m^3 or lower. The change in magnitude, relative to the other models, is a result of the nonlinearity of this model. Confidence limits for all models, including C1, tend to overlap, suggesting a fair degree of statistical consistency.

2. National Institute for Occupational Safety and Health (NIOSH) Risk Assessment

NIOSH (Ex. 33–13) developed a risk assessment from the Gibb cohort. The NIOSH analysis, like the 2003 Environ assessment, used the cohort individual data files to compute cumulative Cr(VI) exposure. However, NIOSH also explored some other exposure-related assumptions. For example, they performed the dose-response analysis with lag times in addition to the 5-year lag used by Environ. NIOSH also analyzed dose-response using as many as 50 exposure categories, although their report presents data in five cumulative Cr(VI) exposure groupings.

NIOSH incorporated information on the cohort smoking behavior in their quantitative assessments. They estimated (packs/day)-years of cumulative smoking for each individual in the cohort, using information from a questionnaire that was administered at the time of each cohort member's date of hire. To estimate cumulative smoking, NIOSH assumed that the cohort members maintained the level of smoking reported in the questionnaire from the age of 18 through the end of follow-up. Individuals with unknown smoking status were assigned a value equal to the average smoking level among all individuals with known smoking levels (presumably including non-smokers). Individuals who were known to smoke but for whom the amount was unknown were assigned a smoking level equal to the average of all smokers.

NIOSH considered six different relative risk models, fit to the Gibb cohort data by Poisson regression methods. They did not consider additive risk models. The six relative risk models were externally standardized using age- and race-specific U.S. lung cancer rates. Their background coefficients, C_0, explicitly included smoking, race, and age terms to adjust for differences between the cohort and the reference population. These models are described as follows:

NIOSH1a: $N_i = C_0 * Ei * \exp(C_1 D_i)$
NIOSH1b: $N_i = C_0 * Ei * \exp(C_1 D_i ½)$
NIOSH1c: $N_i = C_0 * Ei * \exp(1 + C_1 D_i + C_2 D_i^2)$
NIOSH1d: $N_i = C_0 * Ei * (1 + Di)^\alpha$
NIOSH1e: $N_i = C_0 * Ei * (1 + C_1 D_i)$
NIOSH1f: $N_i = C_0 * Ei * (1 + C_1 D_i^\alpha)$

where the form of the equation has been modified to match the format used in the Environ reports. In addition, NIOSH fit Cox proportional hazard models (not presented) to the lung cancer mortality data using the individual cumulative Cr(VI) exposure estimates.

NIOSH reported that the linear relative risk model 1e generally provided a superior fit to the exposure-response data when compared to the various log linear models, 1a–d. Allowing some non-linearity (*e.g.*, model 1f) did not significantly improve the goodness-of-fit, therefore, they considered the linear relative risk model form 1e (analogous to the Environ model E1) to be the most appropriate for determining their lifetime risk calculations. A similar fit could be achieved with a log-linear power model (model 1d) using log-transformed cumulative Cr(VI) and a piece-wise linear specification for the cumulative smoking term.

The dose coefficient (C_1) for the linear relative risk model 1e was estimated by NIOSH to be 1.444 per μg CrO_3/m^3-yr (Ex. 33–13, Table 4). If the exposures were converted to units of μg Cr(VI)/m^3-yr, the estimated cumulative dose coefficient would be 2.78 (95% CI: 1.04 to 5.44) per μg/m^3-yr. This value is very close to the estimates derived in the Environ 2003 analysis (maximum likelihood estimates ranging from 2.87 to 3.48 for model E1, depending on the exposure grouping and the reference population). Lifetime risk estimates based on the NIOSH-estimated dose coefficient and the Environ lifetable method using 2000 U.S. rates for lung cancer and all cause mortality are shown in Table VI–3. The values are very similar to the estimates predicted by the Environ 2003 analysis (Table VI–3). The small difference may be due to the NIOSH adjustment for smoking in the background coefficient. NIOSH found that excess lifetime risks for a 45-year occupational exposure to Cr(VI) predicted by the best-fitting power model gave very similar risks to the preferred linear relative risk model at TWA Cr(VI) concentrations between 0.52 and 52 μg/m^3 (Ex. 33–13, Table 5). Although NIOSH did not report the results, they stated that Cox modeling produced risk estimates similar to the Poisson regression. The consistency between Cox and Poisson regression modeling is discussed further in section VI.C.4.

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Table VI-3

Model Predictions of Additional Lung Cancer Deaths per 1000 Workers[a] Exposed to Various Cr(VI) Concentrations Based on NIOSH-Estimated Parameters

0.25	0.5	1.0	5	10	20	52
1.8 [0.7-3.6]	3.7 [1.4-7.2]	7.3 [2.7-14]	36 [14-69]	70 [27-131]	133 [53-238]	297 [130-468]

[a] The workers are assumed to start work at age 20 and continue to work for 45 years, at a constant exposure level.

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NIOSH reported a significantly higher dose-response coefficient for nonwhite workers than for white workers. That is, nonwhite workers in the Gibb cohort are estimated to have a higher excess risk of lung cancer than white workers, given equal cumulative exposure to Cr(VI). In contrast, no significant race difference was found in the Cox proportional hazards analysis reported by 2003 Environ.

3. Exponent Risk Assessment

In response to OSHA's Request For Information, Exponent prepared an analysis of lung cancer mortality from the Gibb cohort. Like the 2003 Environ and NIOSH analyses, the Exponent analysis relied on the individual worker data. Exponent performed their dose-response analyses based on three different sets of exposure categories using two reference populations and 70,808 person-years of follow-up. A total of four analyses were completed, using (1) Maryland reference rates and the four Gibb *et al.* exposure categories; (2) Baltimore reference rates and the four Gibb *et al.* exposure categories; (3) Baltimore reference rates and six exposure groups defined by Exponent; and (4) Baltimore City reference rates and five exposure categories, obtained by removing the highest of the six groups defined by Exponent from the dose-response analysis. A linear relative risk model without a background correction term (the term C_0 used by Environ and NIOSH) was applied in all of these cases and cumulative exposures were lagged five years (as done by Environ and NIOSH). The analyses showed excess lifetime risk between 6 and 14 per 1000 for workers exposed to 1 μg/m^3 Cr(VI) for 45 years.

The analysis using Maryland reference lung cancer rates and the Gibb *et al.* four-category exposure grouping yielded an excess lifetime risk of 14 per 1000. This risk, which is higher than the excess lifetime risk estimates by Environ and NIOSH for the same occupational exposure, probably results from the absence of a background rate coefficient (C_0) in Exponent's model. As reported in the Environ 2002 and 2003 analyses, the Maryland reference lung cancer rates require a background rate coefficient greater than 1 to achieve the best fit to the exposure-response data. The unadjusted Maryland rates probably underestimate the cohort's background lung cancer rate, leading to overestimation of the risk attributable to cumulative Cr(VI) exposure.

The two analyses that used Baltimore reference rates and either Exponent's six-category exposure grouping or the Gibb *et al.* four-category grouping both resulted in an excess lifetime unit risk of 9 per 1000 for workers exposed to 1 μg/m^3 Cr(VI) for 45 years (Ex. 31–18–15–1, p. 41). This risk is close to estimates reported by Environ using their relative risk model (E1) and Baltimore reference rates for the same occupational exposure (Table VI–2). The Environ analysis showed that, unlike the Maryland-standardized model discussed above, the Baltimore-standardized models had background rate coefficients very close to 1, the ''default'' value assumed by the Exponent relative risk model. This suggests that the Baltimore reference rates may represent the background lung cancer rate for this cohort more accurately than the Maryland reference rates.

The lowest excess lifetime unit risk for workers exposed to 1 μg/m^3 Cr(VI) for 45 years reported by Exponent, at 6 per 1000, was derived from the analysis that excluded the highest of Exponent's six exposure groups. While this risk value is close to the Environ and NIOSH unit risk estimates, the analysis merits some concern. Exponent eliminated the highest exposure group on the basis that most cumulative exposures in this group were higher than exposures usually found in current workplace conditions. However, eliminating this group could exclude possible long-term exposures (*e.g.*, >15 years) below the previous OSHA PEL (52 μg/m^3) from the risk analysis. Moreover, no matter what current exposures might be, data on higher cumulative exposures are relevant for understanding the dose-response relationships.

In addition, the Exponent six category cumulative exposure grouping may have led to an underestimate of the dose effect. The definition of Exponent's six exposure groups was not related to the distribution of cumulative exposure associated with individual person-years, but rather to the distribution of cumulative exposure among the workers at the end of their employment. This division does not result in either a uniform distribution of person-years or observed lung cancer cases among exposure categories. In fact, the six category exposure groupings of both person-years and observed lung cancers were very uneven, with a preponderance of both allocated to the lowest exposure group. This skewed distribution of person-years and observed cases puts most of the power for detecting significant differences from background cancer rates at low exposure levels, where these differences are expected to be small, and reduces the power to detect any significant differences from background at higher exposure concentrations.

4. Summary of Risk Assessments Based on the Gibb Cohort

OSHA finds remarkable consistency among the risk estimates from the various quantitative analyses of the Gibb cohort. Both Environ and NIOSH determined that linear relative risk models generally provided a superior fit to the data when compared to other relative risk models, although the confidence intervals in the non-linear Cox model reported by Environ overlapped with the confidence intervals in their linear models. The Environ 2003 analysis further suggested that a linear additive risk model could adequately describe the observed dose-response data. The risk estimates for NIOSH and Environ's best-fitting models were statistically consistent (compare Tables VI–2 and VI–3).

The choice of reference population had little impact on the risk estimates. NIOSH used the entire U.S. population as the reference, but included adjustment terms for smoking, age and race in its models. The Environ 2003 analysis used both Maryland and Baltimore reference lung cancer rates, and included a generic background coefficient C_0 to adjust for potential differences in background risk between the reference population and the worker cohort. This term was significant in the fitted model when Maryland rates were used for external standardization, but not when Baltimore rates were used. Since no adjustment in the model background term was required to better fit the exposure-response data using Baltimore City lung cancer rates, they may best represent the cohort's true background lung cancer incidence. OSHA considers the inclusion of such adjustment factors, whether specific to smoking, race, and age (as defined by NIOSH), or generic (as defined by Environ), to be appropriate and believes they contribute to accurate risk estimation by helping to correct for confounding risk factors. The Cox proportional hazard models, especially the linear Cox model, yielded risk estimates that were generally consistent with the externally standardized models.

Finally, the number of exposure categories used in the analysis had little impact on the risk estimates. When an appropriate adjustment to the background rates was included, the four exposure groups originally defined by Gibb *et al.* and analyzed in the 2002 Environ report, the six exposure groups defined by Exponent, the two alternate sets of ten exposure categories as defined in the 2003 Environ analysis, and the fifty groups defined and aggregated by NIOSH all gave essentially the same risk estimates. The robustness of the results to various categorizations of cumulative exposure adds credence to the risk projections.

Having reviewed the analyses described in this section, OSHA finds that the best estimates of excess lung cancer risk to workers exposed to the previous PEL (52 μg Cr(VI)/m^3) for a

working lifetime are about 300 to 400 per thousand based on data from the Gibb cohort. The best estimates of excess lung cancer risks to workers exposed to other TWA exposure concentrations are presented in Table VI–2. These estimates are consistent with predictions from Environ, NIOSH and Exponent models that applied linear relative and additive risk models based on the full range of cumulative Cr(VI) exposures experienced by the Gibb cohort and used appropriate adjustment terms for the background lung cancer mortality rates.

D. Quantitative Risk Assessments Based on the Luippold Cohort

As discussed earlier, Luippold *et al.* (Exs. 35–204; 33–10) provided information about the cohort of workers employed in a chromate production plant in Painesville, Ohio. Follow-up for the 482 members of the Luippold cohort started in 1940 and lasted through 1997, with accumulation of person-years for any individual starting one year after the beginning of his first exposure. There were 14,048 total person-years of follow-up for the cohort. The person-years were then divided into five exposure groups that had approximately equal numbers of expected lung cancers in each group. Ohio reference rates were used to compute expected numbers of deaths. White male rates were used because the number of women was small (4 out of 482) and race was known to be white for 241 of 257 members of the cohort who died and for whom death certificates were available. The 1960–64 Ohio rates (the earliest available) were assumed to hold for the time period from 1940 to 1960. Rates from 1990–94 were assumed to hold for the period after 1994. For years between 1960 and 1990, rates from the corresponding five-year summary were used. There were significant trends for lung cancer SMR as a function of year of hire, duration of employment, and cumulative Cr(VI) exposure. The cohort had a significantly increased SMR for lung cancer deaths of 241 (95% C.I. 180 to 317).

Table VI-4

Dose-Response Data From Luippold Cohort as cited by Environ (2002, Ex. 33-15): Observed and Expected Numbers of Lung Cancer Deaths Grouped by Five Cumulative Cr(VI) Exposure Categories

Cumulative Cr(VI) Exposure ($\mu g/m^3$ -yrs)	Mean Cr(VI) Exposure ($\mu g/m^3$ -yrs)	Observed Lung Cancers	Expected Lung Cancers[b]	Person-Years
<0.0002	0.0001	3	4.5	2952
0.0002–0.00049	0.00036	8	4.4	2369
0.00049–0.00105	0.00074	4	4.4	3077
0.00105–0.0027	0.00179	16	4.4	3220
0.0027–0.0278	0.00481	20	4.3	2482

[b] Expected lung cancer deaths derived using Ohio state mortality rates

Environ conducted a risk assessment based on the cumulative Cr(VI) exposure-lung cancer mortality data from Luippold *et al.* and presented in Table VI–4 (Ex. 33–15). Cumulative Cr(VI) exposures were categorized into five groups with about four expected lung cancer deaths in each group. In the absence of information to the contrary, Environ assumed Luippold *et al.* did not employ any lag time in determining the cumulative exposures. The calculated

and expected numbers of lung cancers were derived from Ohio reference rates. Environ applied the relative and additive risk models, E1 and E2, to the data in Table VI–4.

Linear relative and additive risk models fit the Luippold cohort data adequately ($p \geq 0.25$). The final models did not include the quadratic exposure coefficient, C_2, or the background rate parameter, C_0, as they did not significantly improve the fit of the models. The maximum likelihood estimates for the Cr(VI) exposure-related parameter, C_1, of the linear relative and additive risk models were 0.88 per mg/m^3-yr and 0.0014 per mg/m^3-person-yr, respectively. The C_1 estimates based on the Luippold cohort data were about 2.5-fold lower than the parameter estimates based on the Gibb cohort data. The excess lifetime risk estimate calculated by Environ for a 45-year working-lifetime exposure to 1 µg Cr(VI)/m^3 (*e.g.*, the unit risk) for both models was 2.2 per 1000 workers (95% confidence intervals from 1.3 to 3.5 per 1000 for the relative risk model and 1.2 to 3.4 per 1000 for the additive risk model) using a lifetable analysis with 1998 U.S. mortality reference rates. These risks were 2.5 to 3-fold lower than the projected unit risks based on the Gibb data set for equivalent cumulative Cr(VI) exposures.

Crump *et al.* (Exs. 33–15; 35–58; 31–18) also performed an exposure-response analysis from the Painesville data. In a Poisson regression analysis, cumulative exposures were grouped into ten exposure categories with approximately two expected lung cancer deaths in each group. The observed and expected lung cancer deaths by Cr(VI) exposure category are shown in Table VI–5. Ohio reference rates were used in calculating the expected lung cancer deaths and cumulative exposures were lagged five years.

Table VI-5

Dose-Response Data From Crump et al. (Ex. 35-58): Observed and Expected Numbers of Lung Cancer Deaths for Luippold Cohort Grouped by Ten Cumulative Cr(VI) Exposure Categories

Cumulative Cr(VI) Exposure (µg/m^3 -yrs)	Mean Cr(VI) Exposure (µg/m^3 -yrs)	Observed Lung Cancers	Expected Lung Cancer[b]	Person-Years
0–0.00006	0.0000098	0	2.09	3112
0.00006–0.00018	0.00011	3	2.19	1546
0.00018–0.0003	0.00023	3	2.21	1031
0.0003–0.00046	0.00038	5	2.13	1130
0.00046–0.00067	0.00056	0	2.22	1257
0.00067–0.001	0.00080	4	2.23	1431
0.001–0.00163	0.00125	12	2.23	1493
0.00163–0.0026	0.0021	3	2.18	1291
0.0026–0.00445	0.00327	10	2.18	1248
0.00445–0.029	0.00755	11	2.12	904

The lower bounds of the ranges are inclusive; the upper bounds are exclusive.

[b] Expected lung cancer deaths derived using Ohio state mortality rates

The Crump *et al.* analysis used the same linear relative risk and additive risk models as Environ on the individual data categorized into the ten cumulative exposure groups (Ex. 35–58). Tests for systematic departure from

linearity were non-significant for both models ($p \geq 0.11$). The cumulative dose coefficient determined by the maximum likelihood method was 0.79 (95% CI: 0.47 to 1.19) per mg/m^3-yr for the relative risk model and 0.0016 (95% CI: 0.00098 to 0.0024) per mg/m^3-person-yr for the additive risk model, respectively. The authors noted that application of the linear models to five and seven exposure groups resulted in no significant difference in dose coefficients, although the results were not presented. The exposure coefficients reported by Crump *et al.* were very similar to those obtained by Environ above, although different exposure groups were used and Crump *et al.* used a five-year lag for the cumulative exposure calculation. The authors noted that the linear models did not fit the exposure data grouped into ten categories very well (goodness-of-fit $p \leq 0.01$) but fit the data much better with seven exposure groups ($p > 0.3$), replacing the many lower exposure categories where there were few observed and expected cancers with more stable exposure groupings with greater numbers of cancers. The reduction in number of exposure groups did not substantially change the fitted exposure coefficients.

The maximum likelihood estimate for the cumulative exposure coefficient using the linear Cox regression model C2 was 0.66 (90% CI: 0.11 to 1.21), which was similar to the linear [Poisson regression] relative risk model. When the Cox analysis was restricted to the 197 workers with known smoking status and a smoking variable in the model, the dose coefficient for Cr(VI) was nearly identical to the estimate without controlling for smoking. This led the authors to conclude that ''the available smoking data did not suggest that exposure to Cr(VI) was confounded with smoking in this cohort, or that failure to control for smoking had an appreciable effect upon the estimated carcinogenic potency of Cr(VI)'' (Ex. 35–58, p. 1156).

Given the similarity in results, OSHA believes it is reasonable to use the exposure coefficients reported by Crump *et al.* based on their groupings of the individual cumulative exposure data to estimate excess lifetime risk from the Luippold cohort. Table VI–6 presents the excess risk for a working lifetime exposure to various TWA Cr(VI) levels as predicted by Crump *et al.*'s relative and additive risk models using a lifetable analysis with 2000 U.S. rates for all causes and lung cancer mortality. The resulting maximum likelihood estimates indicate that working lifetime exposures to the previous Cr(VI) PEL would result in excess lifetime lung cancer risks around 100 per 1000 (95% C.I. approx. 60–150). The risk estimates based on the Luippold cohort are lower than the risk estimates based on the Gibb cohort, as discussed further in section VI.F.

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Table VI-6

Model Predictions of Additional Lung Cancer Deaths per 1000 Workers[a] Exposed to Various Concentrations of Cr(VI) Based on the Luippold Cohort and Crump Dose Coefficients

Model	0.25	0.5	1.0	5	10	20	52
Relative Risk	0.52 [0.31 -0.79]	1.0 [0.62-1.6]	2.1 [1.2-3.1]	10 [6.2-15]	21 [12- 31]	41 [21-60]	101 [62 -147]
Additive Risk	0.55 [0.36- 0.82]	1.1 [0.67-1.6]	2.2 [1.3-3.3]	11 [6.7-16]	22 [13- 32]	43 [27-64]	108 [67 - 155]

[a] The workers are assumed to start work at age 20 and continue to work for 45 years, at a constant exposure level.

Maximum likelihood estimates and 95% confidence intervals are shown.

These estimates were derived from the Crump et al. risk models using the exposure coefficients reported in section VI.D and a lifetable using 2000 U.S. mortality rates for all causes and lung cancer.

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E. Quantitative Risk Assessments Based on the Mancuso, Hayes, Gerin, and Alexander Cohorts

In addition to the preferred data sets analyzed above, there are four other cohorts with available data sets for estimation of additional lifetime risk of lung cancer. These are the Mancuso cohort, the Hayes cohort, the Gerin cohort, and the Alexander cohort. Environ did exposure-response analysis for all but the Hayes cohort (Ex. 33–15). Several years earlier, the K.S. Crump Division did quantitative assessments on data from the Mancuso and Hayes cohort, under contract with OSHA (Ex.13–5). The U.S. EPA developed quantitative risk assessments from the Mancuso cohort data for its Integrated Risk Information System (Exs. 19–1; 35–52). The California EPA (Ex. 35–54), Public Citizen Health Research Group (Ex. 1), and the U.S. Air Force Armstrong Laboratory (AFAL) for the Department of Defense (Ex. 35–51) performed assessments from the Mancuso data using the 1984 U.S. EPA risk estimates as their starting point. The U.S. EPA also published a risk assessment based on the Hayes cohort data (Ex. 7–102). Until the cohort studies of Gibb *et al.* and Luippold *et al.* became available, these earlier assessments provided the most current projected cancer risks from airborne exposure to Cr(VI). The previous risk assessments were extensively described in the NPRM sections VI.E.1 and VI.E.2 (69 FR at 59375–59378). While the risk estimates from Mancuso, Hayes, Gerin, and Alexander data sets are associated with a greater degree of uncertainty, it is nevertheless valuable to compare them to the risk estimates from the higher quality Gibb and Luippold data sets in order to determine if serious discrepancies exist between them. OSHA believes evaluating consistency in risk among several worker cohorts adds to the overall quality of the assessment.

The Mancuso and Luippold cohorts each worked at the Painesville plant but the worker populations did not overlap due to different selection criteria. Exposure estimates were also based on different industrial hygiene surveys. The Hayes and Gibb cohorts both worked at the Baltimore plant. Even though Cr(VI) exposures were reconstructed from monitoring data measured at different facilities resulting in significantly different exposure-response functions (see section VI.F), there was some overlap in the two study populations. As a result, the projected risks from these data sets can not strictly be viewed as independent estimates. The Gerin and Alexander cohorts were not chromate production workers and are completely independent from the Gibb and Luippold data sets. The quantitative assessment of the four data sets and comparison with the risk assessments based on the Gibb and Luippold cohorts are discussed below.

1. Mancuso Cohort

As described in subsection VII.B.3, the Mancuso cohort was initially defined in 1975 and updated in 1997. The cohort members were hired between 1931 and 1937 and worked at the same Painesville facility as the Luippold cohort workers. However, there was no overlap between the two cohorts since all Luippold cohort workers were hired after 1939. The quantitative risk assessment by Environ used data reported in the 1997 update (Ex. 23, Table XII) in which lung cancer deaths and person-years of follow-up were classified into four groups of cumulative exposure to soluble chromium, assumed to represent Cr(VI) (Ex. 33–15). The mortality data and person-years were further broken down by age of death in five year increments starting with age interval 40 to 44 years and going up to >75 years. No expected numbers of lung cancers were computed, either for the cohort as a whole or for specific groups of person-years. Environ applied an indirect method based on the recorded median age and year of entry into the cohort to estimate age information necessary to derive expected numbers of age- and calendar year-adjusted lung cancers deaths required to complete the risk assessment.

Observed and expected lung cancer deaths by age and cumulative exposure (mg/m^3-yr) are presented in Table 3 of the 2002 Environ report (Ex. 33–15, p. 39). The mean cumulative exposures to soluble Cr(VI) were assumed to be equal to the midpoints of the tabulated ranges. No lag was used for calculating the cumulative exposures. Environ applied externally standardized risk models to these data, similar to those described in section VI.C.1 but using an age-related parameter, as discussed in the 2002 report (Ex. 33–15, p. 39). The externally-standardized linear relative risk model with an age-dependent exposure term provided a superior fit over the other models.

The predicted excess risk of lung cancer from a 45-year working lifetime of exposure to Cr(VI) at the previous OSHA PEL using the best-fitting linear relative risk model is 293 per 1000 workers (95% C.I. 188 to 403). The maximum likelihood estimate from working lifetime exposure to new PEL of 5.0 $\mu g/m^3$ Cr(VI) is 34 per 1000 workers (95% C.I. 20 to 52 per 1000). These estimates are close to those predicted from the Gibb cohort but are higher than predicted from the Luippold cohort.

There are uncertainties associated with both the exposure estimates and the estimates of expected numbers of lung cancer deaths for the 1997 Mancuso data set. The estimates of exposure were derived from a single set of measurements obtained in 1949 (Ex. 7–98). Although little prior air monitoring data were available, it is thought that the 1949 air levels probably understate the Cr(VI) concentrations in the plant during some of the 1930s and much of the 1940s when chromate production was high to support the war. The sampling methodology used by Bourne and Yee only measured soluble Cr(VI), but it is believed that the chromate production process employed at the Painesville plant in these early years yielded slightly soluble and insoluble Cr(VI) compounds that would not be fully accounted for in the sampling results (Ex. 35–61). This would imply that risks would be overestimated by use of concentration estimates that were biased low. However, it is possible that the 1949 measurements did not underestimate the Cr(VI) air levels in the early 1930s prior to the high production years. Some older cohort members were also undoubtedly exposed to less Cr(VI) in the 1950s than measured in 1949 survey.

Another uncertainty in the risk assessment for the Mancuso cohort is associated with the post-hoc estimation of expected numbers of lung cancer deaths. The expected lung cancers were derived based on approximate summaries of the ages and assumed start times of the cohort members. Several assumptions were dictated by reliance on the published groupings of results (*e.g.*, ages at entry, calendar year of entry, age at end of follow-up, etc.) as well as by the particular choices for reference mortality rates (*e.g.*, U.S. rates, in particular years close to the approximated time at which the person-years were accrued). Since the validity of these assumptions could not be tested, the estimates of expected numbers of lung cancer deaths are uncertain.

There is also a potential healthy worker survivor effect in the Mancuso cohort. The cohort was identified as workers first hired in the 1930s based on employment records surveyed in the late 1940s (Ex. 2–16). The historical company files in this time period were

believed to be sparse and more likely to only identify employees still working at the plant in the 1940s (Ex. 33–10). If there was a sizable number of unidentified short-term workers who were hired but left the plant in the 1930s or who died before 1940 (*i.e.* prior to systematic death registration), then there may have been a selection bias (*i.e.*, healthy worker survivor effect) toward longer-term, healthier individuals (Ex. 35–60). Since the mortality of these long-term ''survivors'' is often more strongly represented in the higher cumulative exposures, it can negatively confound the exposure-response and lead to an underestimation of risk, particularly to shorter-term workers (Ex. 35–63). This may be an issue with the Mancuso cohort, although the magnitude of the potential underestimation is unclear.

Earlier quantitative risk assessments by the K.S. Crump Division, EPA, and others were done on cohort data presented in the 1975 Mancuso report (Ex. 7–11). These assessments did not have access to the 20 additional years of follow-up nor did they have age-grouped lung cancer mortality stratified by cumulative soluble chromium (presumed Cr(VI)) exposure), which was presented later in the 1997 update. Instead, age-grouped lung cancer mortality was stratified by cumulative exposure to total chromium that included not only carcinogenic Cr(VI) but substantial amounts of non-carcinogenic Cr(III). OSHA believes that the Environ quantitative risk assessment is the most credible analysis from the Mancuso cohort. It relied on the updated cohort mortality data and cumulative exposure estimates derived directly from air measurements of soluble chromium.

2. Hayes Cohort

The K.S. Crump Division (Ex. 13–5) assessed risk based on the exposure-response data reported in Table IV by Braver *et al.* (Ex. 7–17) for the cohort studied by Hayes *et al.* (Ex. 7–14). The Hayes cohort overlapped with the Gibb cohort. The Hayes cohort included 734 members, not part of the Gibb cohort, who worked at an older facility from 1945 to 1950 but did not work at the newer production facility built in August 1950. The Hayes cohort excluded 990 members of the Gibb cohort who worked less than 90 days in the new production facility after August 1950. As noted in section VI.B.4, Braver *et al.* derived a single cumulative soluble Cr(VI) exposure estimate for each of four subcohorts of chromate production workers categorized by duration of employment and year of hire by Hayes *et al.* Thus, exposures were not determined for individual workers using a more comprehensive job exposure matrix procedure, as was done for the Gibb and Luippold cohorts. In addition, the exposures were estimated from air monitoring conducted only during the first five of the fifteen years the plant was in operation. Unlike the Mancuso cohort, Hayes *et al.* did not stratify the observed lung cancer deaths by age group. The expected number of lung cancer deaths for each subcohort was based on the mortality statistics from Baltimore.

The K.S. Crump Division applied the externally standardized linear relative risk approach to fit the exposure-response data (Ex. 13–5). The maximum likelihood estimate for the dose coefficient (*e.g.*, projected linear slope of the Cr(VI) exposure-response curve) was 0.75 per mg Cr(VI)/m^3-yr with a 90% confidence bound of between 0.45 and 1.1 per mg Cr(VI)/m^3-yr. These confidence bounds are consistent with the dose coefficient estimate obtained from modeling the Luippold cohort data (0.83, 95% CI: 0.55 to 1.2) but lower than that from the Gibb cohort data (3.5, 95% CI: 1.5 to 6.0). The linear relative risk model fit the Hayes cohort data well (p=0.50). The K.S. Crump Division predicted the excess risk from occupational exposure to Cr(VI) for a 45 year working lifetime at the previous OSHA PEL (52 μg/m^3) to be 88 lung cancer cases per 1000 workers (95% CI: 61 to 141). Predicted excess risk at the new PEL of 5 μg/m^3 is about 9 excess lung cancer deaths per 1000 (95% CI: 6.1 to 16) for the same duration of occupational exposure. These estimates are somewhat lower than the corresponding estimates based on the Gibb cohort data, probably because of the rather high average soluble Cr(VI) level (218 μg/m^3) assumed by Braver *et al.* for plant workers throughout the 1950s. If these assumed air levels led to an overestimate of worker exposure, the resulting risks would be underestimated.

3. Gerin Cohort

Environ (Ex. 33–15) did a quantitative assessment of the observed and expected lung cancer deaths in stainless steel welders classified into four cumulative Cr(VI) exposure groups reported in Tables 2 and 3 of Gerin *et al.* (Ex. 7–120). The lung cancer data came from a large combined multi-center welding study in which a statistically significant excess lung cancer risk was observed for the whole cohort and non-statistically significant elevated lung cancer mortality was found for the stainless steel welder subcohorts (Ex. 7–114). A positive relationship with time since first exposure was also observed for the stainless steel welders (the type of welding with the highest exposure to Cr(VI)) but not with duration of employment.

The exposure-response data from the Gerin study was only presented for those stainless steel welders with at least five years employment. Workers were divided into ''ever stainless steel welders'' and ''predominantly stainless steel welders'' groups. The latter group were persons known to have had extended time welding stainless steel only or to have been employed by a company that predominantly worked stainless steel. As stated in section VI.B.5, the cumulative exposure estimates were not based on Cr(VI) air levels specifically measured in the cohort workers, and therefore are subject to greater uncertainty than exposure estimates from the chromate production cohort studies. Environ restricted their analysis to the ''ever stainless steel welders'' since that subcohort had the greater number of eligible subjects and person-years of follow-up, especially in the important lower cumulative exposure ranges. The person-years, observed numbers of lung cancers, and expected numbers of lung cancers were computed starting 20 years after the start of employment. Gerin *et al.* provided exposure-response data on welders with individual work histories (about two-thirds of the workers) as well as the entire subcohort. Regardless of the subcohort examined, there was no obvious indication of a Cr(VI) exposure-related effect on lung cancer mortality. A plausible explanation for this apparent lack of exposure-response is the potentially severe exposure misclassification resulting from the use of exposure estimates based on the welding literature (rather than exposure measurements at the plants used in the study, which were not available to the authors).

Environ used externally standardized models to fit the data (Ex. 33–15). They assumed that the cumulative Cr(VI) exposure for the workers was at the midpoint of the reported range. A value of 2.5 mg/m^3-yr was assumed for the highest exposure group (*e.g.*, >0.5 mg/m^3-yr), since Gerin *et al.* cited it as the mean value for the group, which they noted to also include the ''predominantly stainless steel welders''. All models fit the data adequately (p>0.28) with exposure coefficients considerably lower than for the Gibb or Luippold cohorts (Ex. 33–15, Table 6). In fact, the 95% confidence intervals for the exposure coefficients

overlapped 0, which would be expected when there is no exposure-related trend.

Based on the best fitting model, a linear relative risk model (Ex. 33–15, Table 9, p. 44), the projected excess risk of lung cancer from a working lifetime exposure to Cr(VI) at the previous PEL was 46 (95% CI: 0 to 130) cases per 1000 workers. The 95 percent confidence interval around the maximum likelihood estimate reflects the statistical uncertainty associated with risk estimates from the Gerin cohort.

Following the publication of the proposed rule, OSHA received comments from Exponent (on behalf of a group of steel industry representatives) stating that it is not appropriate to model exposure-response for this cohort because there was not a statistically significant trend in lung cancer risk with estimated exposure, and risk of lung cancer did not increase monotonically with estimated exposure (Ex. 38–233–4, pp. 7–8). OSHA disagrees. Because the best-fitting model tested by Environ fit the Gerin data adequately, OSHA believes that it is reasonable to generate risk estimates based on this model for comparison with the risk estimates based on the Gibb and Luippold cohorts. This allows OSHA to quantitatively assess the consistency between its preferred estimates and risk estimates derived from the Gerin cohort.

In post-hearing comments, Dr. Herman Gibb expressed support for OSHA's approach. Dr. Gibb stated:

> The epidemiologic studies of welders * * * conducted to date have been limited in their ability to evaluate a lung cancer risk. It is conceivable that differences in exposure * * * between [this industry] and the chromate production industry could lead to differences in cancer risk. Because there aren't adequate data with which to evaluate these differences, it is appropriate to compare the upper bounds [on risk] derived from the Gerin *et al.* * * * [study] with those predicted from the chromate production workers to determine if they are consistent.

OSHA agrees with Exponent that the results of the Gerin *et al.* study were different from those of the Luippold (2003) and Gibb cohorts, in that a statistically significant exposure-response relationship and a monotonically increasing lung cancer risk with exposure were not found in Gerin. Also, the maximum likelihood risk estimates based on the Gerin cohort were somewhat lower than those based on the Gibb and Luippold cohorts. However, OSHA believes the lower risk estimates from the Gerin cohort may be explained by the strong potential for bias due to Cr(VI) exposure misclassification and possibly by the presence of co-exposures, as discussed in sections VI.B.5 and VI.G.4. Part of the difference may also relate to statistical uncertainty; note that the 95% confidence intervals (shown in Table VI–7) overlap the lower end of OSHA's range based on the preferred Gibb and Luippold (2003) studies.

4. Alexander Cohort

Environ (Ex. 33–15) did a quantitative assessment of the observed and expected lung cancer incidence among aerospace workers exposed to Cr(VI) classified into four cumulative chromate exposure groups, reported in Table 4 of Alexander *et al.* (Ex. 31–16–3). The authors stated that they derived ''estimates of exposure to chromium [VI]'' based on the TWA measurements, but later on referred to ''the index of cumulative total *chromate* exposure (italics added) reported as $\mu g/m^3$ chromate TWA-years'' (Ex. 31–16–3, p. 1254). Alexander *et al.* grouped the lung cancer data by cumulative exposure with and without a ten year lag period. They found no statistically significant elevation in lung cancer incidence among the chromate-exposed workers or clear trend with cumulative chromate exposure.

For their analysis, Environ assumed that the cumulative exposures were expressed in $\mu g/m^3$-yr of Cr(VI), rather than chromate (CrO_4^{-2}) or chromic acid (CrO_3). Environ used an externally standardized linear relative risk model to fit the unlagged data (Ex. 33–15). An additive risk model could not be applied because person-years of observation were not reported by Alexander *et al.* Environ assumed that workers were exposed to a cumulative Cr(VI) exposure at the midpoint of the reported ranges. For the open-ended high exposure category, Environ assumed a cumulative exposure 1.5 times greater than the lower limit of 0.18 mg/m^3-yr. The model fit the data poorly (p=0.04) and the exposure coefficient was considered to be 0 since positive values did not significantly improve the fit. Given the lack of a positive trend between lung cancer incidence and cumulative Cr(VI) exposure for this cohort, these results are not surprising.

Following the publication of the proposed rule, OSHA received comments from Exponent (on behalf of the Aerospace Industries Association) stating that the Agency should not apply a linear model to the Alexander *et al.* study to derive risk estimates for comparison with the estimates based on the Gibb and Luippold (2003) cohorts (Ex. 38–215–2, p. 10). Due to the poor fit of Environ's exposure-response model to the Alexander cohort data, OSHA agrees with Exponent in this matter. Risk estimates based on Alexander *et al.* are therefore not presented in this risk assessment.

OSHA believes that there are several possible reasons for the lack of a positive association between Cr(VI) exposure and lung cancer incidence in this cohort. First, follow-up time was extremely short, averaging 8.9 years per cohort member. Long-term follow-up of cohort members is particularly important for determining the risk of lung cancer, which typically has an extended latency period of roughly 20 years or more. One would not necessarily expect to see excess lung cancer or an exposure-response relationship among workers who had been followed less than 20 years since their first exposure to Cr(VI), as most exposure-related cancers would not yet have appeared. Other possible reasons that an exposure-response relationship was not observed in the Alexander cohort include the young age of the cohort members (median 42 years at end of follow-up), which also suggests that occupational lung cancers may not yet have appeared among many cohort members. The estimation of cumulative Cr(VI) exposure was also problematic, drawing on air measurement data that did not span the entire employment period of the cohort (there were no data for 1940 to 1974) and were heavily grouped into a relatively small number of ''summary'' TWA concentrations that did not capture individual differences in workplace exposures to Cr(VI).

F. Summary of Risk Estimates Based on Gibb, Luippold, and Additional Cohorts

OSHA believes that the best estimates of excess lifetime lung cancer risks are derived from the Gibb and Luippold cohorts. Due to their large size and long follow-up, these two cohorts accumulated a substantial number of lung cancer deaths that were extensively examined by several different analyses using a variety of statistical approaches. Cohort exposures were reconstructed from air measurements and job histories over three or four decades. The linear relative risk model fit the Gibb and Luippold data sets well. It adequately fit several epidemiological data sets used for comparative analysis. Environ and NIOSH explored a variety of nonlinear dose-response forms, but none provided a statistically significant improvement over the linear relative risk model.

The maximum likelihood estimates from a linear relative risk model fit to the Gibb data are three- to five-fold higher than estimates based on the Luippold data at equivalent cumulative

Cr(VI) exposures and the confidence limits around the projected risks from the two data sets do not overlap. This indicates that the maximum likelihood estimates derived from one data set are unlikely to describe the lung cancer mortality observed in the other data set. Despite this statistical inconsistency between the risk estimates, the differences between them are not unreasonably great given the potential uncertainties involved in estimating cancer risk from the data (see section VI.G). Since the analyses based on these two cohorts are each of high quality and their projected risks are reasonably close (well within an order of magnitude), OSHA believes the excess lifetime risk of lung cancer from occupational exposure to Cr(VI) is best represented by the range of risks that lie between maximum likelihood estimates of the Gibb and Luippold data sets.

Table VI-7

OSHA Estimates of Excess Lung Cancer Cases per 1000 Workers[a] Exposed to Various Eight Hour TWA Cr(VI) With 95 Percent Confidence Interval Comparisons by Cohort

Exposure Level ($\mu g/m^3$)	Best Estimates of Risk	Preferred Cohorts		Additional Cohorts		
		Gibb	Luippold	Mancuso	Hayes	Gerin
0.25	0.52-2.3	2.3 (1.0-3.9)	0.53 (0.31-0.79)	1.7 (1.0-2.7)	0.45 (0.31-0.75)	0.2 (0.0-0.7)
0.5	1.0-4.6	4.6 (2.0-7.8)	1.1 (0.62-1.6)	3.5 (2.0-5.4)	0.90 (0.62-1.5)	0.5 (0.0-1.4)
1.0	2.1-9.1	9.1 (4.0-16)	2.1 (1.2-3.1)	7.0 (4.1-11)	1.8 (1.2-3.0)	0.9 (0.0-2.8)
5.0	10-45	45 (20-75)	10 (6.2-15)	34 (20-52)	9.0 (6.1-15)	4.5 (0.0-14)
10	21-86	86 (39-142)	21 (12-31)	n/a	18 (12-30)	9.0 (0.0-29)
20	41-164	164 (76-256)	41 (21-60)	n/a	36 (24-51)	18 (0.0-54)
52	101-351	351 (181-493)	101 (62-147)	293 (188-403)	88 (61-141)	46 (0.0-130)

[a] The workers are assumed to start work at age 20 and continue to work for 45 years, at a constant exposure level. All estimates were recalculated using year 2000 U.S. reference rates, all races, both sexes, for lung cancer and all causes, except for those from Mancuso, for which 1998 rates were used.

[b] OSHA finds that the estimates of risk best supported by the scientific evidence are the ranges bounded by the maximum likelihood estimates from the linear relative risk models presented in Table VI-2 (Baltimore reference population/exposure grouping with equal person-years) for the Gibb cohort and Table VI-6 for the Luippold cohort.

[c] The confidence intervals for the Gibb and Luippold cohorts are from Tables VI-2 and VI-6. The confidence intervals for the Mancuso and Gerin cohorts are derived from parameters reported by Environ (2002, Ex. 33-15). All are from the best fitting linear relative risk models and are 95% confidence intervals. The confidence interval for the Hayes cohort was calculated from the 90 percent confidence interval on the dose coefficient for the linear relative risk model reported by the K.S. Crump Division (1995, Ex. 13-5).

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OSHA's best estimates of excess lung cancer cases from a 45-year working lifetime exposure to Cr(VI) are presented in Table VI–7. As previously discussed, several acceptable assessments of the Gibb data set were performed, with similar results. The 2003 Environ model E1, applying the Baltimore City reference population and ten exposure categories based on a roughly equal number of person-years per group, was selected to represent the range of best risk estimates derived from the Gibb cohort, in part because this assessment employed an approach most consistent with the exposure grouping applied in the Luippold analysis (see Table VI–6). To characterize the statistical uncertainty of OSHA's risk estimates, Table VI–7 also presents the 95% confidence limits associated with the maximum likelihood risk estimates from the Gibb cohort and the Luippold cohort.

OSHA finds that the most likely lifetime excess risk at the previous PEL of 52 μg/m^3 Cr(VI) lies between 101 per 1000 and 351 per 1000, as shown in Table VI–7. That is, OSHA predicts that between 101 and 351 of 1000 workers occupationally exposed for 45 years at the previous PEL would develop lung cancer as a result of their exposure. The wider range of 62 per 1000 (lower 95% confidence bound, Luippold cohort) to 493 per 1000 (upper 95% confidence bound, Gibb cohort) illustrates the range of risks considered statistically plausible based on these cohorts, and thus represents the statistical uncertainty in the estimates of lung cancer risk. This range of risks decreases roughly proportionally with exposure, as illustrated by the risk estimates shown in Table VI–7 for working lifetime exposures at various levels at and below the previous PEL.

The risk estimates for the Mancuso, Hayes, and Gerin data sets are also presented in Table VI–7. (As discussed previously, risk estimates were not derived from the Alexander data set.) The exposure-response data from these cohorts are not as strong as those from the two featured cohorts. OSHA believes that the supplemental assessments for the Mancuso and Hayes cohorts support the range of projected excess lung cancer risks from the Gibb and Luippold cohorts. This is illustrated by the maximum likelihood estimates and 95% confidence intervals shown in Table VI–7. The risk estimates and 95% confidence interval based on the Hayes cohort are similar to those based on the Luippold cohort, while the estimates based on the Mancuso cohort are more similar to those based on the Gibb cohort. Also, OSHA's range of best risk estimates based on the two primary cohorts for a given occupational Cr(VI) exposure overlap the 95 percent confidence limits for the Mancuso, Hayes, and Gerin cohorts. This indicates that the Agency's range of best estimates is statistically consistent with the risks calculated by Environ from any of these data sets, including the Gerin cohort where the lung cancers did not show a clear positive trend with cumulative Cr(VI) exposure.

Several commenters remarked on OSHA's use of both the Gibb cohort and the Luippold cohort to define a preliminary range of risk estimates associated with a working lifetime of exposure at the previous and alternative PELs. Some suggested that OSHA should instead rely exclusively on the Gibb study, due to its superior size, smoking data, completeness of follow-up, and exposure information (Tr. 709–710, 769; Exs. 40–18–1, pp. 2–3; 47–23, p. 3; 47–28, pp. 4–5). Others suggested that OSHA should devise a weighting scheme to derive risk estimates based on both studies but with greater weight assigned to the Gibb cohort (Tr. 709–710, 769, Exs. 40–18–1, pp. 2–3; 47–23, p. 3), arguing that ''the use of the maximum likelihood estimate from the Luippold study as the lower bound of OSHA's risk estimates * * * has the effect of making a higher Permissible Exposure Limit (PEL) appear acceptable'' (Ex. 40–18–1, p. 3). OSHA disagrees with this line of reasoning. OSHA believes that including all studies that provide a strong basis to model the relationship between Cr(VI) and lung cancer, as the Luippold study does, provides useful information and adds depth to the Agency's risk assessment. OSHA agrees that in some cases derivation of risk estimates based on a weighting scheme is an appropriate approach when differences between the results of the two or more studies are believed to primarily reflect sources of uncertainty or error in the underlying studies. A weighting scheme might then be used to reflect the degree of confidence in their respective results. However, the Gibb and Luippold cohorts were known to be quite different populations, and the difference between the risk estimates based on the two cohorts could partly reflect variability in exposure-response. In this case, OSHA's use of a range of risk defined by the two studies is appropriate for the purpose of determining significance of risk at the previous PEL and the alternative PELs that the Agency considered.

Another commenter suggested that OSHA should derive a ''single 'best' risk estimate [taking] into account all of the six quantitative risk estimates'' identified by OSHA as featured or supporting risk assessments in the preamble to the proposed rule, consisting of the Gibb and Luippold cohorts as well as studies by Mancuso (Ex. 7–11), Hayes (Ex. 7–14), Gerin (Ex. 7–120), and Alexander (Ex. 31–16–3) (Ex. 38–265, p. 76). The commenter, Mr. Stuart Sessions of Environomics, Inc., proposed that OSHA should use a weighted average of risk estimates

derived from all six studies, weighting the Gibb and Luippold studies more heavily than the remaining four ''admittedly weaker studies'' (Ex. 38–265, p. 78). During the public hearing, however, he stated that OSHA may reasonably choose not to include some studies in the development of its quantitative risk model based on certain criteria or qualifications related to the principles of sound epidemiology and risk assessment (Tr. 2484–2485). Mr. Sessions agreed with OSHA that sufficient length of follow-up (≥20 years) is a critical qualification for a cohort to provide an adequate basis for lung cancer risk assessment, admitting that ''if we are dealing with [a] long latency sort of effect and if you only follow them for a few years it wouldn't be showing up with anywhere near the frequency that you would need to get a statistically significant excess risk'' (Tr. 2485). This criterion supports OSHA's decision to exclude the Alexander study as a primary data set for risk assessment, due in part to the inadequate length of follow-up on the cohort (average 8.9 years).

Mr. Sessions also agreed that the quality and comprehensiveness of the exposure information for a study could be a deciding factor in whether it should be used for OSHA's risk estimates (Tr. 2485–2487). As discussed in the preamble to the proposed rule, significant uncertainty in the exposure estimates for the Mancuso and Gerin studies was a primary reason they were not used in the derivation of OSHA's preliminary risk estimates (69 FR at 59362–3). Mancuso relied exclusively on the air monitoring reported by Bourne and Yee (Ex. 7–98) conducted over a single short period of time during 1949 to calculate cumulative exposures for each cohort member, although the cohort definition and follow-up period allowed inclusion of workers employed as early as 1931 and as late as 1972. In the public hearing, Mr. Sessions indicated that reliance on exposure data from a single year would not necessarily ''disqualify'' a study from inclusion in the weighted risk estimate he proposed, if ''for some reason the exposure hasn't changed much over the period of exposure'' (Tr. 2486). However, the Mancuso study provides no evidence that exposures in the Painesville plant were stable over the period of exposure. To the contrary, Mancuso stated that:

> The tremendous progressive increase in production in the succeeding years from zero could have brought about a concomitant increase in the dust concentrations to 1949 that could have exceeded the level of the first years of operation. The company instituted control measures after the 1949 study which markedly reduced the exposure (Ex. 7–11, p. 4).

In the Gerin *et al.* study, cohort members' Cr(VI) exposures were estimated based on total fume levels and fume composition figures from ''occupational hygiene literature and and welding products manufacturers' literature readily available at the time of the study'', supplemented by ''[a] limited amount of industrial hygiene measurements taken in the mid 1970s in eight of the [135] companies'' from which the cohort was drawn (Ex. 7–120, p. S24). Thus, cumulative exposure estimates for workers in this cohort were generally not based on data collected in their particular job or company. Gerin *et al.* explained that the resulting ''global average'' exposure estimates ''obscure a number of between-plant and within-plant variations in specific factors which affect exposure levels and would dilute a dose-response relationship'', including type of activity, * * * special processes, arcing time, voltage and current characteristics, welder position, use of special electrodes or rods, presence of primer paints and background fumes coming from other activities (Ex. 7–120, p. S25).

Commenting on the available welding epidemiology, NIOSH emphasized that wide variation in exposure conditions across employers may exist, and should be a consideration in multi-employer studies (Ex. 47–19, p. 6). Gerin *et al.* recommended refinement and validation of their exposure estimates using ''more complete and more recent quantitative data'' and accounting for variability within and between plants, but did not report any such validation for their exposure-response analysis. OSHA believes that the exposure misclassification in the Gerin study could be substantial. It is therefore difficult to place a high degree of confidence in its results, and it should not be used to derive the Agency's quantitative risk estimates. Comments received from Dr. Herman Gibb support OSHA's conclusion. He stated that epidemiologic studies of welders conducted to date do not include adequate data with which to evaluate lung cancer risk (Ex. 47–8, p. 2).

Finally, Mr. Sessions agreed with OSHA that it is best to rely on ''independent studies on different cohorts of workers'', rather than including the results of two or more overlapping cohorts in the weighted average he proposed (Tr. 2487). As discussed in the preamble to the proposed rule, the Hayes *et al.* and Gibb *et al.* cohorts were drawn from the same Baltimore chromate production plant (FR 69 at 59362). The workers in the subcohort of Hayes *et al.* analyzed by Braver were first hired between 1945 and 1959; the Gibb cohort included workers first hired between 1950 and 1974. Due to the substantial overlap between the two cohorts, it is not appropriate to use the results of the Hayes as well as the Gibb cohort in a weighted average calculation (as proposed by Mr. Sessions).

Having carefully reviewed the various comments discussed above, OSHA finds that its selection of the Gibb and Luippold cohorts to derive a range of quantitative risk estimates is the most appropriate approach for the Cr(VI) risk assessment. Support for this approach was expressed by NIOSH, which stated that ''the strength is in looking at [the Gibb and Luippold studies] together * * * appreciating the strengths of each'' (Tr. 313). Several commenters voiced general agreement with OSHA's study selection, even while disagreeing with OSHA's application of these studies' results to specific industries. Said one commenter, ''[w]e concur with the selection of the two focus cohorts (Luippold *et al.* 2003 and Gibb *et al.* 2000) as the best data available upon which to base an estimate of the exposure-response relationship between occupational exposure to Cr(VI) and an increased lung cancer risk'' (38–8, p. 6); and another, ''[i]t is clear that the data from the two featured cohorts, Gibb *et al.* (2000) and Luippold *et al.* (2003), offer the best information upon which to quantify the risk due to Cr(VI) exposure and an increased risk of lung cancer'' (Ex. 38–215–2, p. 16). Comments regarding the suitability of the Gibb and Luippold cohorts as a basis for risk estimates in specific industries will be addressed in later sections.

G. Issues and Uncertainties

The risk estimates presented in the previous sections include confidence limits that reflect statistical uncertainty. This statistical uncertainty concerns the limits of precision for statistical inference, given assumptions about the input parameters and risk models (*e.g.*, exposure estimates, observed lung cancer cases, expected lung cancer cases, linear dose-response). However, there are uncertainties with regard to the above input and assumptions, not so easily quantified, that may lead to underestimation or overestimation of risk. Some of these uncertainties are discussed below.

1. Uncertainty With Regard to Worker Exposure to Cr(VI)

The uncertainty that may have the greatest impact on risk estimates relates to the assessment of worker exposure. Even for the Gibb cohort, whose exposures were estimated from roughly 70,000 air measurements over a 35-year period, the calculation of cumulative exposure is inherently uncertain. The methods used to measure airborne Cr(VI) did not characterize particle size that determines deposition in the respiratory tract (see section V.A). Workers typically differ from one another with respect to working habits and they may have worked in different areas in relation to where samples are taken. Inter-individual (and intra-facility) variability in cumulative exposure can only be characterized to a limited degree, even with extensive measurement. The impact of such variability is likely less for estimates of long-term average exposures when there were more extensive measurements in the Gibb and Luippold cohorts in the 1960s through 1980s, but could affect the reliability of estimates in the 1940s and 1950s when air monitoring was done less frequently. Exposure estimates that rely on annual average air concentrations are also less likely to reliably characterize the Cr(VI) exposure to workers who are employed for short periods of time. This may be particularly true for the Gibb cohort in which a sizable fraction of cohort members were employed for only a few months.

Like many retrospective cohort studies, the frequency and methods used to monitor Cr(VI) concentrations may also be a source of uncertainty in reconstructing past exposures to the Gibb and Luippold cohorts. Exposures to the Gibb cohort in the Baltimore plant from 1950 until 1961 were determined based on periodic collection of samples of airborne dust using high volume sampling pumps and impingers that were held in the breathing zone of the worker for relatively short periods of time (*e.g.*, tens of minutes) (Ex. 31–22–11). The use of high volume sampling with impingers to collect Cr(VI) samples may have underestimated exposure since the accuracy of these devices depended on an air flow low enough to ensure efficient Cr(VI) capture, the absence of agents capable of reducing Cr(VI) to Cr(III), the proper storage of the collected samples, and the ability of short-term collections to accurately represent full-shift worker exposures. Further, impingers would not adequately capture any insoluble forms of Cr(VI) present, although other survey methods indicated minimal levels of insoluble Cr(VI) were produced at the Baltimore facility (Ex. 13–18–14).

In the 1960s, the Baltimore plant expanded its Cr(VI) air monitoring program beyond periodic high volume sampling to include extensive area monitoring in 27 exposure zones around the facility. Multiple short-term samples were collected (*e.g.*, twelve one-hour or eight three-hour samples) on cellulose tape for an entire 24 hour period and analyzed for Cr(VI). Studies have shown that Cr(VI) can be reduced to Cr(III) on cellulose filters under certain circumstances so there is potential for underestimation of Cr(VI) using this collection method (Ex. 7–1, p. 370). Monitoring was conducted prior to 1971, but the results were misplaced and were not accessible to Gibb *et al.* The area monitoring was supplemented by routine full-shift personal monitoring of workers starting in 1977. The 24-hour area sampling supplemented with personal monitoring was continued until plant closure in 1985.

Some of the same uncertainties exist in reconstructing exposures from the Luippold cohort. Exposure monitoring from operations at the Painesville plant in the 1940s and early 1950s was sparse and consisted of industrial hygiene surveys conducted by various groups (Ex. 35–61). The United States Public Health Service (USPHS) conducted two industrial hygiene surveys (1943 and 1951), as did the Metropolitan Life Insurance Company (1945 and 1948). The Ohio Department of Health (ODH) conducted surveys in 1949 and 1950. The most detailed exposure information was available in annual surveys conducted by the Diamond Alkali Company (DAC) from 1955 to 1971. Exponent chose not to consider the ODH data in their analysis since the airborne Cr(VI) concentrations reported in these surveys were considerably lower than values measured at later dates by DAC. Excluding the ODH survey data in the exposure reconstruction process may have led to higher worker exposure estimates and lower predicted lung cancer risks.

There were uncertainties associated with the early Cr(VI) exposure estimates for the Painesville cohort. Like the monitoring in the Baltimore plant, Cr(VI) exposure levels were determined from periodic short-term, high volume sampling with impingers that may have underestimated exposures (Ex. 35–61). Since the Painesville plant employed a ''high-lime'' roasting process to produce soluble Cr(VI) from chromite ore, a significant amount of slightly soluble and insoluble Cr(VI) was formed. It was estimated that up to approximately 20 percent of the airborne Cr(VI) was in the less soluble form in some areas of the plant prior to 1950 (Ex. 35–61). The impingers were unlikely to have captured this less soluble Cr(VI) so some reported Cr(VI) air concentrations may have been underestimated for this reason.

The annual air monitoring program at the Painesville plant was upgraded in 1966 in order to evaluate a full 24 hour period (Ex. 35–61). Unlike the continuous monitoring at the Baltimore plant, twelve area air samples from sites throughout the plant were collected for only 35 minutes every two hours using two in-series midget impingers containing water. The more frequent monitoring using the in-series impinger procedure may be an improvement over previous high-volume sampling and is believed to be less susceptible to Cr(VI) reduction than cellulose filters. While the impinger collection method at the Painesville plant may have reduced one source of potential exposure uncertainty, another source of potential uncertainty was introduced by failure to collect air samples for more than 40 percent of the work period. Also, personal monitoring of workers was not conducted at any time.

Concerns about the accuracy of the Gibb and Luippold exposure data were expressed in comments following the publication of the proposed rule. Several commenters suggested that exposures of workers in both the Gibb and Luippold (2003) cohorts may have been underestimated, resulting in systematic overestimation of risk in the analyses based on these cohorts (Exs. 38–231, pp. 19–20; 38–233, p. 82; 39–74, p. 2; 47–27, p. 15; 47–27–3, p. 1). In particular, the possibility was raised that exposure measurements taken with the RAC sampler commonly used in the 1960s may have resulted in lower reported Cr(VI) levels as a result of reduction of Cr(VI) on the sample strip. Concerns were also raised that situations of exceptionally high exposure may not have been captured by the sampling plans at the Baltimore and Painesville plants and that Cr(VI) concentrations in workers' breathing zones would have been generally higher than concentrations measured in general area samples taken in the two plants (Exs. 38–231, p. 19; 40–12–1, p. 2). One commenter noted that ''the exposure values identified in both the Painesville and Baltimore studies are consistently lower than those reported for a similar time period by alternative sources (Braver *et al.* 1985; PHS 1953)'' (Exs. 38–231, p. 19; 40–12–1, p. 2). It was also suggested that impinger samples used to estimate exposures in the Painesville

plant and the impinger and RAC samples used between 1950 and 1985 in the Baltimore plant did not efficiently capture particles smaller than 1 μm in diameter, which were believed to have constituted a substantial fraction of particles generated during the chromite ore roasting process, and thus led to an underestimate of exposures (Ex. 47–27–3, pp. 1–4).

In his written testimony for the public hearing, Dr. Herman Gibb addressed concerns about the type of samples on which the Gibb cohort exposure estimates were based. Dr. Gibb stated, ''[a] comparison of the area and personal samples [collected during 1978–1985] found essentially no difference for approximately two-thirds of the job titles with a sufficient number of samples to make this comparison.'' An adjustment was made for the remaining job titles, in which the area samples were found to underestimate the breathing zone exposure, so that the potential for underestimation of exposures based on general area samples '' * * * was accounted for and corrected * * * '' in the Gibb cohort exposure estimates (Ex. 44–4, pp. 5–6). Dr. Gibb also noted that the publications claimed by commenters to have reported consistently higher levels of exposure than those specified by the authors of the Gibb *et al.* and Luippold *et al.* studies, in fact did not report exposures in sufficient detail to provide a meaningful comparison. In particular, Dr. Gibb said that the Public Health Service (PHS) publication did not report plant-specific exposure levels, and that Braver *et al.* did not report the locations or sampling strategies used (Ex. 44–4, pp. 5–6).

OSHA agrees with Dr. Gibb that the use of RAC general area samples in the Baltimore plant are unlikely to have caused substantial error in risk estimates based on the Gibb cohort. A similar comparison and adjustment between area and personal samples could not be performed for the Luippold *et al.* cohort, for which only area samples were available. The fact that most general area samples were similar to personal breathing zone samples in the Gibb cohort does not support the contention that reduction on the RAC sample strip or small particle capture issues would have caused substantial error in OSHA's risk estimates. Speculation regarding unusually high exposures that may not have been accounted for in sampling at the Baltimore and Painesville plants raises an uncertainty common to many epidemiological studies and quantitative risk analysis, but does not provide evidence that occasional high exposures would have substantially affected the results of this risk assessment.

OSHA received comments from the Small Business Administration's Office of Advocacy and others suggesting that, in addition to water-soluble sodium dichromate, sodium chromate, potassium dichromate, and chromic acid, some members of the Gibb and Luippold cohorts may have been exposed to less soluble compounds such as calcium chromate (Tr. 1825, Exs. 38–7, p. 4; 38–8, p. 12; 40–12–5, p. 5). These less soluble compounds are believed to be more carcinogenic than Cr(VI) compounds that are water-soluble or water-insoluble (*e.g.* lead chromate). The Painesville plant used a high-lime process to roast chromite ore, which is known to form calcium chromate and lesser amounts of other less water-soluble Cr(VI) compounds (Ex. 35–61). The 1953 USPHS survey estimated that approximately 20 percent of the total Cr(VI) in the roasting residue at the Painesville plant consisted of the less water-soluble chromates (Ex. 2–14). The high lime roasting process is no longer used in the production of chromate compounds.

Proctor *et al.* estimated that a portion of the Luippold cohort prior to 1950 were probably exposed to the less water-soluble Cr(VI) compounds due to the use of a high-lime roasting process, but that it would amount to less than 20 percent of their total Cr(VI) exposure (Ex. 35–61). The Painesville plant subsequently reduced and eliminated exposure to Cr(VI) roasting residue through improvements in the production process. A small proportion of workers in the Special Products Division of the Baltimore plant may have been exposed to less water-soluble Cr(VI) compounds during the occasional production of these compounds over the years. However, the high-lime process believed to generate less soluble compounds at the Painesville plant was not used at the Baltimore plant, and the 1953 USPHS survey detected minimal levels of less soluble Cr(VI) at this facility (Braver *et al.* 1985, Ex. 7–17).

OSHA agrees that some workers in the Luippold 2003 cohort (Painesville plant) and perhaps in the Gibb cohort (Baltimore plant) may have been exposed to minor amounts of calcium chromate and other less-soluble Cr(VI) compounds. However, these exposures would have been limited for most workers due to the nature of the production process and controls that were instituted after the early production period at the Painesville plant. The primary operation at the plants in Painesville and Baltimore was the production of the water-soluble sodium dichromate from which other primarily water-soluble chromates such as sodium chromate, potassium dichromate, and chromic acid could be made (Exs. 7–14; 35–61). Therefore, the Gibb and Luippold cohorts were principally exposed to water-soluble Cr(VI). Risk of lung cancer in these cohorts is therefore likely to reflect exposure to sodium chromate and sodium dichromate, rather than calcium chromate.

The results of the recent German post-change cohort showed that excess lung cancer mortality occurred among chromate-exposed workers in plants exclusively using a no-lime production process (Ex. 48–4). Like the Gibb cohort, the German cohort was exposed to average full-shift Cr(VI) exposures well below the previous PEL of 52 μg/m^3 but without the possible contribution from the more carcinogenic calcium chromate (Exs. 48–1–2; Ex. 7–91). OSHA believes the elevated lung cancer mortality in these post-change workers are further evidence that occupational exposure to the less carcinogenic water-soluble Cr(VI) present a lung cancer risk.

In their post-hearing brief, the Aerospace Industries Association of America (AIA) stated:

> OSHA's quantitative risk estimates are based on exposure estimates derived from impinger and RAC samplers in the Painesville and Baltimore chromate production plants. It is likely that these devices substantially underestimated airborne levels of Cr(VI), especially considering that particles were typically <1 μm. If exposure in these studies were underestimated, the risk per unit exposure was overestimated, and the risk estimates provided in the proposed rule overstate lung cancer risks (Ex. 47–29–2, p. 4).

AIA supports its statements by citing a study by Spanne *et al.* (Ex. 48–2) that found very low collection efficiencies (*e.g.* <20 percent) of submicron particles (*i.e.* <1 μm) using midget impingers. OSHA does not dispute that liquid impinger devices, primarily used to measure Cr(VI) air levels at the Painesville plant, are less effective at collecting small submicron particles. However, OSHA does not believe AIA has adequately demonstrated that the majority of Cr(VI) particles generated during soluble chromate production are submicron in size. This issue is further discussed in preamble section VI.G.4.a. Briefly, the AIA evidence is principally based on a particle size distribution from two airborne dust samples collected at the Painesville plant by an outdated sampling device under conditions that essentially excludes particles >5 μm (Ex. 47–29–2, Figure 4).

OSHA believes it is more likely that Cr(VI) production workers in the Gibb and Luippold cohorts were exposed to Cr(VI) mass as respirable dust (*i.e.* <10 μm) mostly over 1 μm in size. The Spanne *et al.* study found that the impinger efficiency for particles greater than 2 μm is above 80 percent. Cr(VI) exposure not only occurs during roasting of chromite ore, where the smallest particles are probably generated, but also during the leaching of water-soluble Cr(VI) and packaging sodium dichromate crystals where particle sizes are likely larger. Based on this information, OSHA does not have reason to believe that the impinger device would substantially underestimate Cr(VI) exposures during the chromate production process or lead to a serious overprediction of risk.

The RAC samplers employed at the Baltimore plant collected airborne particles on filter media, not liquid media. AIA provided no data on the submicron particle size efficiency of these devices. For reasons explained earlier in this section, OSHA finds it unlikely that use of the RAC samplers led to substantial error in worker exposure estimates for the Gibb cohort.

In summary, uncertainties associated with the exposure estimates are a primary source of uncertainty in any assessment of risk. However, the cumulative Cr(VI) exposure estimates derived from the Luippold (2003) and Gibb cohorts are much more extensive than usually available for a cancer cohort and are more than adequate as a basis for quantitative risk assessment. OSHA does not believe the potential inaccuracies in the exposure assessment for the Gibb and Luippold (2003) cohorts are large enough to result in serious overprediction or underprediction of risk.

2. Model Uncertainty, Exposure Threshold, and Dose Rate Effects

The models used to fit the observed data may also introduce uncertainty into the quantitative predictions of risk. In the Preamble to the Proposed Rule, OSHA solicited comments on whether the linear relative risk model is the most appropriate approach on which to estimate risk associated with occupational exposure to Cr(VI) (FR 69 at 59307). OSHA expressed particular interest in whether there is convincing scientific evidence of a non-linear exposure-response relationship and, if so, whether there are sufficient data to develop a non-linear model that would provide more reliable risk estimates than the linear approach that was used in the preliminary risk assessment.

OSHA received a variety of comments regarding the uncertainties associated with using the risk model based on the Gibb and Luippold cohorts to predict risk to individuals exposed over a working lifetime to low levels of Cr(VI). OSHA's model assumes that the risk associated with a cumulative exposure resulting from long-term, low-level exposure is similar to the risk associated with the same cumulative exposure from briefer exposures to higher concentrations, and that a linear relative risk model adequately describes the cumulative exposure-response relationship. These assumptions are common in cancer risk assessment, and are based on scientifically accepted models of genotoxic carcinogenesis. However, OSHA received comments from the Small Business Administation's Office of Advocacy and others that questioned the Agency's reliance on these assumptions in the case of Cr(VI) (see *e.g.* Exs. 38–7, p. 2; 38–231, p. 18; 39–74, p. 2; 40–12–1, p. 2; 38–106, p. 10, p. 23; 38–185, p. 4; 38–233, p. 87; 38–265–1, pp. 27–29; 43–2, pp. 2–3). Some comments suggested that a nonlinear or threshold exposure-response model is an appropriate approach to estimate lung cancer risk from Cr(VI) exposures. Evidence cited in support of this approach rely on: (1) The lack of a statistically significant increased lung cancer risk for workers exposed below a cumulative Cr(VI) exposure of 1.0 mg/m^3=yr (*e.g.*, roughly equivalent to 20 μg/m^3 TWA for a 45 year working lifetime) and below ''a highest reported eight hour average'' Cr(VI) concentration of 52 μg/m^3; (2) the lack of observed lung tumors at lower dose levels in rats chronically exposed to Cr(VI) by inhalation and repeated intratracheal installations; and (3) the existence of physiological defense mechanisms within the lung, such as extracellular reduction of Cr(VI) to Cr(III) and repair of DNA damage. These commenters argue that the evidence suggests a sublinear nonlinearity or threshold in exposure-response at exposures in the range of interest to OSHA.

The Small Business Administration's Office of Advocacy and several other commenters stated that OSHA's risk model may overestimate the risk to individuals exposed for a working lifetime at ''low'' concentrations (Exs. 38–7, p. 2; 38–231, p. 18; 39–74, p. 2; 40–12–1, p. 2) or at concentrations as high as 20–23 μg/m^3 (Exs. 38–7, p. 6; 38–106, p. 10, p. 23; 38–185, p. 4; 38–233, p. 87; 38–265–1, pp. 27–29; 43–2, pp. 2–3), due to possible nonlinear features in the exposure-response relationship for Cr(VI). These comments cited various published analyses of the Luippold and Gibb cohorts, including the Luippold *et al.* 2003 publication (Exs. 38–106, p. 10, p. 22; 38–233–4, p. 17), the Proctor *et al.* 2004 publication (Ex. 38–233–4, p. 17), the Crump *et al.* 2003 publication (Exs. 38–106, p. 22; 38–265–1, p. 27), and an analysis conducted by Exponent on behalf of chromium industry representatives (Ex. 31–18–15–1). The following discussion considers each of these analyses, as well as the overall weight of evidence with respect to cancer risk from low exposure to Cr(VI).

a. Linearity of the Relationship Between Lung Cancer Risk and Cumulative Exposure

In the Luippold *et al.* 2003 publication (Ex. 33–10) and the Proctor *et al.* 2004 publication (Ex. 38–216–10), the authors reported observed and expected lung cancer deaths for five categories of cumulative exposure. Lung cancer mortality was significantly elevated in categories above 1.05 mg/m^3-yr Cr(VI) ($p < 0.05$), and was non-significantly elevated in the category spanning 0.20–0.48 mg/m^3-yr (8 observed lung cancer deaths vs. 4.4 expected), with a slight deficit in lung cancer mortality for the first and third categories (3 observed vs. 4.5 expected below 0.2 mg/m3-yr, 4 observed vs. 4.4 expected at 0.48–1.04 mg/m^3-yr) (Ex. 33–10, p. 455). This analysis is cited by commenters who suggest that the lack of a significantly elevated lung cancer risk in the range below 1.05 mg/m^3-yr may reflect the existence of a threshold or other nonlinearity in the exposure-response for Cr(VI), and that OSHA's use of a linear relative risk model in the preliminary risk assessment may not be appropriate (Exs. 38–106, pp. 10–11; 38–233–4, p. 18). OSHA received similar comments citing the Crump *et al.* (2003) publication, in which the authors found a ''consistently significant'' trend of increasing risk with increasing cumulative exposure for categories of exposure above 1 mg/m^3-yr (Ex. 35–58, p. 1157). The Exponent analysis of the Gibb *et al.* cohort was also cited, which found that lung cancer SMRs were not significantly elevated for workers with cumulative exposures below 0.42 mg/m^3-yrs Cr(VI) when Baltimore reference rates and a six-category exposure grouping were used (Ex. 31–18–15–1, Table 6).

Some commenters have interpreted these analyses to indicate uncertainty about the exposure-response relationship at low exposure levels. Others have asserted that ''[c]redible health experts assessing the same data

as OSHA have concluded that 23 μg/m³ is a protective workplace standard (Ex. 38–185, p. 4) or that ''[t]he Crump study concluded that 23 μg/m³ would be a standard that is protective of workers health'' (Ex. 47–35–1, p. 5). Contrary to these assertions, it should be noted that the Gibb *et al.*, Luippold *et al.*, and Crump *et al.* publications do not include any statements concluding that 23 μg/m³ or any other exposure level is protective against occupational lung cancer. OSHA has reviewed these analyses to determine whether they provide sufficient evidence to support the use of a nonlinear or threshold-based exposure-response model for the Cr(VI) risk assessment, and whether they support the assertion that a PEL higher than that proposed would protect workers against a significant risk of lung cancer.

In discussing their results, Luippold *et al.* reported that evaluation of a linear dose-response model using a chi-squared test showed no significant departure from linearity and concluded that the data are consistent with a linear dose-response model. They noted that the results were also consistent with threshold or nonlinear effects at low cumulative exposures, as they observed substantial increases in cumulative exposure levels above approximately 1 mg/m³-yrs (Ex. 33–10, p. 456). Ms. Deborah Proctor, lead author of the Proctor *et al.* (2004) publication, confirmed these conclusions at the public hearing, stating her belief that nonlinearities may exist but that the data were also consistent with a linear dose response (Tr. 1845). The authors of the Crump *et al.* 2003 publication (Ex. 35–58), in which trend analyses were used to examine the exposure-response relationship for cumulative exposure, stated that the data were '' * * * neutral with respect to these competing hypotheses'' (Ex. 35–58, pp. 1159–1160). Crump *et al.* concluded that their study of the Luippold cohort '' * * * had limited power to detect increases [in lung cancer risk] at these low exposure levels'' (Ex. 35–58, p. 1147). OSHA agrees with Crump *et al.*'s conclusion that their study could not detect the relatively small increases in risk that would be expected at low exposures. With approximately 3000 person-years of observation time and 4.5 expected lung cancers in each of the three cumulative exposure categories lower than 0.19 mg/m³-yrs Cr(VI) (Ex. 33–10, p. 455), analyses of the Luippold cohort cannot effectively discriminate between alternative risk models for cumulative exposures that a worker would accrue from a 45-year working lifetime of occupational exposure at relatively low exposures (*e.g.*, 0.045–0.225 mg/m³-yrs Cr(VI), corresponding to a working lifetime of exposure at 1–5 μg Cr(VI)/m³).

The Exponent reanalysis of the Gibb cohort found that lung cancer rates associated with exposures around 0.045 mg/m³-yrs Cr(VI) and below were not significantly elevated in some analyses (Ex. 31–18–15–1, Table 6 p. 26). However, OSHA believes that this result is likely due to the limited power of the study to detect small increases in risk, rather than a threshold or nonlinearity in exposure-response. In written testimony, Dr. Gibb explained that ''[l]ack of a statistically elevated lung cancer risk at lower exposures does not imply that a threshold of response exists. As exposure decreases, so does the statistical power of a given sample size to detect a significantly elevated risk'' (Ex. 44–4, p. 6). Exponent's analyses found (non-significant) elevated risks for all exposure groups above approximately 0.1 mg/m³-yrs, equivalent to 45 years of occupational exposure at about 2.25 μg/m³ Cr(VI) (Ex. 31–18–15–1, p. 20, Table 3). Furthermore, Gibb *et al.*'s SMR analysis based on exposure quartiles found statistically significantly elevated lung cancer risks among workers with cumulative exposures well below the equivalent of 45 years at the proposed PEL of 1 μg/m³. As Dr. Gibb commented at the hearing, the proposed PEL '' * * * is within the range of observation [of the studies] * * * In a sense, you don't even need risk models'' to show that workers exposed to cumulative exposures equivalent to a working lifetime of exposure at or above the proposed PEL have excess risk of lung cancer as a result of their occupational exposure to Cr(VI)'' (Tr. 121–122).

Furthermore, Robert Park of NIOSH reminded OSHA that ''[a]nalysts of both the Painesville and the Baltimore cohorts * * * did test for deviation or departure from linearity in the exposure response and found no significant effect. If there was a large threshold, you would expect to see some deviance there'' (Tr. 350–351). Post-hearing comments from NIOSH indicated that further analysis of the Gibb data provided no significant improvement in fit for nonlinear and threshold models compared to the linear relative risk model (Ex. 47–19, p. 7). Based on this evidence and on the previously discussed findings that (1) linear relative risk models fit both the Gibb and Luippold data sets adequately, and (2) the wide variety of nonlinear models tested by various analysts failed to fit the available data better than the linear model, OSHA believes that a linear risk model is appropriate and that there is not convincing evidence to support the use of a threshold or nonlinear exposure-response model, or to conclude that OSHA's risk assessment has seriously overestimated risk at low exposures.

b. The Cumulative Exposure Metric and Dose-Rate Effects on Risk

The Small Business Administration's Office of Advocacy and several other commenters questioned OSHA's reliance in the preliminary risk assessment on models using cumulative exposure to estimate excess risk of lung cancer, suggesting that cumulative exposures attained from exposure to high concentrations of Cr(VI) for relatively short periods of time, as for some individuals in the Gibb and Luippold cohorts, may cause greater excess risk than equivalent cumulative exposures attained from long-term exposure to low concentrations of Cr(VI) (Exs. 38–7, pp. 3–4, 38–215–2, pp. 17–18; 38–231, p. 18; 38–233, p. 82; 38–265–1, p. 27; 39–74, p. 2, 40–12–1, p. 2, 43–2, p. 2, 47–27, p. 14; 47–27–3, p. 1). This assertion implies that OSHA's risk assessment overestimates risk from exposures at or near the proposed PEL due to a threshold or dose-rate effect in exposure intensity. One commenter stated that ''[a]pplication of a linear model estimating lung cancer risk from high-level expsoures . . . to very low-level exposure using the exposure metric of cumulative dose will inevitably overestimate risk estimates in the proposed PEL'' (Ex. 47–27–3, p. 1). Comments on this subject have cited analyses by Proctor *et al.* (2004) (Ex. 38–233–4, p. 17), Crump *et al.* (2003) (Exs. 38–106, p. 22; 38–265–1, p. 27), Exponent (Ex. 31–18–15–1, pp. 31–34) and NIOSH (Ex. 47–19–1, p. 7); a new study by Luippold *et al.* on workers exposed to relatively low concentrations of Cr(VI) (Ex. 47–24–2); and mechanistic and animal studies examining the potential for dose-rate effects in Cr(VI)-related health effects (Exs. 31–18–7; 31–18–8; 11–7).

Of the two featured cohorts in OSHA's preliminary risk assessment, the Gibb cohort is better suited to assess risk from exposure concentrations below the previous PEL of 52 μg Cr(VI)/m³. Contrary to some characterizations of the cohort's exposures as too high to provide useful information about risk under modern workplace conditions (*See e.g.* Exs. 38–106, p. 21; 38–233, p. 82; 38–265–1, p. 28), most members of the Gibb cohort had relatively low exposures, with 42% of the cohort

members having a median annual average exposure value below 10 μg/m³ Cr(VI), 69% below 20 μg/m³, and 91% below the previous PEL (Ex. 35–295). In addition, Dr. Gibb indicated that exposures in general were lower than suggested by some commenters (Tr. 1856, Ex. 38–215–2, p. 17). For example, about half of the total time that workers were exposed was estimated to be below 14 μg/m³ Cr(VI) from 1960–1985 (Ex. 47–8, p. 1).

Exponent calculated SMRs for six groups of workers in the Gibb cohort, classified according to the level of their highest average annual exposure estimates. They found that only the group of workers whose highest exposure estimates were above approximately 95 μg/m³ Cr(VI) had statistically significantly elevated lung cancer risk when Baltimore reference rates were used (Ex. 31–18–15–1, p. 33). Exponent's results are presented in Table VI–8 below, adapted from Table 10 in their report (Ex. 31–18–15–1, p. 33).

Table VI-8

Exponent SMR Analysis of Peak Exposures in Gibb Cohort

Group	Peak Exposure (μg Cr(VI)/m³)	Observed Cancer Deaths	Person-years of Observation	SMR (95% CI) Maryland	SMR (95% CI) Baltimore
1	0.000 - 3.7	50	36,733	1.18 (0.87 - 1.55)	0.91 (0.67 - 1.20)
2	3.7 - 10.0	21	10,401	1.97 (1.22 - 3.01)	1.51 (0.94 - 2.31)
3	10.0 - 25.0	19	9,800	2.07 (1.24 - 3.23)	1.56 (0.94 - 2.43)
4	25.0 - 54.9	12	6,707	2.06 (1.07 - 3.60)	1.54 (0.80 - 2.69)
5	54.9 - 94.6	7	3,462	2.20 (0.88 - 4.53)	1.66 (0.67 - 3.43)
6	94.6 - 419.3	13	3,664	3.00 (1.60 - 5.13)	2.35 (1.25 - 4.02)

OSHA does not believe that Exponent's analysis of the Gibb data provides convincing evidence of a threshold in exposure-response. While the lower-exposure groups do not have statistically significantly elevated lung cancer risk ($p > 0.05$) when compared with a Baltimore reference population, the SMRs for all groups above 3.7 μg/m³ are consistently elevated. Moreover, the increased risk approaches statistical significance, especially for those subgroups with higher power (Groups 2 and 3). This can be seen by the lower 95% confidence bound on the SMR for these groups, which is only slightly below 1. The analysis suggests a lack of power to detect excess risk in Groups 2–5, rather than a lack of excess risk at these exposure levels.

Analyses of the Luippold cohort by Crump *et al.* (Ex. 35–58) and Proctor *et al.* (Ex. 38–216–10) used exposure estimates they called ''highest average monthly exposure'' to explore the effects of exposure intensity on lung cancer risk. They reported that lung cancer risk was elevated only for individuals with exposure estimates higher than the previous PEL of 52 μg/m³ Cr(VI). Crump *et al.* additionally found ''statistically significant evidence of a dose-related increase in the relative risk of lung cancer mortality'' only for groups above four times the previous PEL, using a series of Poisson regressions modeling the increase in risk across the first two subgroups and with the successive addition of higher-exposed subgroups (Ex. 35–58, p. 1154).

As with the Gibb data, OSHA does not believe that the subgroup of workers exposed at low levels is large enough to provide convincing evidence of a threshold in exposure-response. In the Crump *et al.* and Proctor *et al.* analyses, the groups for which no statistically significant elevation or dose-related trends in lung cancer risk were observed are quite small by the standards of cancer epidemiology (*e.g.*, the Luippold cohort had only about 100 workers below the previous PEL and about 40 workers within 1–3 times the previous PEL). Crump *et al.* emphasized that '' * * * this study had limited power to detect increases [in lung cancer risk] at these low exposure levels'' (Ex. 35–58, p. 1147). The authors did not conclude that their results indicate a threshold. They stated that their cancer potency estimates based on a linear relative risk model using the cumulative exposure metric '' * * * are comparable to those developed by U.S. regulatory agencies and should be useful for assessing the potential cancer hazard associated with inhaled Cr(VI)'' (Ex. 35–58, p. 1147).

OSHA discussed the Exponent, Crump *et al.* and Luippold *et al.* SMR analyses of the Gibb and Luippold cohorts in the preamble to the proposed rule, stating that the lack of a statistically significant result for a subset of the entire cohort should not be construed to imply a threshold (69 FR at 59382). During the hearing, Robert Park of NIOSH expressed agreement with OSHA's preliminary interpretation, adding that:

> [W]e think that any interpretation of threshold in these studies is basically a statistical artifact * * * It is important I think to understand that any true linear or even just monotonic exposure response that doesn't have a threshold will exhibit a threshold by the methods that they used. If you stratify the exposure metric fine enough and look at the lower levels, they will be statistically insignificant in any finite study * * * telling you nothing about whether or not in fact there is a threshold (Tr. 351).

To further explore the effects of highly exposed individuals on OSHA's risk model, The Chrome Coalition suggested that OSHA should base its exposure-response model on a subcohort of workers excluding those who were exposed to '' * * * an extraordinary exposure level for some extended period of time* * * '', *e.g.*, estimated exposures greater than the previous PEL for more than one year (Ex. 38–231, p. 21). The Chrome Coalition stated,

> We are not aware of any study that has performed this type of analysis but we believe that it should be a way of better estimating the risk for exposures in the range that OSHA is considering for the PEL (Ex. 38–231, p. 21).

To gauge the potential utility of such an analysis, OSHA examined the subset of the Gibb cohort that was exposed for more than 365 days and had average annual exposure estimates above the previous PEL of 52 μg/m³ Cr(VI). The Agency found that the subcohort includes only 82 such individuals, of whom 37 were reported as deceased at the end of follow-up and five had died of lung cancer. In a cohort of 2357

workers with 122 lung cancers out of 855 deaths, it is unlikely that exclusion of a group this size would impact the results of a regression analysis significantly, especially as the proportion of mortality attributable to lung cancer is similar in the highly-exposed subgroup and the overall cohort (5/37 0.135, 122/855 ≅ 0.143). The great majority of the Gibb cohort members did not have the 'extraordinary' exposure levels implied by the Chrome Coalition. As discussed previously, most had relatively low exposures averaging less than 20 μg/m³.

As discussed in their post-hearing comments, NIOSH performed regression analyses designed to detect threshold or dose-rate effects in the exposure-response relationship for the Gibb dataset (Ex. 47–19–1, p. 7). NIOSH reported that ''[t]he best fitting models had no threshold for exposure intensity and the study had sufficient power to rule out thresholds as large as 30 μg/m³ CrO_3 (15.6 μg/m³ Cr(VI) * * *'' and that there was no statistically significant departure from dose-rate linearity when powers of annual average exposure values were used to predict lung cancer risk (Ex. 47–19–1, p. 7). This indicates that a threshold of approximately 20 μg/m³ Cr(VI) suggested in some industry comments is not consistent with the Gibb cohort data. Based on these and other analyses described in their post-hearing comments, NIOSH concluded that:

> [E]xamination of non-linear features of the hexavalent chromium-lung cancer response supports the use of the traditional (lagged) ''cumulative exposure paradigm * * *'': that is, linear exposure-response with no threshold (Ex. 47–19–1, p. 7).

OSHA recognizes that, like most epidemiologic studies, neither the Luippold nor the Gibb cohort provides ideal information with which to identify a threshold or detect nonlinearities in the relationship between Cr(VI) exposure and lung cancer risk, and that it is important to consider other sources of information about the exposure-response relationship at very low levels of Cr(VI) exposure. The Agency agrees with Dr. Gibb's belief that '' * * * arguments for a 'threshold' should not be based on statistical arguments but rather on a biological understanding of the disease process'' (Ex. 44–4, p. 7) and Crump *et al.*'s statement that '' * * * one needs to consider supporting data from mechanistic and animal studies'' in order to determine the appropriateness of assuming that a threshold (or, presumably, other nonlinearity) in exposure-response exists (Ex. 35–58, p. 1159).

Experimental and mechanistic evidence and related comments relevant to the issue of threshold and dose-rate effects are reviewed in the following discussion.

c. Animal and Mechanistic Evidence Regarding Nonlinearities in Cr(VI) Exposure-Response

In the NPRM, OSHA analyzed several animal and mechanistic studies and did not find convincing evidence of a threshold concentration in the range of interest (*i.e.* 0.25 to 52 μg/m³). However, the Agency recognized that evidence of dose rate effects in an animal instillation study and the existence of extracellular reduction, DNA repair, and other molecular pathways within the lung that protect against Cr(VI)-induced respiratory tract carcinogenesis could potentially introduce nonlinearities in Cr(VI) exposure-cancer response. OSHA solicited comment on the scientific evidence for a non-linear exposure-response relationship in the occupational exposure range of interest and whether there was sufficient data to develop a non-linear model that would provide more reliable risk estimates than the linear approach used in the preliminary risk assessment (69 FR at 59307).

Some commenters believed the scientific evidence from animal intratracheal instillation and inhalation of Cr(VI) compounds showed that a linear risk model based on lung cancers observed in the Gibb and Luippold cohorts seriously overpredicts lung cancer risk to workers exposed at the proposed PEL (Exs. 38–216–1; 38–233–4; 38–231). The research cited in support of this presumed non-linear response was the intratracheal instillation study of Steinhoff *et al.* and the inhalation study of Glaser *et al.* (Exs. 11–7; 10–11). For example, Elementis Chromium states that:

> Considering either the Steinhoff or Glaser studies, a calculated risk based on the effect frequency at the highest daily exposure would be considerably greater than that calculated from the next lower daily exposure. We believe that the same effect occurs when humans are exposed to Cr(VI) and consideration of this should be taken when estimating risk at very low exposure levels based on effects at much higher exposure levels (Ex. 38–216–1, p. 4).

Despite the different mode of Cr(VI) administration and dosing schemes, the Steinhoff and Glaser studies both feature dose levels at which there was no observed incidence of lung tumors. The Steinhoff study found no significant lung tumor incidence in rats intratracheally administered highly soluble sodium dichromate at 87 μg Cr(VI)/kg or less regardless of whether the dose was received five times a week or once a week for 30 months. However, rats administered a higher dose of 437 μg Cr(VI)/kg of sodium dichromate or a similar amount of the slightly soluble calcium chromate once a week developed significant increases (about 17 percent incidence) in lung tumors. The study documented a 'dose rate effect' since the same total dose administered more frequently (*i.e.* five times weekly) at a five-fold lower dose level (*i.e.* 87 μg Cr(VI)/kg) did not increase lung tumor incidence in the highly soluble sodium dichromate-treated rats. The Glaser inhalation study reported no lung tumors in rats inhaling 50 μg Cr(VI)/m³ of sodium dichromate or lower Cr(VI) concentrations for 22 hours/day, 7 days a week. However, the next highest dose level of 100 μg Cr(VI)/m³ produced a 15 percent lung tumor incidence (*i.e.* 3 of 19 rats). Both studies are more fully described in Section V.B.7.a.

The apparent lack of lung tumors at lower Cr(VI) dose levels is interpreted by the commenters to be evidence of a non-linear exposure-response relationship and, possibly, an exposure threshold below which there is no risk of lung cancer.

In written testimony, Dr. Harvey Clewell of ENVIRON Health Science Institute addressed whether the Steinhoff, Glaser and other animal studies provided evidence of a threshold for Cr(VI) induced lung carcinogenicity (Ex. 44–5). He stated that the argument for the existence of a threshold rests on two faulty premises:

> (1) Failure to detect an increased incidence of tumors from a given exposure indicates there is no carcinogenic activity at that exposure, and
>
> (2) Nonlinearities in dose response imply a threshold below which there is no carcinogenic activity (Ex. 44–5, p. 13).

In terms of the first premise, Dr. Clewell states:

> The ability to detect an effect depends on the power of the study design. A statistically-based No Observed Adverse Effect Level (NOAEL) in a toxicity study does not necessarily mean there is no risk of adverse effect. For example, it has been estimated that a typical animal study can actually be associated with the presence of an effect in as many as 10% to 30% of the animals. Thus the failure to observe a statistically significant increase in tumor incidence at a particular exposure does not rule out the presence of a substantial carcinogenic effect at that exposure (Ex. 44–5, p. 13–14).

Dr. Clewell also addressed the second premise as it applies to the Steinhoff instillation study as follows:

> It has been suggested, for example, that the results of the Steinhoff study suggest that

dose rate is an important factor in the carcinogenic potency of chrome (VI), and therefore, there must be a threshold. But these data, while they do provide an indication of a dose rate effect * * * they don't provide information about where and whether a threshold or even a non-linearity occurs, and to what extent it does occur at lower concentrations (Tr. 158–159).

OSHA agrees with Dr. Clewell that the absence of observed lung tumor incidence at a given exposure (*i.e.* a NOAEL) in an animal study should not be interpreted as evidence of a threshold effect. This is especially true for clearly genotoxic carcinogens, such as Cr(VI), where it is considered scientifically reasonable to expect some small, but finite, probability that a very few molecules may damage DNA in a single cell and eventally develop into a tumor. For this reason, it is not appropriate to regard the lack of tumors in the Steinhoff or Glaser studies as evidence for an exposure-response threshold.

Exponent, in a technical memorandum prepared for an ad hoc group of steel manufacturers, raises the possibility that the lung tumor responses in the Steinhoff and Glaser studies were the result of damage to lung tissue from excessive levels of Cr(VI). Exponent suggests that lower Cr(VI) exposures that do not cause 'respiratory irritation' are unlikely to lead an excess lung cancer risk (Ex. 38–233–4). Exponent went on to summarize:

In examining the weight of scientific evidence, for exposure concentrations below the level which causes irritation, lung cancer has not been reported. Not surprisingly, Cr(VI)-induced respiratory irritation is an important characteristic of Cr(VI)-induced carcinogenicity in both humans and animals * * * Based on the information reviewed herein, it appears that the no effect level for non-neoplastic respiratory irritation and lung cancer from occupational exposure to Cr(VI) is approximately 20 μg/m^3. Thus establishing a PEL of 1 μg/m^3 to protect against an excess lung cancer risk is unnecessarily conservative (Ex. 38–233–4, p. 24).

In support of the above hypothesis, Exponent points out that only the highest Cr(VI) dose level (*i.e.* 437 μg Cr(VI)/kg) of sodium dichromate employed in the Steinhoff study resulted in significant lung tumor incidence. Tracheal instillation of this dose once a week severely damaged the lungs leading to emphysematous lesions and pulmonary fibrosis in the Cr(VI)-exposed rats. Lower Cr(VI) dose levels (*i.e.* 87 μg Cr(VI)/kg or less) of the highly water-soluble sodium dichromate that caused minimal lung damage did not result in significant tumor incidence. However, the study also showed that a relatively low dose (*i.e.* 81 μg Cr(VI)/kg) of slightly soluble calcium chromate repeatedly instilled (*i.e.* five times a week) in the trachea of rats caused significant lung tumor incidence (about 7.5 percent) in the absence of lung tissue damage. This finding is noteworthy because it indicates that tissue damage is not an essential requirement for Cr(VI)-induced respiratory tract carcinogenesis. The same instilled dose of the slightly soluble calcium chromate would be expected to provide a more persistent and greater source of Cr(VI) in proximity to target cells within the lung than would the highly water-soluble sodium dichromate. This suggests that the internal dose of Cr(VI) at the tissue site, rather than degree of damage, may be the critical factor determining lung cancer risk from low-level Cr(VI) exposures.

Exponent applies similar logic to the results of the Glaser inhalation study of sodium dichromate in rats. Exponent states:

In all experimental groups (*i.e.* 25, 50, and 100 μg Cr(VI)/m^3), inflammation effects were observed, but at 100 μg Cr(VI)/m^3 [the high dose group with significant lung tumor incidence], effects were more severe, as expected (Ex. 38–233–4, p. 22).

This assessment contrasts with that of the study authors who remarked:

In this inhalation study, in which male Wistar rats were continuously exposed for 18 months to both water soluble sodium dichromate and slightly soluble chromium oxide mixture aerosols, no clinical signs of irritation were obvious * * * For the whole time of the study no significant effects were found from routine hematology and clinico-chemical examinations in all rats exposed to sodium dichromate aerosol (Ex. 10–11, p. 229).

The rats in the Glaser carcinogenicity study developed a focalized form of lung inflammation only evident from microscopic examination. This mild response should not be considered equivalent to the widespread bronchiolar fibrosis, collapsed/distorted alveolar spaces and severe damage found upon macroscopic examination of rat lungs instilled with the high dose (437 μg Cr(VI)/kg) of sodium dichromate in the Steinhoff study. The non-neoplastic lung pathology (*e.g.* accumulation of pigmentized macrophages) described following inhalation of sodium dichromate at all air concentrations of Cr(VI) in the Glaser study are more in line with the non-neoplastic responses seen in the lungs of rats intratracheally instilled with lower dose levels of sodium dichromate (*i.e.* 87 μg Cr(VI)/kg or less) that did not cause tumor incidence in the Steinhoff study. OSHA finds no evidence that severe pulmonary inflammation occurred following inhalation of 100 μg Cr(VI)/m^3 in the Glaser carcinogenicity study or that the lung tumors observed in these rats were the result of 'respiratory irritation'. Dr. Clewell also testified that lung damage or chronic inflammation is not a necessary and essential condition for C(VI) carcinogenesis in the Glaser study:

I didn't find any evidence that it [lung damage and chronic inflammation] was necessary and essential. In particular, I think the Glaser study was pretty good in demonstrating that there were effects where they saw no evidence of irritation, or any clinical signs of those kinds of processes (Tr. 192).

Subsequent shorter 30-day and 90-day inhalation exposures with sodium dichromate in rats were undertaken by the Glaser group to better understand the non-neoplastic changes of the lung (Ex. 31–18–11). The investigation found a transitory dose-related inflammatory response in the lungs at exposures of 50 μg Cr(VI)/m^3 and above following the 30 day inhalation. This initial inflammatory response did not persist during the 90 day exposure study except at the very highest dose levels (*i.e.* 200 and 400 μg Cr(VI)/m^3). Significant increases in biomarkers for lung tissue damage (such as albumin and lactate dehydrogenase (LDH) in bronchioalveolar lavage fluid (BALF) as well as bronchioalveolar hyperplasia) also persisted through 90 days at these higher Cr(VI) air levels, especially 400 μg Cr(VI)/m^3. The study authors considered the transient 30-day responses to represent adaptive, rather than persistent pathological, responses to Cr(VI) challenge. A dose-related elevation in lung weights due to histiocytosis (*i.e.* accumulation of lung macrophages) was seen in all Cr(VI)-administered rats at both time periods. The macrophage accumulation is also likely to be an adaptive response that reflects lung clearance of inhaled Cr(VI). These study results are more fully described in section V.C.3.

OSHA believes that Cr(VI)-induced carcinogenesis may be influenced not only by the total Cr(VI) dose retained in the respiratory tract but also by the rate at which the dose is administered. Exponent is correct that one possible explanation for the dose rate effect observed in the Steinhoff study may be the widespread, severe damage to the lung caused by the immediate instillation of a high Cr(VI) dose to the respiratory tract repeated weekly for 30 months. It is biologically plausible that the prolonged cell proliferation in response to the tissue injury would enhance tumor development and

progression compared to the same total Cr(VI) instilled more frequently at smaller dose levels that do not cause widespread damage to the respiratory tract. This is consistent with the opinion of Dr. Clewell who testified that:

> I would not say that it [respiratory tract irritation, lung damage, or chronic inflammation] is necessary and sufficient, but rather it exacerbates an underlying process. If there is a carcinogenic process, then increased cell proliferation secondary to irritation is going to put mitogenic pressure on the cells, and this will cause more likelihood of a transformation (Tr. 192).

OSHA notes that increased lung tumor incidence was observed in animals instilled with lower dose levels of calcium chromate in the Steinhoff study and after inhalation of sodium dichromate in the Glaser study. These Cr(VI) exposures did not trigger extensive lung damage and OSHA believes it unlikely that the lung tumor response from these treatments was secondary to 'respiratory irritation' as suggested by Exponent. The more thorough investigation by the Glaser group did not find substantive evidence of persistent tissue damage until rats inhaled Cr(VI) at doses two- to four-fold higher than the Cr(VI) dose found to elevate lung tumor incidence in the their animal cancer bioassay.

Exponent goes on to estimate a NOAEL (no observable adverse effect level) for lung histopathology in the Steinhoff study. They chose the lowest dose level (*i.e.* 3.8 μg Cr(VI)/kg) in the study as their NOAEL based on the minimal accumulation of macrophages found in the lungs instilled with this dose of sodium dichromate five times weekly (Ex. 38–233–4, p. 21). Exponent calculates that this lung dose is roughly equivalent to the daily dose inhaled by a worker exposed to 27 μg Cr(VI)/m^3 using standard reference values (*e.g.* 70 kg human inhaling 10 m^3/day over a daily 8 hour work shift). Exponent considers this calculated Cr(VI) air level as a threshold below which no lung cancer risk is expected in exposed workers.

However, Steinhoff *et al.* instilled Cr(VI) compounds directly on the trachea rather than introducing the test compound by inhalation, and was only able to characterize a significant dose rate effect at one cumulative dose level. For these reasons, OSHA considers the data inadequate to reliably determine the human exposures where this potential dose transition might occur and to confidently predict the magnitude of the resulting non-linearity. NIOSH presents a similar view in their post-hearing comments:

> NIOSH disagrees with Dr. Barnhardt's analysis [Ex. 38–216–1] and supports OSHA's view that the Steinhoff *et al.* [1986] rat study found a dose-rate effect in rats under the specified experimental conditions, that this effect may have implications for human exposure and that the data are insufficient to use in a human risk assessment for Cr(VI) * * * The study clearly demonstrates that, within the constraints of the experimental design, a dose rate effect was observed. This may be an important consideration for humans exposed to high levels of Cr(VI). However, quantitative extrapolation of that information to the human exposure scenario is difficult (Ex. 47–19–1, p. 8).

Exponent also relies on a case investigation of the benchmark dose methodology applied to the pulmonary biomarker data measured in the 90-day Glaser study (Ex. 40–10–2–8). In this instance, the benchmark doses represent the 95 percent lower confidence bound on the Cr(VI) air level corresponding a 10 percent increase relative to unexposed controls for a chosen biomarker (*e.g.* BALF total protein, albumin, or LDH). The inhaled animal doses were adjusted to reflect human inhalation and deposition in the respiratory tract as well as continuous environmental exposure (*e.g.* 24 hours/day, 7 days/week) rather than an occupational exposure pattern (*e.g.* 8 hours/day, 5 days/week). The benchmark doses were reported to range from 34 to 140 μg Cr(VI)/m^3.

Exponent concludes that ''these [benchmark] values are akin to a no-observed-adverse-effect level NOAEL in humans to which uncertainty factors are added to calculate an RfC [*i.e.* Reference Concentration below which adverse effects will not occur in most individuals]'' and ''taken as a whole, the studies of Glaser *et al.* suggest that both non-neoplastic tissue damage and carcinogenicity are not observed among rats exposed to Cr(VI) at exposure concentrations below 25 μg/m^3'' (Ex. 38–233–4, p. 22). Since the Exponent premise is that Cr(VI)-induced lung cancer only occurs as a secondary response to histopathological changes in the respiratory tract, the suggested 25 μg Cr(VI)/m^3 is essentially being viewed as a threshold concentration below which lung cancer is presumed not to occur.

In his written testimony, Dr. Clewell indicated that the tumor data from the Glaser cancer bioassay was more appropriately analyzed using linear, no threshold exposure-response model rather than the benchmark uncertainty factor approach that presumes the existence of threshold exposure-response.

The bioassay of Glaser *et al.* provides an example of a related difficulty of interpreting data from carcinogenicity studies. The tumor outcome appears to be nonlinear (0/18, 0/18, and 3/19 at 0.025, 0.05, and 0.1 mg Cr/m^3). However, although the outcomes are restricted to be whole numbers (of animals), they should not be evaluated as such. Because the nature of cancer as a stochastic process, each observed outcome represents a random draw from a Poisson distribution. Statistical dose-response modeling, such as the multistage model used by OSHA, is necessary to properly interpret the cancer dose-response. In the case of Glaser *et al.* (1986) study, such modeling would produce a maximum likelihood estimate of the risk at the middle dose that was greater than zero. In fact, the estimated risk at the middle dose would be on the order of several percent, not zero. Therefore, suggesting a lack of lung cancer risk at a similar human exposure would not be a health protective position (Ex. 44–5, p. 14).

The U.S. Environmental Protection Agency applied a linearized (no threshold) multistage model to the Glaser data (Ex. 17–101). They reported a maximum likelihood estimate for lifetime lung cancer risk of 6.3 per 1000 from continuous exposure to 1 μg Cr(VI)/m^3. This risk would be somewhat less for an occupational exposure (*e.g.* 8 hours/day, 5 days/week) to the same air level and would be close to the excess lifetime risk predicted by OSHA (*i.e.* 2–9 per 1000).

In summary, OSHA does not believe the animal evidence demonstrates that respiratory irritation is required for Cr(VI)-induced carcinogenesis. Significant elevation in lung tumor incidence was reported in rats that received Cr(VI) by instillation or inhalation at dose levels that caused minimal lung damage. Consequently, OSHA believes it inappropriate to consider a NOAEL (such as 25 μg/m^3) where lung tumors were not observed in a limited number of animals to be a threshold concentration below which there is no risk. Statistical analysis of the animal inhalation data using a standard dose-response model commonly employed for genotoxic carcinogens, such as Cr(VI), is reported to predict risks similar to those estimated by OSHA from the occupational cohorts of chromate production workers. While the rat intratracheal instillation study indicates that a dose rate effect may exist for Cr(VI)-induced carcinogenesis, it can not be reliably determined from the data whether the effect would occur at the occupational exposures of interest (*e.g.* working lifetime exposures at 0.25 to 52 μg Cr(VI)/m^3) without a better quantitative understanding of Cr(VI) dosimetry within the lung. Therefore, OSHA does not believe that the animal data show that cumulative Cr(VI)

exposure is an inappropriate metric to estimate lung cancer risk.

Exponent used the clinical findings from chromate production workers in the Gibb and Luippold cohorts to support their contention that 'respiratory irritation' was key to Cr(VI)-induced lung cancer (Ex. 28–233–4, p. 18–19). They noted that over 90 percent of chromate production workers employed at the Painesville plant during the 1930s and 1940s, including some Luippold cohort members, were reported to have damaged nasal septums. Based on this, Exponent concludes:

> Thus, it is possible that the increased incidence of lung cancer in these workers (*i.e.* SMR of 365 from Luippold *et al.* cohort exposed during the 1940s) is at least partially due to respiratory system tissue damage resulting from high Cr(VI) concentrations to which these workers were exposed. These exposures clearly exceed a threshold for both carcinogenic and non-carcinogenic (*i.e.* respiratory irritation) health effects (Ex. 38–233–4, p. 18).

Exponent noted that about 60 percent of the Gibb cohort also suffered ulcerated nasal septum tissue. The mean estimated annual Cr(VI) air level at time of diagnosis was about 25 μg Cr(VI)/m^3. Ulcerated nasal septum was found to be highly correlated with the average annual Cr(VI) exposure of the workers as determined by a proportional hazards model. These findings, again, led Exponent to suggest that:

> It may be reasonable to surmise that the high rates of lung cancer risk observed among the featured cohorts (*i.e.* Gibb and Luippold) was at least partially related to respiratory irritation (Ex. 38–233–4, p. 19).

In its explanations, Exponent assumes that the irritation and damage to nasal septum tissue found in the exposed workers also occurs elsewhere in the respiratory tract. Exponent provided no evidence that Cr(VI) concentrations that damage tissue at the very front of the nose will also damage tissue in the bronchoalveolar regions where lung cancers are found. A national medical survey of U.S. chromate production workers conducted by the U.S. Public Health Service in the early 1950s found greater than half suffered nasal septum perforations (Ex. 7–3). However, there was little evidence of non-cancerous lung disease in the workers. The survey found only two percent of the chromate workers had chronic bronchitis which was only slightly higher than the prevalence in nonchromate workers at the same plants and less than had been reported for ferrous foundry workers. Just over one percent of the chromate production workers in the survey were found to have chest X-ray evidence consistent with pulmonary fibrosis. This led the U.S. Public Health Service to conclude ''on the basis of X-ray data we cannot confirm the presence of pneumoconiosis from chromate exposure'' (Ex. 7–3, p. 80). An earlier report noted fibrotic areas in the autopsied lungs of three Painesville chromate production workers employed during the 1940s who died of lung cancer (Ex. 7–12). The authors attributed the fibrotic lesions to the large amounts of chromite (a Cr(III) compound) ore found in the lungs.

Exponent correctly noted that prevalence of nasal septum ulceration in the Gibb cohort was ''significantly associated with [average annual] Cr(VI) exposure concentrations'' using a proportional hazards model (Ex. 38–233–4, p. 19). However, other related symptomatology, such as nasal irritation and perforation, was not found to be correlated with annual average Cr(VI) air levels. This led the authors to suggest that nasal septum tissue damage was more likely related to short-term, rather than annual, Cr(VI) air levels. Nasal septum ulceration was also not a significant predictor of lung cancer when the confounding effects of smoking and cumulative Cr(VI) exposure were accounted for in the proportional hazards model (Ex. 31–22–11). The authors believed the lack of correlation probably reflected cumulative Cr(VI) as the dominant exposure metric related to the elevated lung cancer risk in the workers, rather than the high, short-term Cr(VI) air levels thought to be responsible for the high rate of nasal septum damage. The modeling results are not consistent with nasal septum damage as a predictor of Cr(VI)-induced lung cancer in chromate production workers. Dr. Herman Gibb confirmed this in oral testimony:

> * * * I was curious to see if [respiratory] irritation might be predictive of lung cancer. We did univariate analyses and found that a number of them were [predictive]. But whenever you looked at, when you put it into the regression model, none of them were. In other words, [respiratory] irritation was not predictive of the lung cancer response (Tr. 144).

OSHA does not believe the evidence indicates that tissue damage in the nasal septum of chromate production workers exposed to Cr(VI) air levels around 20 μg/m^3 is responsible for the observed excess lung cancers. The lung cancers are found in the bronchioalveolar region, far removed from the nasal septum. Careful statistical analysis of the Gibb cohort did not find a significant relationship between clinical symptoms of nasal septum damage (*e.g.* ulceration, persistent bleeding, perforation) and lung cancer mortality. A 1951 U.S. Public Health Service medical survey found a high prevalence of nasal septum damage with few cases of chronic non-neoplastic lung disease (*e.g.* chronic bronchitis, pulmonary fibrosis). This suggests that the nasal septum damage caused by high Cr(VI) air concentrations was not mirrored by damage in lower regions of the respiratory tract where lung cancer takes place. Given these findings, it seems unlikely that the lower Cr(VI) air levels experienced by the Gibb cohort caused pervasive bronchioalveolar tissue damage that would be responsible for the clearly elevated lung cancer incidence in these workers. Therefore, the Agency does not concur with Exponent that there is credible evidence from occupational cohort studies that the high rates of lung cancer are related to tissue damage in the respiratory tract or that occupational exposure to 20 μg Cr(VI)/m^3 represents a 'no effect' level for lung cancer.

Some commenters felt that certain physiological defense mechanisms that protect against the Cr(VI)-induced carcinogenic process introduce a threshold or sublinear dose-response (Exs. 38–233–4; 38–215–2; 38–265). Some physiological defenses are thought to reduce the amount of biologically active chromium (*e.g.* intracellular Cr(V), Cr(III), and reactive oxygen species) able to interact with critical molecular targets within the lung cell. A prime example is the extracellular reduction of permeable Cr(VI) to the relatively impermeable Cr(III) which reduces Cr(VI) uptake into cells. Other defense mechanisms, such as DNA repair and apoptosis, can interfere with carcinogenic transformation and progression. These defense mechanisms are presented by commenters as highly effective at low levels of Cr(VI) but are overwhelmed at high dose exposures and, thus, could ''provide a biological basis for a sublinear dose-response or a threshold below which there is expected to be no increased lung cancer risk (Ex. 38–215–2, p. 29).

One study, cited in support of an exposure-response threshold, determined the amount of highly soluble Cr(VI) reduced to Cr(III) *in vitro* by human bronchioalveolar fluid and pulmonary macrophage fractions over a short period (Ex. 31–18–7). These specific activities were used to estimate an ''overall reducing capacity'' of the lung. As previously discussed, cell membranes are permeable to Cr(VI) but not Cr(III), so only Cr(VI) enters cells to any appreciable extent. The authors interpreted these data to mean that high

levels of Cr(VI) would be required to ''overwhelm'' the reduction capacity before significant amounts of Cr(VI) could enter lung cells and damage DNA, thus creating a biological threshold to the exposure—response (Ex. 31–18–8).

There are several problems with this threshold interpretation. The in vitro reducing capacities were determined in the absence of cell uptake. Cr(VI) uptake into lung cells happens concurrently and in parallel with its extracellular reduction, so it cannot be concluded from the study data that a threshold reduction capacity must be exceeded before uptake occurs. The rate of Cr(VI) reduction to Cr(III) is critically dependant on the presence of adequate amounts of reductant, such as ascorbate or GSH (Ex. 35–65). It has not been established that sufficient amounts of these reductants are present throughout the thoracic and alveolar regions of the respiratory tract to create a biological threshold. Moreover, the in vitro activity of Cr(VI) reduction in epithelial lining fluid and alveolar macrophages was shown to be highly variable among individuals (Ex. 31–18–7, p. 533). It is possible that Cr(VI) is not rapidly reduced to Cr(III) in some workers or some areas of the lung. Finally, even if there was an exposure threshold created by extracellular reduction, the study data do not establish the dose range in which the putative threshold would occur.

Other commenters thought extracellular reduction and other physiological defenses were unlikely to produce a biological threshold (Exs. 44–5; 40–18–1). For example, Dr. Clewell remarked:

> Although studies attempted to estimate capacities of Cr(VI) (De Flora *et al.*, 1997) the extracellular reduction and cellular uptake of Cr(VI) are parallel and competing kinetic processes. That is, even at low concentrations where reductive capacity is undiminished, a fraction of Cr(VI) will still be taken up into cells, as determined by the relative rates of reduction and transport. For this reason, reductive capacities should not be construed to imply ''thresholds'' below which Cr(VI) will be completely reduced prior to uptake. Rather, they indicate that there is possibly a ''dose-dependent transition'', *i.e.* a nonlinearity in concentration dependence of the cellular exposure to Cr(VI). Evaluation of the concentration-dependence of the cellular uptake of Cr(VI) would require more data than is currently available on the relative kinetics of dissolution, extracellular reduction, and cellular uptake as well as on the homeostatic response to depletion of reductive resources (*e.g.* reduction of glutathione reductase) (Ex. 44–5, p. 16)

The same logic applies to other 'defense mechanisms' such as DNA repair and apoptosis. Despite the ability of cells to repair DNA damage or to undergo apoptosis (*i.e.* a form of programmed cell death) upon exposure to low levels of Cr(VI), these protections are not absolute. Since a single error in a critical gene may trigger neoplastic transformation and DNA damage increases with intracellular concentration of Cr(VI), it stands to reason that there may be some risk of cancer even at low Cr(VI) levels. If the protective pathways are saturable (*e.g.* protective capacity overwhelmed) then it might be manifested as a dose transition or nonlinearity. However, as explained above, an extensive amount of kinetic modeling data would be needed to credibly predict the dose level at which a potential dose transition occurs. OSHA agrees with Dr. Clewell that ''in the absence of such a biologically based [kinetic] dose-response model it is impossible to determine either the air concentration of Cr(VI) at which the nonlinearity might occur or the extent of the departure from a linear dose-response that would result. Therefore, the assumption of a linear dose-response is justified'' (Ex. 44–5, p.17–18).

In conclusion, OSHA believes that examination of the Gibb and Luippold cohorts, the new U.S. cohorts analyzed in Luippold *et al.* (2005), and the best available animal and mechanistic evidence does not support a departure from the traditional linear, cumulative exposure-based approach to cancer risk assessment for hexavalent chromium. OSHA's conclusion is supported by several commenters (see *e.g.* Tr. 121, 186, Exs. 40–10–2, p. 6; 44–7). For example, NIOSH stated:

> It is not appropriate to employ a threshold dose-response approach to estimate cancer risk from a genotoxic carcinogen such as Cr(VI) [Park *et al.* 2004]. The scientific evidence for a carcinogenicity threshold for Cr(VI) described in the Preamble [to the proposed rule] consists of the absence of an observed effect in epidemiology studies and animal studies at low exposures, and in vitro evidence of intracellular reduction. The epidemiologic and animal studies lack the statistical power to detect a low-dose threshold. In both the NIOSH and OSHA risk assessments, linear no-threshold risk models provided good fit to the observed cancer data. The in vitro extracellular reduction studies which suggested a theoretical basis for a non-linear reseponse to Cr(VI) exposure were conducted under non-physiologic conditions. These results do not demonstrate a threshold of response to Cr(VI) exposure (Ex. 40–10–2, p. 6).

OSHA's position is also supported by Dr. Herman Gibb's testimony at the hearing that a linear, no-threshold model best characterizes the relationship between Cr(VI) exposure and lung cancer risk in the Gibb cohort (Tr. 121). Statements from Ms. Deborah Proctor and Crump *et al.* (who conducted analyses utilizing the Luippold cohort) also indicated that these data are consistent with the traditional linear model (Tr. 1845, Exs. 33–10, p. 456; 35–58, pp. 1159–1160). The significant excess risk observed in the Gibb cohort, which was best suited to address risk from low cumulative or average exposures, contradicts comments to the effect that ''[i]ncreased lung cancers have been demonstrated only at workplace exposures significantly higher than the existing standard * * *'' (Ex. 38–185, p. 4) or that characterized OSHA's risk assessment for the proposed PEL as ''speculative'' (Ex. 47–35–1, p. 4) or ''seriously flawed'' (Ex. 38–106, p. 23). OSHA believes that the clear excess risk among workers with cumulative exposures equivalent to those accrued over a 45-year working lifetime of low-level exposure to Cr(VI), combined with the good fit of linear exposure-response models to the Gibb and Luippold (2003) datasets and the lack of demonstrable nonlinearities or dose-rate effects, constitute strong evidence of risk at low exposures in the range of interest to OSHA.

3. Influence of Smoking, Race, and the Healthy Worker Survivor Effect

A common confounder in estimating lung cancer risk to workers from exposure to a specific agent such as Cr(VI) is the impact of cigarette smoking. First, cigarette smoking is known to cause lung cancer. Ideally, lung cancer risk attributable to smoking among the Cr(VI)-exposed cohorts should be controlled or adjusted for in characterizing exposure-response. Secondly, cigarette smoking may interact with the agent (*i.e.*, Cr(VI)) or its biological target (*i.e.*, susceptible lung cells) in a manner that enhances or even reduces the risk of developing Cr(VI)-induced lung cancer from occupational exposures, yet is not accounted for in the risk model. The Small Business Administration's Office of Advocacy commented that such an interactive effect may have improperly increased OSHA's risk estimates (Ex. 38–7, p. 4).

OSHA believes its risk estimates have adequately accounted for the potential confounding effects of cigarette smoking in the underlying exposure-lung cancer response data, particularly for the Gibb cohort. One of the key issues in this regard is whether or not the reference population utilized to derive the expected number of lung cancers appropriately reflects the smoking behavior of the cohort members. The

risk analyses of the Gibb cohort by NIOSH and Environ indicate that cigarette smoking was properly controlled for in the exposure-response modeling. NIOSH applied a smoking-specific correction factor that included a cumulative smoking term for individual cohort members (Ex. 33–13). Environ applied a generic correction factor and used lung cancer mortality rates from Baltimore City as a reference population that was most similar to the cohort members with respect to smoking behavior and other factors that might affect lung cancer rates (Ex. 33–12). Environ also used internally standardized models that did not require use of a reference population and included a smoking-specific (yes/no) variable. All these models predicted very similar estimates of risk over a wide range of Cr(VI) exposures. There was less information about smoking status for the Luippold cohort. However, regression modeling that controlled for smoking indicated that it was not a significant confounding factor when relating Cr(VI) exposure to the lung cancer mortality (Ex. 35–58).

Smoking has been shown to interact in a synergistic manner (*i.e.*, combined effect of two agents are greater than the sum of either agent alone) with some lung carcinogens, most notably asbestos (Ex. 35–114). NIOSH reported a slightly negative but nonsignficant interaction between cumulative Cr(VI) exposure and smoking in a model that had separate linear terms for both variables (Ex. 33–13). This means that, at any age, the smoking and Cr(VI) contributions to the lung cancer risk appeared to be additive, rather than synergistic, given the smoking information in the Gibb cohort along with the cumulative smoking assumptions of the analysis. In their final linear relative risk model, NIOSH included smoking as a multiplicative term in the background rate in order to estimate lifetime lung cancer risks attributable to Cr(VI) independent of smoking. Although this linear relative risk model makes no explicit assumptions with regard to an interaction between smoking and Cr(VI) exposure, the model does assume a multiplicative relationship between the background rate of lung cancer in the reference population and Cr(VI) exposure. Therefore, to the extent that smoking is a predominant influence on the background lung cancer risk, the linear relative risk model implicitly assumes a multiplicative (*e.g.*, greater than additive and synergistic, in most situations) relationship between cumulative Cr(VI) exposure and smoking. Since current lung cancer rates reflect a mixture of smokers and non-smokers, OSHA agrees with the Small Business Administration's Office of Advocacy that the excess lung cancer risks from Cr(VI) exposure predicted by the linear relative risk model may overestimate the risks to non-smokers to some unknown extent. By the same token, the model may underestimate the risk from Cr(VI) exposure to heavy smokers. Because there were so few non-smokers in the study cohorts (approximately 15 percent of the exposed workers and four lung cancer deaths in the Gibb cohort), it was not possible to reliably estimate risk for the nonsmoking subpopulation.

Although OSHA is not aware of any convincing evidence of a specific interaction between cigarette smoking and Cr(VI) exposure, prolonged cigarette smoking does have profound effects on lung structure and function that may indirectly influence lung cancer risk from Cr(VI) exposure (Ex. 33–14). Cigarette smoke is known to cause chronic irritation and inflammation of the respiratory tract. This leads to decreases in airway diameter that could result in an increase in Cr(VI) particulate deposition. It also leads to increased mucous volume and decreased mucous flow, that could result in reduced Cr(VI) particulate clearance. Increased deposition and reduced clearance would mean greater residence time of Cr(VI) particulates in the respiratory tract and a potentially greater probability of developing bronchogenic cancer. Chronic cigarette smoking also leads to lung remodeling and changes in the proliferative state of lung cells that could influence susceptibility to neoplastic transformation. While the above effects are plausible consequences of cigarette smoking on Cr(VI)-induced carcinogenesis, the likelihood and magnitude of their occurrence have not been firmly established and, thus, the impact on risk of lung cancer in exposed workers is uncertain.

Differences in lung cancer incidence with race may also introduce uncertainty in risk estimates. Gibb *et al.* reported differing patterns for the cumulative exposure-lung cancer mortality response between whites and non-whites in their cohort of chromate production workers (Ex. 31–22–11). In the assessment of risk from the Gibb cohort, NIOSH reported a strong interaction between cumulative Cr(VI) exposure and race, such that nonwhites had a higher cumulative exposure coefficient (*i.e.*, higher lung cancer risk) than whites based on a linear relative risk model (Ex. 33–13). If valid, this might explain the slightly lower risk estimates in the predominantly white Luippold cohort. However, Environ found that including race as an explanatory variable in the Cox proportional hazards model C1 did not significantly improve model fit (p=0.15) once cumulative Cr(VI) exposure and smoking status had been considered (Ex. 33–12).

NIOSH suggested that exposure or smoking misclassification might plausibly account for the Cr(VI) exposure-related differences in lung cancer by race seen in the Gibb cohort (Ex. 33–13, p. 15). It is possible that such misclassification might have occurred as a result of systematic differences between whites and non-whites with respect to job-specific Cr(VI) exposures at the Baltimore plant, unrecorded exposure to Cr(VI) or other lung carcinogens when not working at the plant, or in smoking behavior. Unknown differences in biological processes critical to Cr(VI)-induced carcinogenesis could also plausibly account for an exposure-race interaction. However, OSHA is not aware of evidence that convincingly supports any of these possible explanations.

Another source of uncertainty that may impact the risk estimates is the healthy worker survivor effect. Studies have consistently shown that workers with long-term employment status have lower mortality rates than short-term employed workers. This is possibly due to a higher proportion of ill individuals and those with a less healthy lifestyle in the short term group (Ex. 35–60). Similarly, worker populations tend to be healthier than the general population, which includes both employed and unemployed individuals. As a result, exposure-response analyses based on mortality of long-term healthy workers will tend to underestimate the risk to short-term workers and vice versa, even when their cumulative exposure is similar. Also, an increase in disease from occupational exposures in a working population may not be detected when workers are compared to a reference population that includes a greater proportion less healthy individuals.

The healthy worker survivor effect is generally thought to be less of a factor in diseases with a multifactorial causation and long onset, such as cancer, than in diseases with a single cause or short onset. However, there is evidence of a healthy worker effect in several studies of workers exposed to Cr(VI), as discussed further in the next section (''Suitability of Risk Estimates for Cr(VI) Exposures in Other Industries''). In these studies, the

healthy worker survivor effect may mask increased lung cancer mortality due to occupational Cr(VI) exposure.

4. Suitability of Risk Estimates for Cr(VI) Exposures in Other Industries

At issue is whether the excess lung cancer risks derived from cohort studies of chromate production workers are representative of the risks for other Cr(VI)-exposed workers (*e.g.*, electroplaters, painters, welders). Typically, OSHA has used epidemiologic studies from one industry to estimate risk for other industries. For example, OSHA relied on a cohort of cadmium smelter workers to estimate the excess lung cancer risk in a wide range of affected industries for its cadmium standard (57 FR at 42102, 9/14/1992). This approach is usually acceptable because exposure to a common agent of concern is the primary determinant of risk and not some other factor unique to the workplace. However, in the case of Cr(VI), workers in different industries are exposed to various Cr(VI) compounds that may differ in carcinogenic potency depending to a large extent on water solubility. The chromate production workers in the Gibb and Luippold cohorts were primarily exposed to certain highly water-soluble chromates. As more fully described in section V.B. of the Cancer Effects section, the scientific evidence indicates that all Cr(VI) compounds are carcinogenic but that the slightly soluble chromates (*e.g.* calcium chromate, strontium chromate, and some zinc chromates) exhibit greater carcinogenicity than the highly water soluble chromates (*e.g.* sodium chromate, sodium dichromate, and chromic acid) or the water insoluble chromates (*e.g.* lead chromates) provided the same dose is delivered and deposited in the respiratory tract of the worker. It is not clear from the available scientific evidence whether the carcinogenic potency of water-insoluble Cr(VI) compounds would be expected to be more or less than highly water-soluble Cr(VI) compounds. Therefore, OSHA finds it prudent to regard both types of Cr(VI) compounds to be of similar carcinogenic potency.

The primary operation at the chromate production plants in Painesville (Luippold cohort) and Baltimore (Gibb cohort) was the production of the highly water-soluble sodium dichromate. Sodium dichromate served as a starting material for the production of other highly water-soluble chromates such as sodium chromate, potassium dichromate, and chromic acid (Exs. 7–14; 35–61). As a result, the Gibb and Luippold cohorts were principally exposed to water-soluble Cr(VI). In the NPRM, OSHA requested comment on whether its risk estimates based on the exposure-response data from these two cohorts of chromate production workers were reasonably representative of the risks expected from equivalent exposures to different Cr(VI) compounds encountered in other industry sectors. Of particular interest was whether the preliminary risk estimates from worker cohorts primarily engaged in the production of the highly water soluble sodium chromate and sodium dichromate would substantially overpredict lung cancer risk for workers with the same level and duration of exposure to Cr(VI) but involving different Cr(VI) compounds or different operations. These operations include chromic acid aerosol in electroplating operations, the less water soluble Cr(VI) particulates encountered during pigment production and painting operations, and Cr(VI) released during welding, as well as exposure in other applications.

OSHA received comments on this issue from representatives of a wide range of industries, including chromate producers, specialty steel manufacturers, construction and electric power companies that engage in stainless steel welding, the military and aerospace industry that use anti-corrosive primers containing Cr(VI), the surface finishing industry, color pigment manufacturers, and the Small Business Administration's Office of Advocacy (Exs. 38–231, 38–233; 38–8; 47–5; 40–12–4; 38–215; 40–12–5; 38–106; 39–43; 38–7). Many industry commenters expressed concerns about the appropriateness of the underlying Gibb and Luippold data sets and the methodology (*e.g.* linear instead of threshold model) used to generate the lung cancer risk estimates. These issues have been addressed in other parts of section VI. The color pigment manufacturers asserted that lead chromate pigments, unlike other Cr(VI) compounds, lacked carcinogenic potential. This issue was addressed in section V.B.9 of the Health Effects section. In summary, OSHA finds lead chromate and other water-insoluble Cr(VI) compounds to be carcinogenic. The Agency further concludes that it is reasonable to regard water insoluble Cr(VI) compounds to be of similar carcinogenic potency to highly soluble Cr(VI) compounds. Based on this conclusion, OSHA no longer believes that its risk projections will underestimate the lung cancer risk for workers exposed to equivalent levels of water-insoluble Cr(VI), as suggested in the NPRM (69 FR at 59384).

Several commenters encouraged OSHA to rely on cohort studies that examined the lung cancer mortality of workers in their particular industry in lieu of the chromate production cohorts. Members of the aircraft industry and their representatives commented that OSHA failed to consider the results from several large cohort studies that showed aerospace workers were not at increased risk of lung cancer (Exs. 38–106; 38–215–2; 44–33; 47–29–2). In addition, Boeing Corporation and the Aeropspace Industries Association (AIA) provided data on the size distribution of Cr(VI) aerosols generated during primer spraying operations which showed most particles to be too large for deposition in the region of the respiratory tract where lung cancer typically occurs (Exs. 38–106–2; 38–215–2; 47–29–2). The Specialty Steel Industry maintained that epidemiological data specific to alloy manufacturing and experience within the their industry show that the lung cancer risk estimated by OSHA is unreasonably high for steel workers exposed to the proposed PEL of 1 μg Cr(VI)/m^3 (Ex. 38–233, p. 82). Several comments argued that there was a lack of scientific evidence for a quantifiable exposure-response relationship between Cr(VI) exposure from stainless steel welding (Exs. 38–8; 38–233–4). The commenters went on to suggest that the OSHA quantitative Cr(VI) exposure-lung cancer response model derived from the chromate production cohorts should not be used to characterize the risk to welders. The suitability of the OSHA risk estimates for these particular industries is further discussed below.

a. *Aerospace Manufacture and Maintenance.* Most of the comments on suitability of OSHA risk estimates were provided by AIA (Exs. 38–215; 47–29–2), Exponent on behalf of AIA (Exs. 38–215–2; 44–33), and the Boeing Corporation (Exs. 38–106; 38–106–1). Cr(VI) is used as an anti-corrosive in primers and other coatings applied to the aluminum alloy structural surfaces of aircraft. The principal exposures to Cr(VI) occur during application of Cr(VI) primers and coatings and mechanical sanding of the painted surfaces during aircraft maintenance. Cr(VI) exposures are usually in the form of the slightly soluble strontium and zinc chromates used in primers and chromic acid found in other treatments and coatings designed to protect metal surfaces.

Cohort Studies of Aerospace Workers. AIA commented that:

OSHA has all but ignored a substantial body of evidence of studies showing no increased risk of lung cancer in aerospace workers * * *. While epidemiologic studies show a link between lung cancer and chromium VI exposure in other industries [*e.g.* chromate production], that relationship is not established in the aerospace industry (Ex.38–106, p. 16).

Aerospace commenters pointed to several cohort studies from aircraft manufacturing and maintenance sites that did not find significantly elevated lung cancer mortality in workers (Exs. 31–16–3; 31–16–4; 35–213; 35–210). However, OSHA believes that the vast majority of workers in these cohorts were not routinely engaged in jobs involving potential Cr(VI) exposures.

Only two of the above studies (*i.e.,* the Alexander and Boice cohorts) specifically investigated the relationship between Cr(VI) exposures and lung cancer mortality (Exs. 31–16–3; 31–16–4). The Alexander cohort was evaluated as a supplemental data set for quantitative risk assessment in sections VI.B.6 and VI.E.4. Briefly, there were 15 observed lung cancer cases in the Alexander *et al.* study with 19.5 expected (Ex. 31–16–3). There was no evidence of a positive trend between cumulative Cr(VI) exposure and lung cancer incidence. The lack of excess lung cancers was probably, in large part, due to the short follow-up period (median nine years per member) and young age of the cohort (median 42 years at the end of follow-up). Lung cancer generally occurs 20 or more years after initial exposure to a carcinogenic agent and mostly in persons aged 55 years and older. There was no Cr(VI) air monitoring data for a significant portion of the study period and reconstruction of worker exposure was reduced to a limited number of 'summary time-weighted average exposure levels' based on job category (Ex. 31–16–3). These limitations may have caused inaccuracies in the worker exposure estimates that could lead to potential misclassification of exposure, and, thus may also have contributed to the lack of a positive Cr(VI) exposure—lung cancer response.

In the their technical comments on behalf of the AIA, Exponent considered the Boice cohort to be ''the largest, best defined, most completely ascertained, and followed for the longest duration'' of the epidemiological studies examining lung cancer mortality and other health outcomes of aerospace workers (Ex. 38–215–2, p. 10). The Boice cohort (previously described in section V.B.6) consisted of 77,965 aerospace workers employed over a thirty-year period at a large aircraft manufacturing plant in California (Ex. 31–16–4). The average duration of employment was over ten years and thirty percent of the cohort was deceased. Therefore, the Boice cohort was larger, older, and had greater follow-up than the Alexander cohort. Unfortunately, Cr(VI) air measurements were sparse in recent years and entirely absent during early years of plant operation so, unlike the Alexander cohort, quantitative Cr(VI) exposure reconstruction was not attempted. Instead, all jobs were qualitatively categorized by the chemicals involved (*e.g.,* chromates, trichloroethylene, perchloroethylene, etc.) and their frequency of chemical usage (routine, intermittent, or no exposure). Duration of potential chemical exposure, including Cr(VI), was determined for the cohort members based on work history (Ex. 47–19–15). There were 3634 workers in the cohort believed to have routine exposures to Cr(VI), mostly in painting/primer operations or operating process equipment used for plating and corrosion protection. Another 3809 workers were thought to have potential 'intermittent exposure' to chromates. Most workers with potential exposure to Cr(VI) also had potential exposures to the chlorinated solvents tricholoroethylene (TCE) and perchloroethylene (PCE). Because of an inadequate amount of Cr(VI) exposure data, OSHA was unable to use the Boice study for quantitative risk assessment.

The Boice *et al.* study did not find excess lung cancer among the 45,323 aircraft factory workers when compared against the race-, age-, calendar year-, and gender-adjusted rates for the general population of the State of California (SMR=97). This is not a surprising result considering more than 90 percent did not work in jobs that routinely involve Cr(VI) exposure. Factory workers potentially exposed to Cr(VI) also did not have significantly elevated lung cancer mortality (SMR=102; 95% CI: 82–126) relative to the California general population based on 87 observed lung cancer deaths. However, workers engaged in spray painting/priming operations that likely had the highest potential for Cr(VI) exposure did experience some excess lung cancer mortality (SMR=111; 95% CI: 80–151) based on 41 deaths, but the increase was not statistically significant.

As commonly encountered in factory work, there was evidence of a 'healthy worker effect' in this aerospace cohort that became increasingly pronounced in workers with long-term employment. The healthy worker effect (HWE) refers to the lower rate of disease relative to the general population sometimes observed in long-term occupational cohorts. For example, the Boice cohort factory workers employed for 20 years had statistically significant lower rates of death than a standardized California reference population for all causes (SMR=78; 95% CI: 75–81), lung cancer (SMR=70; 95% CI: 61–80), heart disease (SMR=79; 95% CI: 74–83), cerebrovascular disease (SMR=67; 95% CI: 56–78), non-malignant respiratory disease (SMR=65; 95% CI: 57–74), and cirrhosis of the liver (SMR=67; 95% CI: 51–88) among other specific causes (Ex. 31–16–4, Table 5). The study authors note that ''these reductions [in disease mortality] seem in part due to the initial selection into the workforce and the continued employment of healthy people [*i.e.* healthy worker effect] that is often found in occupational studies'' (Ex. 31–16–4, p. 592). If not properly accounted for in mortality analysis, HWE can mask evidence of disease risk. Mr. Robert Park, senior epidemiologist from NIOSH, confirmed this at the public hearing when addressing implications of HWE for Cr(VI) lung cancer risk in the Boice cohort.

This [Boice cohort] is a population where you would expect to see a very dramatic healthy worker effect * * * so just off the top, I would say any [relative risk] estimates for lung cancer in the Boice population based on SMRs, I would want to adjust upwards by 0.9, for example, if the real SMR ought to be around 0.9 due to the healthy worker effect. So if you do that in their population, they have classified some workers as [routinely] exposed to chromates, about 8 percent of the population. They observe a SMR of 1.02 in that group. If you look at some of the other groupings in that study, for example, assembly has an SMR of 0.92, fabrication, which is basically make all the parts, 0.92, maintenance, 0.79. So a lot of evidence for healthy worker effect in general in that population. So the chromate group actually is at least 10 or 12 percent higher in their lung cancer SMR. Now again, the numbers are small, you'd have to have a very huge study for an SMR of 1.1 or 1.15 to be statistically significant. So it is not. But it is a hint (Tr. 345–347).

OSHA agrees with Mr. Park that the relative risks for lung cancer in the Boice cohort are likely understated due to HWE. This is also illustrated in the study analysis of the lung cancer morality patterns by exposure duration to specific chemicals using internal cohort comparisons. The internal analysis presumably minimize any biases (*e.g.* smoking, HWE) that might exist from comparisons to the general population. The results for workers potentially exposed to Cr(VI), trichloroethylene (TCE), and perchloroethylene (PCE) are presented in Table VI–9.

Table VI-9

Relative Risk (RR) of Lung Cancer in Boice Cohort with Duration of Exposure to Selected Chemicals

Years Exposed	Chromate RR	Chromate 95% CI	Trichloro-ethylene RR	Trichloro-ethylene 95% CI	Perchoro-ethylene RR	Perchoro-ethylene 95% CI
0	1.00	p>0.2	1.00	P<0.01	1.00	P=0.02
<1	0.90	0.69-1.16	0.85	0.65-1.13	1.15	0.80-1.66
1-4	1.02	0.78-1.33	0.98	0.74-1.30	1.09	0.80-1.48
≥5	1.08	0.75-1.57	0.64	0.46-0.89	0.71	0.49-1.02

As shown in the table, there was a statistically significant decline in relative risk of lung cancer among factory workers with duration of TCE exposure (p<0.01) and PCE exposure (p=0.02). This mirrors the decline with increasing employment duration seen in comparison with the general California population and strongly suggests the internal cohort analysis failed to adequately adjust for HWE.

The table shows that, despite the downward influence of HWE on lung cancer risk, there was a slight nonsignificant upward trend in excess lung cancer mortality with duration of exposure to Cr(VI). The result is that aircraft workers potentially exposed to chromate for five or more years had 50 to 70 percent greater lung cancer mortality than coworkers with a similar duration of potential exposure to the chlorinated solvents. The relative excess is even more noteworthy given that the subgroups had considerable overlap (*e.g.*, many of the same workers in the PCE and TCE groups were also in the chromate group). This implies that a subset of Cr(VI) workers not exposed to chlorinated solvents, possibly spray painters routinely applying Cr(VI) primers over many years, may be at greater lung cancer risk than other Cr(VI)-exposed members of the cohort.

The AIA and its technical representative, Exponent, objected to OSHA reliance on the non-statistically significant upward trend in excess lung cancers with increasing Cr(VI) exposure duration described above (Exs. 38–215–2; 47–29–2). Exponent stated:

> Statistical tests for trend indicated there is no evidence for a trend of increasing risk of lung cancer with increasing years exposed to chromate (P<0.20). OSHA seems to have 'eye-balled' the estimates and felt confident accepting the slight and non-significant increases among risk estimates with overlapping confidence intervals as evidence of a ''slightly positive'' trend. However, OSHA's interpretation is an overstatement of the finding and should be corrected in the final rule (Ex. 38–215–2, p. 13).

OSHA does not agree with these comments and believes it has objectively interpreted the trend data in a scientifically legitimate fashion. The fact that an upward trend in lung cancer risk with Cr(VI) exposure duration fails to meet a statistical confidence of 95 percent does not mean the relationship does not exist. For example, a trend with a p-value of 0.2 means random chance will not explain the relationship 80 percent of the time. The positive trend is all the more notable given that it occurs in spite of a significant downward trend in lung cancer mortality with years of employment. In other words, aerospace workers exposed to Cr(VI) experienced a slightly greater lung cancer mortality with increasing number of years exposed even while their co-workers exposed to other chemicals were experiencing a substantially lower lung cancer mortality with increasing years exposed.

In its post-hearing comments, NIOSH calculated the observed excess lung cancer risk to the Boice spray painters expected to have the highest Cr(VI) exposures (SMR=1.11) to be 21 percent higher than the minimally Cr(VI)-exposed assembly workers (SMR=0.92). NIOSH assumed the painters were exposed to 15 μg CrO_3/m^3 (*i.e.,* the arithmetic mean of Cr(VI) air sampling data in the plant between 1978 to 1991) for 10 years (*i.e.,* the approximate average duration of employment) to derive an excess risk per mg CrO_3/m^3 of 1.4 (Ex. 47–19–1). NIOSH noted that this was very close to the excess risk per mg CrO_3/m^3 of 1.44 determined from their risk modeling of the Gibb cohort (Ex. 33–13). In a related calculation, OSHA derived the expected excess risk ratio from its linear relative risk model using a dose coefficient consistent with the Gibb and Luippold data sets. Assuming the Boice spray painters were exposed to 10 μg Cr(VI)/m^3 (90th percentile of plant air sampling data converted from μg CrO^3 to μg Cr(VI)) for 12 years (average employment duration of Boice factory workers), the model predicts a risk ratio 1.20 which is also very close to the observed excess risk ratio of 1.21 calculated from the observed SMR data for spray painters above. These calculations suggest that the excess lung cancer mortality observed in the Boice subcohort of Cr(VI)-exposed aerospace workers is consistent with excess risks predicted from models based on the Gibb and Luippold cohort of chromate production workers.

The other cohort studies of aerospace workers cited by AIA were not informative with regard to the association between Cr(VI) and lung cancer. A cohort study by Garabrandt *et al.* of 14,067 persons employed by an aircraft manufacturing company found significantly reduced excess lung cancer mortality (SMR=80; 95% CI: 68–95) compared to adjusted rates in the U.S. and San Diego County populations (Ex. 35–210). The mean duration of follow-up was only 16 years and the study authors are careful to state that the study can not rule out excess risk for diseases, such as lung cancer, that have long latencies of 20 years or more. The consistently low all-cause and cancer mortalities reported in the study strongly suggest the presence of a healthy worker effect. Another cohort study by Blair *et al.* of 14,457 aircraft maintenance workers at Hill Air Force base in Utah did not find elevated lung cancer mortality (SMR=90; 95% CI: 60–130) when compared to the general population of Utah (Ex. 35–213). However, the study was exclusively designed to investigate cancer incidence of chlorinated solvents (*e.g.* TCE, PCE, methylene chloride) and makes no mention of Cr(VI). This was also the case for a cohort study by Morgan *et al.* of 20,508 aerospace workers employed at a Hughes Aircraft manufacturing

plant, which found no excess lung cancer mortality (SMR=0.96; 95% CI: 87–106) compared to the general U.S. population. However, a detailed investigation of jobs at a large aircraft manufacturing facility (*i.e.* facility studied by Boice *et al.*) found that only about 8 percent of employees had potential for routine Cr(VI) exposure (Ex. 47–19–15). If this is representative of the workforce in the other studies cited above, it is doubtful whether a Cr(VI)-related increase in lung cancer from a small proportion of workers would be reflected in the mortality experience of the entire cohort, most of whom would not have been exposed to Cr(VI).

In summary, OSHA does not find convincing evidence from the aerospace cohort studies that the Agency's quantitative risk assessment overstates the lung cancer risk to Cr(VI)-exposed workers. An association between Cr(VI) exposure and lung cancer was never addressed in most cohorts relied upon by the aerospace industry. Job analysis shows that only a minor proportion of all aerospace workers are engaged in workplace activities that routinely lead to Cr(VI) exposure. This could explain the lack of excess lung cancer mortality found in studies characterizing the mortality experience of all aerospace workers. Alexander *et al.* identified a cohort of Cr(VI) exposed workers, made individual worker estimates of cumulative Cr(VI) exposures, and found no exposure-related trend with lung cancer incidence. However, the absence of exposure-response could be the result of a number of study limitations including the young age of the cohort (*e.g.* majority of workers were under 50 years of age, when lung cancer incidence is relatively uncommon), the inadequate follow-up period (*e.g.* majority of workers followed < 10 years), and the potential for exposure misclassification (*e.g.* Cr(VI) exposure levels prior to 1975 were not monitored). Boice *et al.* also identified a subcohort of aerospace workers with potential Cr(VI) exposure but lacked adequate air sampling to investigate a quantitative relationship between Cr(VI) exposure and lung cancer response. There was a significant decline in relative lung cancer risk with length of employment among factory workers as well as those exposed to chlorinated solvents, indicating a strong healthy worker survivor effect among this pool of workers. The healthy worker effect may have masked a significant trend in lung cancer with Cr(VI) exposure duration. Risk projections based on the OSHA linear model were found to be statistically consistent with the relative risk ratios observed in the Boice cohort.

Cr(VI) Particle Size Distribution During Aerospace Operations. Differences in the size of Cr(VI) aerosols generated during chromate production and aerospace operations is another reason representatives of the aircraft industry believe the OSHA risk estimates overstate risk to aerospace workers (Exs. 38–106; 38–106–1; 38–215–2; 39–43; 44–33; 47–29–2). The submitted particle size data indicated that spraying Cr(VI) primers mostly generates large aerosol droplets (*e.g.* > 10 μm) not expected to penetrate beyond the very upper portions of the respiratory tract (*e.g.* nasal passages, larynx). Some aerospace commenters also cited research showing that the few respirable primer particulates that reach the lower regions of the lung contain less Cr(VI) per particle mass than the larger non-respirable particles (Exs. 44–33; 38–106; 39–43). As a result, aerospace commenters contend that a very small proportion of Cr(VI) aerosols generated by aircraft primer operations deposit in the bronchioalveolar regions of the lung where lung cancer occurs. OSHA agrees that the particle size studies submitted to the record sufficiently demonstrate that a relatively small proportion of Cr(VI) reaches the critical regions of the lung as a result of these aircraft spraying operations. However, the Agency believes the reduction in lung cancer risk from this lower Cr(VI) particle burden is likely offset by the greater carcinogenic activity of the slightly soluble strontium and zinc chromates inhaled during spray primer application. Evaluation of the study data provided to the record and the rationale behind the OSHA position are described below.

The Agency reviewed the information provided by Boeing on the particle size of paint aerosols from typical spraying equipment used in aerospace applications. Boeing provided size characterization of paint aerosol from their in-house testing of spray paint equipment (Ex. 38–106–1, p. 8–11). They measured droplet size distributions of non-chromated polyurethane enamels generated by high volume low pressure (HVLP) and electrostatic air spray guns under typical settings. The particle size was measured 10 to 12 inches from the nozzle of the gun using laser diffraction techniques. Boeing found the median volumetric droplet diameter (Dv50) of the paint particles to be in the range of 17 to 32 μm under the test conditions. Less than 0.5 percent of droplets in the spray were 5 μm and smaller (*e.g.* typical of particles that deposit in the bronchioalveolar region). Boeing concluded:

> In typical operations and products, the best aerosol size is a distribution with mass median diameter of about 30–40 microns, and a relatively monodisperse distribution. As a result, the fraction of the spray that is <5 micron is about 1% or less; in overspray perhaps ≈2%. Therefore the deposited dose would be far less than from exposure to an equal concentration of a smaller aerosol size, and estimates of risk based on studies of other industry sectors are not relevant to evaluation of risk in aerospace paint spraying (Ex. 38–106–1, p. 16).

Although Boeing used a non-chromated enamel paint in their studies, they contend that the results would be representative of the particle size distribution for a Cr(VI) primer using the same equipment under similar conditions.

Boeing also submitted recent publications by the UCLA Center for Occupational and Environmental Health measuring the Cr(VI) particle size distribution during spray painting operations at an aerospace manufacturing facility (Ex. 38–106–1). The UCLA group investigated particle size distributions of Cr(VI) primers sprayed from HVLP equipment in a lab bench-scale spray booth and in a field study of spray booths at an aerospace facility (Ex. 38–106–1, attachment 6). The tested primers contained the slightly soluble strontium chromate. The study data are presented in two papers by Sabty-Daily *et al.* The aerosol particles were collected at different locations several meters from the spray gun in the bench-scale paint booth using a cascade impactor. Full shift personal breathing zone samples from workers spraying primer were also collected with a cascade impactor in the field studies. The mass median aerodynamic diameter (MMAD) for Cr(VI) particles in the field study was reported to be 8.5 μm with a geometric standard deviation of 2.2 μm. On average, 62 percent of the Cr(VI) mass was associated with non-respirable particles >10 μm. Taking into account deposition efficiency, it was estimated that less than five percent of the Cr(VI) would potentially deposit in the lower regions of the respiratory tract where lung cancer occurs. The bench scale study gave particle distributions similar to the field studies. It was shown that particle size decreases slightly as gun atomization pressure increases. Particles in the direct spray were generally larger than the overspray. Particle size was shown to decrease with distance to the target surface due to evaporation of solvent.

Both Sabty-Daily articles and the Boeing submission made reference to

another study that measured particle size distribution of a HVLP-generated paint aerosol in the breathing zone of the worker (Ex. 48–3). Paint droplets were collected on polycarbonate filters with 0.2 μm pore size. Aerosol size was measured using a microscopic method that minimizes bias from solvent evaporation. The breathing zone MMAD in the overspray was reported to be 15 to 19 μm with a GSD of 1.7 μm. In another study, LaPuma *et al.* investigated the Cr(VI) content of primer particles from an HVLP spray gun using a cascade impactor (Ex. 31–2–2). They reported that smaller particles (*i.e.* <7 μm) contained disproportionately less Cr(VI) per mass of dry paint than larger particles.

Boeing concluded that ''the particle size distribution reported by Sabty-Daily *et al.* (2004a) significantly underestimate the size distribution of paint aerosol'' (Ex. 38–106–1, p. 14). They state that ''in typical [spraying] operations and products the best aerosol size is a distribution with mass median diameter of about 30–45 microns'' (Ex. 38–106–1, p. 16). This particle size is larger than 15 to 20 μm reported in independent breathing zone measurements of spray paint aerosol collected on conventional sampling media (*i.e.* polycarbonate filters) (Carlton and Flynn, 1997).

The Boeing rationale for dismissing the UCLA data was that the cascade impactor had low collection efficiency for larger particles relative to the Boeing laser diffraction method, which Boeing believes is more accurate over the entire size distribution. OSHA notes, however, that Boeing did not characterize aerosol particles in the breathing zone of workers spraying Cr(VI) primer. Their study characterized droplet size from an non-chromated enamel spray directly out of the spray gun prior to contact with the target surface. While collection efficiency accounts for some of the particle size difference, other factors may also have contributed. These factors include the composition of the spray paint, the sampling location, and the degree of solvent evaporation. OSHA considers Cr(VI) primer droplets with an average MMAD of 7 to 20 μm, as measured in breathing zone studies, to best represent the particle size inhaled by a worker during spraying operations, since this range was measured in breathing zone studies. The majority of these droplet particles would not be expected to penetrate regions of the respiratory tract where lung cancers occur.

While aerosol particle size during spray application of Cr(VI) primers has been measured, AIA acknowledged that the particle size distribution during sanding procedures has not been well studied (Exs. 38–106; 47–29–2). However, they believe that most of the particles released as a result of sanding and grinding operations to remove old paint coatings from aircraft are non-respirable (*e.g.* >10 μm). OSHA is not aware of reliable data in the record to support or refute this claim.

The Cr(VI) particle size data from spray primer and sanding applications in aerospace need to be evaluated against Cr(VI) particle size during chromate production to determine its impact on OSHA risk estimates. Boeing observed that the high temperature calcination process that oxidizes chromite ore to sodium chromate would likely lead to a high proportion of respirable fume (Ex. 38–106). During post-hearing comments, AIA provided a figure from the 1953 U.S. Public Health Service survey report that indicated the geometric mean airborne dust particle size in a chromate production plant was 0.3 to 0.4 m in size (Ex. 47–29–2, p. 3). The data came from a thermal precipitator analysis of one-hour dust samples collected from the roasting and leaching areas of the plant (Ex. 7–3). An independent 1950 industrial hygiene survey report of the Painesville plant from the Ohio Department of Health indicates the median size of the in-plant dust was 1.7 microns and the median size of the mist generated during the leaching operations was 3.8 microns (Ex. 7–98). The measurement method used to determine this particle size was not clear from the survey report.

The thermal precipitator used by the U.S. Public Health Service survey is an older sampling device specifically used to characterize particles smaller than 5 μm. The thermal precipitator collection efficiency for particles >5 μm was considered suspect due to gravitational and inertial effects caused by the very low air flow rates (*e.g.* 6 ml/min) necessary to operate the device. The survey figure shows that 95 percent of collected particles were smaller than 1 μm. However, this is probably an inflated percentage given that the thermal precipitator is unable to effectively collect particles outside the fine and ultrafine range (*e.g.* greater than about 5 μm).

In their post-hearing brief, AIA introduced an Exponent microscopic analysis of particles claimed to be landfilled 'roast residue' generated as airborne dust from the Painesville plant 'decades' earlier (Ex. 47–29–2). AIA stated that ''the particle diameters ranged from 0.11 to 9.64 μm and that 82 percent of the particles were less than 2.5 μm (Ex. 47–29–2, p. 3). OSHA was unable to verify the nature of the landfill dust or determine its relevance from the information provided by AIA.

In the same submission, AIA referenced several experimental and animal studies as evidence that small particles less than 2.5 μm in diameter cause greater lung toxicity than larger particles (Ex. 47–29–2). AIA concluded that:

> It is important for OSHA to recognize in the quantitative risk assessment that the particles to which the featured chromate production workers were exposed were fine [particle diameters 0.1–2.5 μm] and ultrafine particles [particle diameters <0.1 μm] and that particles of this size range are known to be associated with greater toxicity than larger particles. Thus, the quantitative cancer risk estimates based on these studies are very conservative and likely overestimate risks for Cr(VI) exposures in other industries, most notably aerospace (Ex. 47–29–2, p. 7).

The above studies showed that fine/ultrafine particles penetrate into the alveolar region of the lung, are slowly cleared from respiratory tract, and can lead to pulmonary inflammation and non-neoplastic respiratory disease. OSHA agrees that fine/ultrafine particles can disrupt pulmonary clearance and cause chronic inflammation if sufficient amounts are inhaled. However, AIA did not provide data that demonstrated the Gibb and Luippold workers were routinely exposed to levels of small particles that would trigger serious lung toxicity.

AIA also referred to a human epidemiological study that reported the excess risk of lung cancer mortality from airborne fine/ultrafine particles (*i.e.* 8 percent increase per 10 $\mu g/m^3$ in particles) to be similar to the excess risk of cardiopulmonary disease (*i.e.* 6 percent increase with each 10 $\mu g/m^3$ in particles). AIA suggested these results were evidence that the excess lung cancer mortality attributed to Cr(VI) in chromate production cohorts were, in large part, due to fine/ultrafine particles. However, the Luippold cohort had an excess mortality from lung cancer (SMR=239) that was 10.6-fold higher than the excess mortality of heart disease (SMR=113) (Ex. 33–10). The Gibb cohort had an excess mortality from lung cancer that was 5.7-fold higher than the excess mortality of arteriosclerotic heart disease (SMR=114) (Ex. 33–11). These mortality patterns are not consistent with the small particle study results above and strongly indicate fine/ultrafine particles are not the primary cause of excess lung cancer among the chromate production workers in the Luippold and Gibb cohorts. Given the information provided, OSHA does not have reason to expect that exposure

to fine/ultrafine particles in the Luippold and Gibb cohorts had a substantial quantitative impact on its estimates of lung cancer risk from exposure to Cr(VI).

Based on the evidence presented, OSHA believes the production of sodium chromate and dichromate likely generated a greater proportion of respirable Cr(VI) particles than the aerospace spray priming operations. The roasting operation that oxidizes trivalent chromite ore and soda ash to hexavalent sodium chromate salts would be expected to generate a small particle fume based on information from other high temperature calcination processes (*e.g.* beryllium oxide production). This is supported by a small amount of particle size information from the 1940s and 1950s (Ex. 7–98). However, there are insufficient data to reliably determine the median diameter of Cr(VI) particles or otherwise characterize the particle size distribution generated during sodium chromate production in the breathing zone of the worker. It should also be recognized that significant Cr(VI) exposures occurred during other chromate production operations, such as leaching sodium chromate from the roast, separating sodium dichromate crystals, and drying/bagging the final purified sodium dichromate product. There is no information on particle size for these operations, but it is reasonable to expect greater proportions of larger particles than generated during the roasting process. For these reasons, there is some degree of uncertainty with regard to size distribution of Cr(VI) aerosols inhaled by chromate production workers.

OSHA agrees with the aerospace industry that the reduced proportion of respirable particles from spray primer operations relative to chromate production will tend to lower the lung cancer risk from equivalent Cr(VI) exposures. This is because less Cr(VI) will reach the bronchioalveolar regions of the respiratory tract where lung cancer occurs. However, the chemical form of Cr(VI) must also be considered. Spray primer and painting operations expose workers to the slightly soluble strontium and zinc chromates while chromate production workers are exposed primarily to highly soluble sodium chromate/dichromate.

As explained earlier in section V.B.9 on carcinogenic effects, animal and mechanistic evidence suggest that the slightly soluble strontium and zinc chromates are more carcinogenic than the highly soluble Cr(VI) compounds when equivalent doses are delivered to critical regions of the respiratory tract. Slightly soluble Cr(VI) compounds produced a higher incidence of bronchogenic tumors than highly soluble Cr(VI) compounds (*e.g.* sodium dichromate, chromic acid) when instilled in the respiratory tract of rats at similar dosing and other experimental conditions (Ex. 11–2; 11–7). For example, intrabronchial instillation of strontium chromate produced a 40 to 60-fold greater tumor incidence than instillation of sodium dichromate in one study (Ex. 11–2). Unlike the highly soluble Cr(VI) compounds, the less water soluble Cr(VI) compounds are better able to provide a persistent source of high Cr(VI) concentration within the immediate microenvironment of the lung epithelia facilitating cellular uptake of chromate ion into target cells. The greater carcinogenicity of the slightly soluble Cr(VI) compounds have led to ACGIH TLVs that are from 5-fold (*i.e.* zinc chromates) to 100-fold (*i.e.* strontium chromates) lower than the TLV for highly water soluble Cr(VI) compounds.

For these reasons, the risk reductions achieved from the lower Cr(VI) particle burden that reaches the bronchioalveolar region of the lung may, to a large extent, be offset by the greater carcinogenic activity of the Cr(VI) compounds that are inhaled during aircraft spray painting operations. Since significant lung cancer risk exists at Cr(VI) air levels well below the new PEL (*e.g.* 0.5–2.5 $\mu g/m^3$) based on chromate production cohorts, the risk would also likely be significant even if the lung cancer risk from similar Cr(VI) exposures in aerospace operations is slightly lower. Therefore, OSHA believes that the risk models based on the Gibb and Luippold data sets will provide reasonable estimates of lung cancer risk for aerospace workers exposed to equivalent levels of Cr(VI). However, based on the lower lung burden expected after considering the particle size distribution evidence submitted to the record, OSHA no longer believes that its risk projections will underestimate lung cancer risk for aerospace workers exposed to strontium or zinc chromates, as suggested in the NPRM (69 FR at 59384).

b. Specialty Steel Industry and Stainless Steel Welding.

Collier Shannon Scott submitted comments to OSHA on behalf of a group of steel and superalloy industry trade associations and companies including the Specialty Steel Industry of North America (SSINA), the Steel Manufacturers Association (SMA), and the American Iron and Steel Institute (AISI) as well as various individual companies. They requested that OSHA ''seriously consider'' the results of the Arena *et al.* (1998) study of workers employed in the high nickel alloys industry (Tr. 661), as well as studies by Huvinen *et al.* (1996, 2002) and Moulin *et al.* (1990) on stainless steel production workers (Exs. 38–233, p. 85; 47–5, p. 10) and by Danielsen *et al.* (1996) on Norweigen stainless steel welders (Ex. 47–5, p. 10). On behalf of the SSINA, Ms. Joan Fessler testified that the Arena *et al.* study (Ex. 38–233–2), also referred to as the ''Redmond Study'', found no relationship between Cr(VI) exposure and lung cancer, and in general '' * * * no strong epidemiological evidence causally associating occupational exposures with excess risk'' (Tr. 662). Ms. Fessler concluded that the study results '' * * * stand in stark contrast to the extrapolated estimates of cancer risk OSHA has developed from the chromate worker cohorts to develop the proposed rule'' (Tr. 662) and ''[show] that there is no significant excess risk of lung cancer for workers in the steel industry'' (Ex. 40–12–4, p. 2). She cited studies conducted by Huvinen *et al.* as additional evidence that workers in the stainless steel production industry do not have excess risk of lung cancer from Cr(VI) exposure (Tr. 663).

OSHA reviewed the Arena *et al.* (1998) study, which examined mortality in a cohort of 31,165 workers employed at 13 U.S. high nickel alloy plants for at least one year between 1956 and 1967 (Ex. 38–233–2, p. 908). The focus of the study is nickel exposure; it does not report how many of the cohort members were exposed to Cr(VI) or the levels of Cr(VI) exposure to which they may have been exposed. Therefore there does not appear to be any basis for SSINA's conclusion that ''[t]here was no strong epidemiological evidence causally associating occupational exposures with excess risk'' in the study and that ''[n]o dose response relationship was demonstrated * * *'' (Tr. 662). Ms. Fessler stated, in response to a question by Dr. Lurie of Public Citizen, that there is no information in the study on Cr(VI) exposures with which to assess a dose-response relationship between occupational exposure to Cr(VI) and excess lung cancer risk in the cohort (Tr. 685). Without any information on the proportion of workers that were exposed to Cr(VI) or the levels to which they were exposed, one cannot determine that there is no carcinogenic effect of Cr(VI) exposure, or that the results of the Arena study contradict OSHA's risk estimates.

To more meaningfully compare the lung cancer risk predicted by OSHA's risk model and that observed in the

Arena *et al.* study, OSHA estimated Cr(VI) exposures for the cohort members based in part on exposures in the stainless steel industry. High-nickel alloys that contain chromium are roughly comparable to stainless steel in terms of chromium content and the temperatures at which they are melted. This in turn determines the amount of trivalent chromium that converts to hexavalent chromium in the heating process. For example, cast stainless steels with high nickel composition (*e.g.* Cast 18–38, Cast 12–60, Cast 15–65, and Cast 15–35) have chromium content ranging from 10–21% and have melting points between 2350 and 2450 degrees Fahrenheit. Other high-nickel alloys with chromium content, such as Hastelloy alloys C and G, Incoloy, Nimonic, and Inconel, range from 13 to 22% chromium (except Incoloy 804=29.7% Cr) with melting points of 2300–2600 degrees Fahrenheit. Stainless steels, in general, have 12–30% chromium content and melting points between 2350 and 2725 degrees Fahrenheit.

For this analysis OSHA projected that the proportion of workers in each production job category is approximately similar in stainless steel and high-nickel alloy production. For example, OSHA assumed that the percent of alloy production workers who are furnace operators is, as in steel production, about 5%. Assuming that both the Cr(VI) exposures typical of various production jobs and the proportion of workers employed in each job are roughly similar, workers in the Arena cohort producing high-nickel stainless steels and alloys containing chromium are likely to have Cr(VI) exposures comparable to those generally found in stainless steel production. Workers' exposures were estimated using the exposure profile shown in Table III–62 of the Final Economic Analysis section on steel mills (Ex. 49–1).

Not all workers in the Arena *et al.* cohort had Cr(VI) exposures comparable to those in stainless steel facilities. As discussed by Ms. Fessler at the hearing, exposure to "* * * [c]hrome was not uniform in all [industries included in the study] because some of those industries * * * did only high nickel work or nickel mining or whatever specific nickel work there was" (Tr. 683). OSHA assumed that Cr(VI) exposures of workers producing high-nickel alloys without chromium content, such as Duranickel, Permanickel, Hastelloy alloys B, D, and G, and Monel alloys, are similar to those found in carbon steel mills and other non-stainless facilities, which according to comments submitted by Collier Shannon Scott:

> * * * may generate Cr(VI) due to trace levels of chromium in feedstock materials or the inadvertent melting of stainless steel scrap, as well as during various maintenance and welding operations (Ex. 38–233, p. 10).

Exposure levels for Arena cohort workers producing these alloys were estimated using the carbon steel exposure profile shown in Table III–64 of the Final Economic Analysis section on steel mills (Ex. 49–1).

Table VI–10 below shows the risk ratios (ratio of excess plus background cancers to background only cancers) predicted by OSHA's model for workers producing high-nickel alloys with and without chromium content. The percentage of workers with 8-hour TWA exposures in each range shown below are calculated for Ni-Cr alloys and non-Cr alloys using profiles developed for the Final Economic Analysis sections on stainless steel and carbon steel industries, respectively (Ex. 49–1). An average exposure duration of 20 years was assumed. While it was not clear how long workers were exposed on average, the reported length of follow-up in the study indicates that the duration of exposure was probably less than 20 years for most workers. Risk ratios were calculated assuming that workers were followed through age 70. The average age at end of follow-up was not clear from the Arena *et al.* publication. Over half of the original cohort was under 30 as of 1978, and follow-up ended in 1988 (Ex. 38–233–2, p. 908). Follow-up through age 70 may therefore lead OSHA's model to overestimate risk in this population, but would probably not lead to underestimation of risk.

Table VI-10: Relative Risks Predicted for Workers in High Nickel Alloy Production

Range of Personal TWA exposures ($\mu g/m^3$)	Midpoint Exposure for Risk Model	Percentage of Workers Ni-Cr Alloys	Percentage of Workers Non-Cr Alloys	Risk Ratio Predicted by OSHA's Model
Unexposed	0.0	66.1%	66.1%	1.000
below LOD	0.015	4.4%	9.8%	1.0002 - 1.001
LOD - < 0.25	0.133	5.4%	9.1%	1.002 - 1.009
0.25 - < 0.5	0.375	8.8%	4.1%	1.006 - 1.026
0.5 - < 1.0	0.750	4.1%	8.1%	1.012 - 1.051
1.0 - < 5.0	3.0	8.5%	0.3%	1.047 - 1.206
5.0 - < 10.0	7.5	0.3%	1.7%	1.117 - 1.514
10.0 - 20.0	15.0	1.7%	0.7%	1.233 - 2.026
> 20.0	30.0	0.7%	0.0%	1.466 - 3.046
Total - Ni-Cr Alloys	***	***	***	1.013 - 1.056
Total - Non-Cr Alloys	***	***	***	1.005 - 1.023

The Arena *et al.* study reported lung cancer rates among white males (who comprised the majority of the cohort) about 2%–13% higher than background depending on the reference population used. The table above illustrates that with reasonable assumptions about exposures in the Arena cohort, OSHA's risk model predicts excess risks as low as those reported by Arena *et al.* OSHA's model predicts the highest risks (1–6% higher than background) among workers producing alloy mixtures similar to stainless steel in chromium content. Unfortunately, it is not clear from the Arena *et al.* publication how many of the workers were involved in production of chromium-containing alloys. If an even split is assumed between workers producing alloys with and without chromium content in the Arena *et al.* cohort, OSHA's model predicts a lung cancer rate between 0.8% and 3.8% higher than background.

More precise information about the level or duration of cohort members' exposures might increase or decrease OSHA's model predictions somewhat. For example, some workers in the historical alloy industry would have had higher exposures than their modern-day counterparts, so that better exposure information may lead to somewhat higher model predictions. On the other hand, better information on the duration of exposure and workers' age at the end of follow-up would lower the model predictions, because this analysis made assumptions likely to overestimate both. The analysis presented here should be interpreted cautiously in light of the considerable uncertainty about the actual exposures to the Arena cohort members, and the fact that OSHA's model predictions are based on a lifetable using year 2000 U.S. all-cause mortality data (rather than data from the time period during which the cohort was followed). This analysis is not intended to provide a precise estimate of risk from exposure to Cr(VI) in the Arena cohort, but rather to demonstrate that the relatively low excess risk seen in the cohort is reasonably consistent with the excess risk that OSHA's model would predict at low exposures. It illustrates that OSHA's risk model does not predict far higher risk than was observed in this cohort. Rather, the majority of workers in alloy production would be predicted to have relatively low risk of occupational lung cancer based on their relatively low exposure to Cr(VI).

Regarding the Huvinen *et al.* (1996, 2002) studies, the comments submitted by Collier Shannon Scott state that ''there was not a significant increase in the incidence of any disease, including lung cancer, as compared to the control population'' (Ex. 38–233, p. 85). However, the authors also noted that risk of cancer could not be excluded because the follow-up time was short and the exposed group was young and small (Ex. 38–233–3, p. 747).

In addition to the small size (109 workers) and young age (mean 43.3 years) of the Cr(VI)-exposed group in the Huvinen *et al.* study population, the design of this study limits its relevance to the issue of lung cancer risk among stainless steel workers. The subjects were all employed by the company at the time of the study. Individuals with lung cancer would be expected to leave active employment, and would not have been surveyed in the study. The authors made only a limited attempt to track former workers: Those who met the study criteria of 8 years' employment in a single production department were surveyed by mailed questionnaire (Ex. 38–233–3, p. 743), and no follow-up on nonrespondents was reported. A second study conducted on the original study group five years later was again limited to employed workers, as those who had left the company '' * * * could not be contacted'' (Ex. 38–233–3, p. 204). Due to the short follow-up period and the restriction to living workers (still employed or survey respondents), these studies are not well suited to identify lung cancer cases.

Post-hearing comments stated that '' * * * OSHA has failed to even consider specific epidemiological studies performed on stainless steel production workers and welders that would be far more relevant than the chromate production studies OSHA relied upon for its analysis'' (Ex. 47–5, p. 10). In particular, they suggest that OSHA should consider a study by Danielsen *et al.* (1996) on Norweigian boiler welders and a study by Moulin *et al.* (1990) on French stainless steel production workers (Ex. 47–5, p. 10). However, the Moulin *et al.* study (Ex. 35–282), was discussed in the Preamble to the Proposed Rule (69 FR at 59339). OSHA concluded that the association between Cr(VI) and respiratory tract cancer in this and similar studies is difficult to assess because of co-exposures to other potential carcinogens such as asbestos, polycyclic aromatic hydrocarbons, nickel, and the lack of information on smoking (69 FR at 59339).

The Danielsen *et al.* study was not evaluated in the NPRM, but is similar to other studies of welders evaluated by OSHA in which excess risk of lung cancer did not appear to be associated with stainless steel welding. In Danielsen *et al.*, as in most other welding studies, no quantitative information on Cr(VI) exposure was available, there was potential confounding by smoking and asbestos exposure, and there appeared to be an overall healthy worker effect in the study (625 deaths vs. 659 expected). Therefore, OSHA does not believe that Danielsen *et al.* contributes significant information beyond that in the studies that are reviewed in Section V.B.4 of this preamble. OSHA's interpretation and conclusions regarding the general findings of welding cohort studies, discussed below in the context of comments submitted by the Electric Power Research Institute, apply to the results of Danielsen *et al.* as well.

The Electric Power Research Institute (EPRI), Exponent, and others submitted comments to OSHA that questioned whether the Agency's exposure-response model, based on the Gibb and Luippold chromate production industry cohorts, should be used to estimate lung cancer risks to welders exposed to Cr(VI) (Exs. 38–8; 38–233–4; 39–25, pp. 2–3). EPRI stated that:

> OSHA's review of the toxicology, epidemiology, and mechanistic data associated with health effects among welders was thorough and accurate. We concur with the selection of the two focus cohorts (Luippold *et al.* 2003 and Gibb *et al.* 2000) as the best data available upon which to base an estimate of the exposure-response relationship between occupational exposure to Cr(VI) and an increased lung cancer risk''; however * * * it may be questionable whether that relationship should be used for stainless steel welders given that a positive relationship between exposure to Cr(VI) and lung cancer risk was not observed in most studies of welder cohorts (Ex. 38–8, pp. 6–7).

EPRI's concerns, like other comments submitted to OSHA on risk to welders, are based primarily on the results of the Gerin *et al.* (1993) study and on several studies comparing stainless steel and mild steel welders.

As discussed above in Section V., Gerin *et al.* (1993) is the only available study that attempts to relate estimated cumulative Cr(VI) exposure and lung cancer risk among welders. While excess lung cancer risks were found among stainless steel welders, there was no clear relationship observed between the estimated amount of Cr(VI) exposure and lung cancer (Ex. 38–8, p. 8). This led the authors to suggest that the elevated risks might be '' * * * related to other exposures such as cigarette smoking, background asbestos exposure at work or other occupational or environmental risks * * * '' rather than to Cr(VI) exposure. On the other hand, Gerin *et al.* stated that '' * * * the welding fume exposures in these

populations may be too low to demonstrate a gradient of risk'', or misclassification of exposure might obscure the dose-response relationship (Ex. 7–120, pp. S25–S26), a point with which EPRI expressed agreement (Ex. 38–8, p. 8).

OSHA agrees with Gerin *et al.* that co-exposures to carcinogens such as nickel, asbestos, and cigarette smoke may have contributed to the elevated lung cancer risks among welders. OSHA also agrees with the authors that exposure misclassification may explain the absence of a clear relationship between Cr(VI) and lung cancer in this study. Gerin *et al.* derived their exposure data primarily from literature on welding fume, as well as from a limited number of industrial hygiene measurements taken in the mid 1970s in eight of the 135 companies participating in the study (Ex. 7–120, p. S24, p. S27). Their exposure estimates took account of the welding process used and the base metal welded by individuals in the cohort, but they apparently had no information on other important items, such as the size of the work piece and weld time, which were identified by EPRI as factors affecting the level of Cr(VI) exposure from welding (Ex. 38–8, p. 5).

EPRI also identified ventilation as a particularly important determinant of exposure (Ex. 38–8, p. 5). Gerin *et al.* did not appear to have individual information on ventilation use for their exposure estimates, relying instead on ''information on the history of welding practice * * * obtained from each company on the basis of an ad hoc questionnaire'' that described for each company the average percent of time that welders used local ventilation, operated in confined or open areas, and worked indoors or outdoors (Ex. 7–120, p. S23). The use of local ventilation, time spent welding in confined areas, and time spent welding outdoors may have varied considerably from worker to worker within any single company. In this case exposure estimates based on company average information would tend to overestimate exposure for some workers and underestimate it for others, thus weakening the appearance of an exposure-response relationship in the cohort.

Gerin *et al.* also stated that the average exposure values they estimated do not account for a number of factors which affect welders' exposure levels, including '' * * * type of activity (*e.g.* maintenance, various types of production), special processes, arcing time, voltage and current characteristics, welder position, use of special electrodes or rods, presence of primer paints and background fumes coming from other activities'' (Ex. 7–120, p. S25). They noted that the resulting difficulty in the construction of individual exposure estimates is exacerbated by aggregation of data across small cohorts from many different companies that may have different exposure conditions (Ex. 7–120, p. S25). According to Gerin *et al.*, exposure misclassification of this sort may have obscured a dose-response relationship in this cohort (Ex. 7–120, p. S25). The authors suggest that their estimates should be checked or corrected '' * * * with data coming from well-documented industrial hygiene studies or industrial hygiene data banks including information on the major relevant factors'' (Ex. 7–120, p. S26). OSHA believes that there is insufficient information to determine why a clear relationship between Cr(VI) exposure and lung cancer is not observed in the Gerin *et al.* study, but agrees with the authors that exposure misclassification and the influence of background exposures may explain this result.

EPRI noted the apparent lack of a relationship between exposure duration and lung cancer risk in the Gerin *et al.* cohort (Ex. 38–8, p. 10). Duration of exposure is expected to show a relationship with cancer risk if duration serves as a reasonable proxy for a measure of exposure (*e.g.* cumulative exposure) that is related to risk. Since cumulative exposure is equal to exposure duration multiplied by average exposure level, duration of exposure may correlate reasonably well with cumulative exposure if average exposure levels are similar across workers, or if workers with longer employment tend to have higher average exposure levels. In a cohort where exposure duration is believed to correlate well with cumulative exposure, the absence of a relationship between exposure duration and disease risk could be interpreted as evidence against a relationship between cumulative exposure and risk.

High variation in average exposures among workers, unrelated to the duration of their employment, would tend to reduce the correlation between exposure duration and cumulative exposure. If, as EPRI states, Cr(VI) exposure depends strongly on process, base metal, and other work conditions that vary from workplace to workplace, then duration of exposure may not correlate well with cumulative exposure across the 135 companies included in the Gerin *et al.* study. The lack of a positive relationship between exposure duration and lung cancer in the Gerin *et al.* cohort may therefore signify that duration of exposure is not a good proxy for the amount of exposure accumulated by workers, and should not be interpreted as evidence against an exposure-response relationship.

In post-hearing comments Mr. Robert Park of NIOSH discussed other issues related to exposure duration in the Gerin *et al.* and other welding cohorts:

> Several factors may impact the interpretation of [the Gerin *et al.* (1993) and Simonato *et al.* (1991) welder cohort studies] and are consistent with an underlying risk associated with duration * * *. The healthy worker survivor effect is a form of confounding in which workers with long employment durations systematically diverge from the overall worker population on risk factors for mortality. For example, because smoking is a risk factor for disease, disability and death, long duration workers would tend to have a lower smoking prevalence, and hence lower expected rates of diseases that are smoking related, like lung cancer. Not taking this into account among welders might result in long duration welders appearing to have diminished excess risk when, in fact, excess risk continues to increase with time (Ex. 47–19–1, p. 6).

Mr. Park also emphasized the special importance of detailed information for individual workers in multi-employer studies with exposure conditions that vary widely across employers. He notes that high worker turnover in highly exposed jobs '' * * * could result in long duration welding employment appearing to have lower risk than some shorter duration [welding] employment when it does not'' (Ex. 47–19–1, p. 6).

EPRI compared the risk of lung cancer among a subset of workers in the Gerin cohort exposed to high cumulative levels of Cr(VI) to the risk found among chromate production workers in the Gibb *et al.* and Luippold *et al.* studies. ''Focusing on the highest exposure group, SMRs for the cohorts of stainless steel workers studied by Gerin et al (1993) * * * range from 133 to 148 for exposures >1.5 mg-yrs/m^3 * * *. By comparison, the SMR from the Luippold *et al.* (2003) cohort is 365 for cumulative exposures of 1.0 to 2.69 mg-yrs/m^3'', a difference that EPRI argues '' * * * draws into question whether the exposure-specific risk estimates from the chromate production industry can be extrapolated to welders'' (Ex. 38–8, p. 25). It is not clear why EPRI chose to focus on the high exposure group, which had a minimum of 1.5 mg/m^3-years cumulative Cr(VI) exposure, a mean of 2.5 mg/m^3-years, and no defined upper limit. Compared to the other exposure groups described by Gerin *et al.*, this group is likely to have had more heterogenous exposure levels; may be expected to have a stronger

healthy worker effect due to the association between high cumulative exposure and long employment history; and is the least comparable to either workers exposed for a working lifetime at the proposed PEL (1 μg/m³ * 45 years = 0.045 mg/m³-years cumulative exposure) or welders in modern-day working conditions, who according to an IARC review cited in EPRI's comments typically have exposure levels less than 10 μg/m³ (< 0.45 mg/m³-years cumulative exposure over 45 years) (Ex. 38–8, p. 4). In addition, the majority of the observation time in the Luippold *et al.* cohort and the vast majority in the Gibb *et al.* cohort is associated with exposure estimates lower than 1.5 mg/m³-years Cr(VI) (Ex. 33–10, p. 455, Table 3; 25, p. 122, Table VI).

It should be noted that the levels of excess lung cancer risk observed among welders in the Gerin *et al.* cohort and chromate production workers in the Gibb and Luippold cohorts are quite similar at lower cumulative exposure ranges that are more typical of Cr(VI) exposures experienced in the cohorts. For example, the group of welders with estimated cumulative exposures ranging from 50 to 500 μg-yrs/m³ has an SMR of 230. Chromate production workers from the Gibb and Luippold cohorts with cumulative exposures within this range have comparable SMRs, ranging from 184 to 234, as shown in Table VI–11 below. For reference, 45 years of occupational exposure at approximately 1.1 μg/m³ Cr(VI) would result in a cumulative exposure of 50 μg-yrs/m³; 45 years of occupational exposure at approximately 11.1 μg/m³ Cr(VI) would result in a cumulative exposure of 500 μg-yrs/m³.

Table VI-11

Comparison of Gerin et al. exposure group and featured cohorts in cumulative exposure range of 50 - 500 μg-yrs/m³

Exposure Group	SMR
Gerin et al. cohort (Ex. 35-220, Table 3)*	
Ever stainless steel welders, 50 - 500 μg-yrs/m³	230
Predominantly stainless steel welders, 50 - 500 μg-yrs/m³	214
Luippold et al. cohort (Ex. , Table 3)	
200 - 480 μg-yrs/m³	184
Gibb et al. cohort (Ex. 35-435, Table 1)	
49 - 190 μg-yrs/m³	197
190 - 570 μg-yrs/m³	234

* restricted to workers with individual work histories, to minimize exposure misclassification

OSHA performed an analysis comparing the risks predicted by OSHA's models, based on the Gibb and Luippold data collected on chromate production workers, with the lung cancer deaths reported for the welders in the Gerin *et al.* study. Gerin *et al.* presented observed and expected lung cancer deaths for four categories of cumulative exposure: <50 μg-yrs/m³, 50–500 μg-yrs/m³, 500–1500 μg-yrs/m³, and 1500+ μg-yrs/m³. The great majority of the Gerin *et al.* data on stainless steel welders (98% of person-years) are in the highest three categories, while the lowest category is extremely small (<300 person-years of observation). OSHA's preferred risk models (based on the Gibb and Luippold cohorts) were used to predict lung cancer risk for each of the three larger exposure categories. The OSHA predictions were derived using the mean values from each exposure range, except for the open-ended highest category, for which Gerin *et al.* reported a mean exposure level of 2500 μg-yrs/m³ (Ex. 7–120, p. S26). The ratio of predicted to background lung cancer deaths, which approximately characterizes the expected SMRs for these exposure groups, was calculated for each group.

The OSHA model predictions were calculated assuming that workers were first exposed to Cr(VI) at age 29, the average age at the start of employment reported by Gerin *et al.* (Ex. 7–120, p. S26). The SMRs reported by Gerin *et al.* were calculated for welders with at least five years of employment and at least 20 years of follow-up. However, the average duration of employment and follow-up was not evident from the publication. The OSHA model predictions were therefore calculated using a range of reasonable assumptions about the duration of employment over which workers were exposed (5, 10, 15, and 20 years) and the length of follow-up (30, 40, and 50 years).

Table VI–12 below presents the SMRs reported by Gerin *et al.* for stainless steel welders in the three highest exposure categories, together with the ratio of predicted to background lung cancer deaths from OSHA's risk models. It should be noted that the ratio was calculated using year 2000 U.S. lung cancer mortality rates, while the SMRs reported by Gerin *et al.* were calculated using national lung cancer mortality rates for the nine European countries represented in the study (Ex. 7–114).

Table VI-12

Comparison of Gerin et al. SMRs and OSHA risk model predictions

Gerin *et al.* cohort*		OSHA risk model	
Cumulative exposure range ($\mu g/m^3$-yrs)	*Ratio of observed to expected lung cancer deaths (SMR) (95% C.I.)*	*Cumulative exposure ($\mu g/m^3$-yrs)*	*Ratio of predicted to background lung cancer deaths (95% C.I.)*
50 - 500	214 – 230 (44 – 589)	275	119 – 194 (111 – 260)
500 - 1500	252 – 258 (69 – 661)	1000	168 – 441 (140 – 677)
> 1500	130 – 133 (36 – 339)	2500	270 – 941 (201 – 1510)

* restricted to workers with individual work histories, to reduce exposure misclassification

Table VI–12 shows that the range of risk ratios predicted by OSHA's model is higher than the ratios reported for the highest exposure group in the Gerin *et al.* cohort, consistent with EPRI's observations (Ex. 38–8, p. 25). However, the risk ratios predicted by OSHA's model are consistent with the Gerin SMRs for the 500–1500 µg-yrs/m³ cumulative exposure range. For the 50–500 µg-yrs/m³ cumulative exposure range, the OSHA prediction falls slightly below the lung cancer mortality ratio observed for the Gerin *et al.* cohort. The OSHA predictions for each group overlap with the 95% confidence intervals of the Gerin *et al.* SMRs, suggesting that sampling error may partly account for the discrepancies between the observed and predicted risk ratios in the lowest and highest exposure groups.

As previously discussed, OSHA believes that the lack of a clear exposure-response trend in the Gerin *et al.* study may be partly explained by exposure misclassification. As shown in Table VI–12, the highest exposure group has lower risk than might be expected based on OSHA's preferred risk models, while the lowest exposure group appears to have higher risk than OSHA's models would predict. This overall pattern of generally elevated but non-increasing SMRs across the three larger exposure groups in the Gerin study is consistent with potentially severe exposure misclassification. The higher-than-predicted risks among welders in the lowest exposure group could similarly reflect misclassification. However, it is not possible to determine with certainty that exposure misclassification is the cause of the differences between the risk predicted by OSHA's model and that observed in the Gerin cohort.

Finally, EPRI cites the generally similar relative risks found among stainless steel and mild steel welders as further evidence that exposure to Cr(VI) may not carry the same risk of lung cancer in welding operations as it does in the chromate production industry. EPRI states:

> [I]t is reasonable to expect that if Cr(VI) were a relevant risk factor for welders in the development of lung cancer, and certain types of welding involve Cr(VI) more than other types, then subgroups of welders who are more exposed to Cr(VI) by virtue of the type of welding they do should have higher rates of lung cancer than welders not exposed to Cr(VI) in their welding occupation;

in particular, "* * *stainless steel welders should have a higher risk of lung cancer than welders of mild steel" (Ex. 38–8, p. 13). OSHA believes that EPRI's point would be correct if the subgroups in question are similar in terms of other important risk factors for lung cancer, such as smoking, co-exposures, and overall population health. However, no analysis comparing stainless steel welders with mild steel welders has properly controlled for these factors, and in fact there have been indications that mild steel welders may be at greater risk of lung cancer than stainless steel welders from non-occupational causes. As discussed by EPRI, "[r]esults from cohort studies of stainless steel welders with SMRs much less than 100 support an argument that the healthy worker effect might be more marked among stainless steel workers compared to mild steel welders'; also "* * *stainless steel welders are generally more qualified and paid more than other welders" (Ex. 38–8, p. 16), a socioeconomic factor that suggests possible differences in lung cancer risk due to smoking, community exposures, or occupational exposures from employment other than welding.

Comments submitted by Exponent (Ex. 38–233–4) and EPRI (Ex. 38–8) compare the Cr(VI) compounds found in welding fumes and those found in the chromate production environments of the Gibb and Luippold cohorts. Exponent stated that "[t]he forms of Cr(VI) to which chromate production workers were historically exposed are primarily the soluble potassium and sodium chromates" found in stainless steel welding fumes. Less soluble forms of Cr(VI) are also found in stainless steel welding fumes in limited amounts, as discussed in the 1990 IARC monograph on welding (Ex. 35–242, p. 460), and are believed to have been present in limited amounts at the plants where the Gibb and Luippold workers were employed (Ex. 38–233–4, p. 4). Exponent concludes that, while it is difficult to compare the exposures of welders to chromate production workers, "* * *there is no obvious difference * * * in solubility * * *" that would lead to a significantly lesser risk from Cr(VI) exposure in welding as compared to the Gibb and Luippold cohort exposures (Ex. 38–233–4, p. 3, p. 11). OSHA believes that the similarity in the solubility of Cr(VI) exposures to welders and chromate production workers supports the Agency's use of its risk model to describe Cr(VI)-related risks to welders.

Exponent and others (Exs. 38–8; 39–25) commented on the possibility that the bioavailability of Cr(VI) may nevertheless differ between welders and chromate production workers, stating that "* * * bioavailability of Cr(VI)-containing particles from welding fumes may not be specifically related to solubility of the Cr(VI) chemical species in the fume" (Ex. 38–233–4, p. 11). In this case, Exponent argues,

> delivered doses of Cr(VI) to the lung could be quite dissimilar among welders as compared to chromate production industry workers exposed to the same Cr(VI) chemical species at the same Cr(VI) airborne concentrations (Ex. 38–233–4, p. 11).

However, Exponent provided no data or plausible rationale that would support a Cr(VI) bioavailability difference between chromate production and welding. The low proportion of respirable Cr(VI) particles that apparently limits bioavailability of inhaled Cr(VI) during aircraft spray priming operations described previously is not an issue with welding. High temperature welding generates fumes of small

respirable-size Cr(VI) particles able to penetrate the bronchoalveolar region of the lung. OSHA finds no evidence indicating that Cr(VI) from welding is less bioavailable than Cr(VI) from soluble chromate production.

In summary, OSHA agrees with EPRI and other commenters that evidence of an exposure-response relationship is not as strong in studies of Cr(VI)-exposed welders compared to studies of chromate production workers. OSHA believes that the available welding studies are less able to detect an exposure-response relationship, due to the potentially severe exposure misclassification, occupational exposure to other cancer causing agents, and the general lack of information with which to control for any differences in background lung cancer risk between Cr(VI)-exposed and unexposed welders. In contrast, the two featured cohorts had sufficient information on workers' Cr(VI) exposures and potential confounding exposures to support a reliable exposure-response assessment. These are the primary factors that led OSHA to determine (like EPRI and Exponent) that the Luippold and Gibb cohorts are the best data available on which to base a model of exposure-response between Cr(VI) and lung cancer (Exs. 38–8, p. 6; 38–233–4, p. 1). Moreover, EPRI admitted that examination of " * * * the forms of Cr(VI) to which welders are exposed, exposure concentrations, and other considerations such as particle size * * *" identified " * * * no specific basis * * *" for a difference in Cr(VI)-related lung cancer risk among welders and the Gibb and Luippold chromate production cohorts (Ex. 38–8, p. 7). OSHA concludes that it is reasonable and prudent to estimate welders' risk using the exposure-response model developed on the basis of the Gibb *et al.* and Luippold *et al.* datasets.

H. Conclusions

OSHA believes that the best quantitative estimates of excess lifetime lung cancer risks are those derived from the data sets described by Gibb *et al.* and Luippold *et al.* Both data sets show a significant positive trend in lung cancer mortality with increasing cumulative Cr(VI) exposure. The exposure assessments for these two cohorts were reconstructed from air measurements and job histories over three or four decades and were superior to those of other worker cohorts. The linear relative risk model generally provided the best fit among a variety of different models applied to the Gibb *et al.* and Luippold *et al.* data sets. It also provided an adequate fit to three additional data sets (Mancuso, Hayes *et al.*, and Gerin *et al.*). Thus, OSHA believes the linear relative risk model is the most appropriate model to estimate excess lifetime risk from occupational exposure to Cr(VI). Using the Gibb *et al.* and Luippold *et al.* datasets and a linear relative risk model, OSHA concludes that the lifetime lung cancer risk is best expressed by the three-to five-fold range of risk projections bounded by the maximum likelihood estimates from the two featured data sets. This range of projected risks is within the 95 percent confidence intervals from all five data sets.

OSHA does not believe that it is appropriate to employ a threshold dose-response approach to estimate cancer risk from a genotoxic carcinogen, such as Cr(VI). Federal agencies, including OSHA, assume an exposure threshold for cancer risk assessments to genotoxic agents only when there is convincing evidence that such a threshold exists (see *e.g.* EPA, Guidelines for Carcinogen Risk Assessment, March 2005, pp. 3–21). In addition, OSHA does not consider absence of a statistically significant effect in an epidemiologic or animal study that lacks power to detect such effects to be convincing evidence of a threshold or other non-linearity. OSHA also does not consider theoretical reduction capacities determined in vitro with preparations that do not fully represent physiological conditions within the respiratory tract to be convincing evidence of a threshold. While physiological defense mechanisms (*e.g.* extracellular reduction, DNA repair, apoptosis) can potentially introduce dose transitions, there is no evidence of a significantly non-linear Cr(VI) dose-lung cancer response in the exposures of interest to OSHA. Finally, as previously discussed, linear no-threshold risk models adequately fit the existing exposure-response data.

The slightly soluble Cr(VI) compounds produced a higher incidence of respiratory tract tumors than highly water soluble or highly water insoluble Cr(VI) compounds in animal studies that tested Cr(VI) compounds under similar experimental conditions. This likely reflects the greater tendency for chromates of intermediate water solubility to provide a persistent high local concentration of solubilized Cr(VI) in close proximity to the target cell. Highly soluble chromates rapidly dissolve and diffuse in the aqueous fluid lining the epithelia of the lung and are more quickly cleared from the respiratory tract. Thus, these chromates are less able to achieve the higher and more persistent local concentrations within close proximity of the lung cell surface than the slightly water soluble chromates. Water insoluble Cr(VI) particulates are also able to come in close contact with the lung cell surface but do not release readily absorbed chromate ions into the biological environment as rapidly. OSHA concludes that slightly soluble Cr(VI) compounds are likely to exhibit a greater degree of carcinogenicity than highly water soluble or water insoluble Cr(VI) when the same dose is delivered to critical target cells in the respiratory tract of the exposed worker. OSHA also believes it reasonable to regard water insoluble Cr(VI) to be of similar carcinogenic potency to highly water soluble Cr(VI) compounds in the absence of convincing scientific evidence to indicate otherwise.

The Gibb and Luippold cohorts were predominantly exposed to highly water-soluble chromates, particularly sodium chromate and dichromate. After evaluating lung cancer rates in other occupational cohort studies with respect to the forms of Cr(VI) in the workplace, reliability in the Cr(VI) exposure data, and the presence of potentially confounding influences (*e.g.* smoking) and bias (*e.g.* healthy worker survivor bias) as well as information on solubility, particle size, cell uptake, and other factors influencing delivery of Cr(VI) to lung cells, OSHA finds the risks estimated from the Gibb and Luippold cohorts adequately represent risks to workers exposed to equivalent levels of Cr(VI) compounds in other industries.

As with any risk assessment, there is some degree of uncertainty in the projection of risks that results from the data, assumptions, and methodology used in the analysis. The exposure estimates in the Gibb *et al.* and Luippold *et al.* data sets relied, to some extent, on a paucity of air measurements using less desirable sampling techniques to reconstruct Cr(VI) exposures, particularly in the 1940s and 1950s. Additional uncertainty is introduced when extrapolating from the cohort exposures, which usually involved exposures to higher Cr(VI) levels for shorter periods of time to an equivalent cumulative exposure involving a lower level of exposure for a working lifetime. The study cohorts consisted mostly of smokers, but detailed information on their smoking behavior was unavailable. While the risk assessments make some adjustments for the confounding effects of smoking, it is unknown whether the assessments fully account for any interactive effects that smoking and Cr(VI) exposure may have on

carcinogenic action. In any case, OSHA does not have reason to believe the above uncertainties would introduce errors that would result in serious overprediction or underprediction of risk.

OSHA's estimate of lung cancer risk from a 45 year occupational exposure to Cr(VI) at the previous PEL of 52 μg/m^3 is 101 to 351 excess deaths per 1000 workers. This range, which is defined by maximum likelihood estimates based on the Gibb and Luippold epidemiological cohorts, is OSHA's best estimate of excess risk. It does not account for statistical uncertainty, or for other potential sources of uncertainty or bias. The wider range of 62 to 493 excess deaths per 1000 represents the statistical uncertainty associated with OSHA's excess risk estimate at the previous PEL, based on lowest and highest 95% confidence bounds on the maximum likelihood estimates for the two featured data sets. The excess lung cancer risks at alternative 8 hour TWA PELs that were under consideration by the Agency were previously shown in Table VI–7, together with the uncertainty bounds for the primary and supplemental studies at these exposure concentrations. The 45-year exposure estimates satisfy the Agency's statutory obligation to consider the risk of material impairment for an employee with regular exposure to the hazardous agent for the period of his working life (29 U.S.C. 651 *et seq.*). Occupational risks from Cr(VI) exposure to less than a full working lifetime are considered in Section VII on the Significance of Risk and in Section VIII on the Benefits Analysis.

VII. Significance of Risk

In promulgating health standards, OSHA uses the best available information to evaluate the risk associated with occupational exposures, to determine whether this risk is severe enough to warrant regulatory action, and to determine whether a new or revised rule will substantially reduce this risk. OSHA makes these findings, referred to as the ''significant risk determination'', based on the requirements of the OSH Act and the Supreme Court's interpretation of the Act in the ''benzene'' decision of 1980 (*Industrial Union Department, AFL–CIO* v. *American Petroleum Institute*, 448 U.S. 607). The OSH Act directs the Secretary of Labor to:

> set the standard which most adequately assures, to the extent feasible, on the basis of the best available evidence, that no employee will suffer material impairment of health or functional capacity even if such employee has regular exposure to the hazard * * * for the period of his working life [6(b)(5)].

OSHA's authority to promulgate regulations to protect workers is limited by the requirement that standards be ''reasonably necessary and appropriate to provide safe or healthful employment'' [3(8)].

In the benzene decision, the Supreme Court's interpretation of Section 3(8) further defined OSHA's regulatory authority. The Court stated:

> By empowering the Secretary to promulgate standards that are ''reasonably necessary or appropriate to provide safe or healthful employment and places of employment,'' the Act implies that, before promulgating any standard, the Secretary must make a finding that the workplaces in question are not safe (*IUD* v. *API* 448 U.S. at 642).

''But 'safe' is not the equivalent of 'risk-free' '', the Court maintained. ''[T]he Secretary is required to make a threshold finding that a place of employment is unsafe-in the sense that significant risks are present and can be eliminated or lessened by a change in practices'' (*IUD* v. *API*, 448 U.S. at 642). It has been Agency practice in regulating health hazards to establish this finding by estimating risk to workers using quantitative risk assessment, and determining the significance of this risk based on judicial guidance, the language of the OSH Act, and Agency policy considerations.

The Agency has considerable latitude in defining significant risk and in determining the significance of any particular risk. The Court did not stipulate a means to distinguish significant from insignificant risks, but rather instructed OSHA to develop a reasonable approach to the significant risk determination. The Court stated that ''it is the Agency's responsibility to determine in the first instance what it considers to be a 'significant' risk'', and it did not express ''any opinion on the* * *difficult question of what factual determinations would warrant a conclusion that significant risks are present which make promulgation of a new standard reasonably necessary or appropriate'' (448 U.S. at 659). The Court also stated that, while OSHA's significant risk determination must be supported by substantial evidence, the Agency ''is not required to support the finding that a significant risk exists with anything approaching scientific certainty'' (448 U.S. at 656). Furthermore,

> A reviewing court [is] to give OSHA some leeway where its findings must be made on the frontiers of scientific knowledge [and] * * * the Agency is free to use conservative assumptions in interpreting the data with respect to carcinogens, risking error on the side of overprotection rather than underprotection [so long as such assumptions are based on] a body of reputable scientific thought (448 U.S. at 655, 656).

To make the significance of risk determination for a new or proposed standard, OSHA uses the best available scientific evidence to identify material health impairments associated with potentially hazardous occupational exposures, and, when possible, to provide a quantitative assessment of exposed workers' risk of these impairments. OSHA has reviewed extensive epidemiological and experimental research pertaining to adverse health effects of occupational Cr(VI) exposure, including lung cancer, and has established quantitative estimates of the excess lung cancer risk associated with previously allowable Cr(VI) exposure concentrations and the expected impact of the new PEL. OSHA has determined that long-term exposure at the previous PEL would pose a significant risk to workers' health, and that adoption of the new PEL and other provisions of the final rule will substantially reduce this risk.

A. Material Impairment of Health

As discussed in Section V of this preamble, there is convincing evidence that exposure to Cr(VI) may cause a variety of adverse health effects, including lung cancer, nasal tissue damage, asthma, and dermatitis. OSHA considers these conditions to be material impairments of health, as they are marked by significant discomfort and long-lasting adverse effects, can have adverse occupational and social consequences, and may in some cases have permanent or potentially life-threatening consequences. Based on this finding and on the scientific evidence linking occupational Cr(VI) to each of these effects, OSHA concludes that exposure to Cr(VI) causes ''material impairment of health or functional capacity'' within the meaning of the OSH Act.

1. Lung Cancer

OSHA considers lung cancer, an irreversible and frequently fatal disease, to be a clear material impairment of health. OSHA's finding that inhaled Cr(VI) causes lung cancer is based on the best available epidemiological data, reflects substantial evidence from animal and mechanistic research, and is consistent with the conclusions of other government and public health organizations, including NIOSH, EPA,

ACGIH, NTP, and IARC (Exs. 35–117; 35–52; 35–158; 17–9–D; 18–3, p. 213). The Agency's primary evidence comes from two epidemiological studies that show significantly increased incidence of lung cancer among workers in the chromate production industry (Exs. 25; 33–10). The high quality of the data collected in these studies and the analyses performed on them has been confirmed by OSHA and by independent peer review. Supporting evidence of Cr(VI) carcinogenicity comes from occupational cohort studies in chromate production, chromate pigment production, and chromium plating, and by cell culture research into the processes by which Cr(VI) disrupts normal gene expression and replication. Studies demonstrating uptake, metabolism, and genotoxicity of a variety of soluble and insoluble Cr(VI) compounds support the Agency's position that all Cr(VI) compounds should be regulated as occupational carcinogens (Exs. 35–148; 35–68; 35–67; 35–66; 12–5; 35–149; 35–134).

2. Non-Cancer Impairments

While OSHA has relied primarily on the association between Cr(VI) inhalation and lung cancer to demonstrate the necessity of the standard, the Agency has also determined that several other material health impairments can result from exposure to airborne Cr(VI). As shown in several cross-sectional and cohort studies, inhalation of Cr(VI) can cause ulceration of the nasal passages and perforation of the nasal septum (Exs. 35–1; 7–3; 9–126; 35–10; 9–18; 3–84; 7–50; 31–22–12). Nasal tissue ulcerations are often accompanied by swelling and bleeding, heal slowly, and in some cases may progress to a permanent perforation of the nasal septum that can only be repaired surgically. Inhalation of Cr(VI) may also lead to asthma, a potentially life-threatening condition in which workers become allergic to Cr(VI) compounds and experience symptoms such as coughing, wheezing, and difficulty in breathing upon exposure to small amounts of airborne Cr(VI). Several case reports have documented asthma from Cr(VI) exposure in the workplace, supporting Cr(VI) as the sensitizing agent by bronchial challenge (Exs. 35–7; 35–12; 35–16; 35–21).

During the comment period, NIOSH requested that OSHA consider allergic contact dermatitis (ACD) as a material impairment of health due to occupational exposure to Cr(VI). NIOSH reasoned:

> Dermal exposure to Cr(VI) through skin contact * * * may lead to sensitization or allergic contact dermatitis. This condition, while not life-threatening, is debilitating and marked by significant discomfort and long-lasting adverse effects; it can have adverse occupational and social consequences and should be a material impairment to the health of affected workers * * * Including allergic contact dermatitis in OSHA's determination of material impairment of health draws attention to the fact that Cr(VI) is both a dermal exposure hazard and an inhalation hazard, and alerts employers that they should seek to minimize exposure to both routes (Ex. 40–10–2, p. 3)

OSHA fully agrees with the NIOSH comment. There is strong evidence that unprotected skin contact with Cr(VI)-containing materials and solutions can cause ACD as well as irritant dermatitis and skin ulceration (see section V.D). ACD is a delayed hypersensitivity response. The worker initially becomes sensitized to Cr(VI) following dermal exposure. Once a worker becomes sensitized, brief exposures to small amounts of Cr(VI) can trigger symptoms such as redness, swelling, itching, and scaling. ACD is characterized by the initial appearance of small raised papules that can later develop into blisters and dry thickened, cracked skin. The allergic condition is persistent, causing some workers to leave their jobs (Ex. 35–320). Symptoms of ACD frequently continue long after occupational exposure to Cr(VI) ends, since sensitized individuals can react to contact with Cr(VI) in consumer products and other non-occupational sources.

Skin exposure to Cr(VI) compounds can also cause a non-allergic form of dermatitis. This skin impairment results from direct contact with Cr(VI) doses that damage or irritate the skin, but do not involve immune sensitization. This form of dermatitis can range from mild redness to severe burns and ulcers, known as ''chrome holes'', that penetrate deep into tissues. Once the worker is removed from exposure, the skin ulcers heal slowly, often with scarring.

B. Risk Assessment

When possible, epidemiological or experimental data and statistical methods are used to characterize the risk of disease that workers may experience under the currently allowable exposure conditions, as well as the expected reduction in risk that would occur with implementation of the new PEL. The Agency finds that the available epidemiological data are sufficient to support quantitative risk assessment for lung cancer among Cr(VI)-exposed workers. Using the best available studies, OSHA has identified a range of expected risk from regular occupational exposure at the previous PEL (101–351 excess lung cancer deaths per 1000 workers) and at the new PEL of 5 $\mu g/m^3$ (10–45 per 1000 workers), assuming a working lifetime of 45 years' exposure in each case. These values represent the best estimates of multiple analysts working with data from two extensively studied worker populations, and are highly consistent across analyses using a variety of modeling techniques and assumptions. While some attempts have been made to assess the relationship between Cr(VI) exposure level and noncancer adverse health effects, the Agency does not believe that a reliable quantitative risk assessment can be performed for noncancer effects at this time, and has therefore characterized noncancer risk qualitatively.

For estimates of lung cancer risk from Cr(VI) exposure, OSHA has relied upon data from two cohorts of chromate production workers. The Gibb cohort, which originates from a chromate production facility in Baltimore, Maryland, includes 2357 workers who began work between 1950 and 1974 and were followed up through 1992 (Ex. 33–11). The extensive exposure documentation available for this cohort, the high statistical power afforded by the large cohort size, and the availability of information on individual workers' race and smoking status provide a strong basis for risk analysis. The Luippold cohort, from a facility in Painesville, Ohio, includes 482 workers who began work between 1940 and 1972, worked for at least one year at the plant, and were followed up through 1997 (Ex. 33–10). This cohort also provides a strong basis for risk analysis, in that it has high-quality documentation of worker Cr(VI) exposure and mortality, a long period of follow-up, and a large proportion of relatively long-term employees (55% were employed for longer than 5 years).

1. Lung Cancer Risk Based on the Gibb Cohort

Risk assessments were performed on the Gibb cohort data by Environ International Corporation (Ex. 33–12), under contract with OSHA; Park *et al.*, as part of an ongoing effort by NIOSH (Ex. 33–13); and Exponent on behalf of the Chrome Coalition (Ex. 31–18–15–1). A variety of statistical models were considered, allowing OSHA to identify the most appropriate models and assess the resulting risk estimates' sensitivity to alternate modeling approaches. Models were tried with additive and relative risk assumptions; various exposure groupings and lag times; linear and nonlinear exposure-response functions; external and internal

standardization; reference lung cancer rates from city-, state-, and national-level data; inclusion and exclusion of short-term workers; and a variety of ways to control for the effects of smoking. OSHA's preferred approach, a relative risk model using Baltimore lung cancer reference rates, and NIOSH's preferred approach, a relative risk model using detailed smoking information and U.S. lung cancer reference rates, are among several models that use reasonable assumptions and provide good fits to the data. As discussed in section VI, the Environ, Park *et al.*, and linear Exponent models yield similar predictions of excess risk from exposure at the previous PEL and the new PEL (see Tables VI–2 and VI–3). OSHA's preferred models (from the Gibb data set) predict about 300–350 excess lung cancers per 1000 workers exposed for a working lifetime of 45 years at the previous PEL and about 35–45 excess lung cancers per 1000 workers at the new PEL of 5 μg/m^3.

Environ and Crump *et al.* performed risk assessments on the Luippold cohort, exploring additive and relative risk models, linear and quadratic exposure-response functions, and several exposure groupings (Exs. 35–59; 35–58). Additive and relative risk models by both analyst groups fit the data adequately with linear exposure-response. All linear models predicted similar excess risks, from which OSHA has selected preferred estimates based on the Crump *et al.* analysis of about 100 excess lung cancer deaths per 1000 workers exposed for 45 years at the previous PEL, and ten excess lung cancer deaths per 1000 workers at the new PEL.

2. Lung Cancer Risk Based on the Luippold Cohort

The risk assessments performed on the Luippold cohort yield somewhat lower estimates of lung cancer risk than those performed on the Gibb cohort. This discrepancy is probably not due to statistical error in the risk estimates, as the confidence intervals for the estimates do not overlap. The risk estimates based on the Gibb and Luippold cohorts are nonetheless reasonably close. OSHA believes that both cohorts support reasonable estimates of lung cancer risk, and based on their results has selected a representative range of 101–351 per 1000 for 45 years' occupational exposure at the previous PEL and 10–45 per 1000 for 45 years' occupational exposure at the new PEL for the significant risk determination. OSHA's confidence in these risk estimates is further strengthened by the results of the independent peer review to which the risk assessment was submitted, which supported the Agency's approach and results. OSHA also received several comments in support of its risk estimates (Exs. 44–7, 38–222; 39–73–1). A full analysis of major comments on the results of OSHA's quantitative risk assessment can be found in section VI.F.

3. Risk of Non-Cancer Impairments

Although nasal damage and asthma may be associated with occupational exposure to airborne Cr(VI), OSHA has determined that there are insufficient data to support a formal quantitative risk assessment for these effects. Available occupational studies of Cr(VI)-induced nasal damage are either of cross-sectional study design, do not provide adequate data on short-term airborne Cr(VI) exposure over an entire employment period, or do not account for possible contribution from hand-to-nose transfer of Cr(VI) (Exs. 31–22–12; 9–126; 35–10; 9–18). Occupational asthma caused by Cr(VI) has been documented in clinical case reports but asthma occurrence has not been linked to specific Cr(VI) exposures in a well-conducted epidemiological investigation. The Agency has nonetheless made careful use of the best available scientific information in its evaluation of noncancer health risks from occupational Cr(VI) exposure. In lieu of a quantitative analysis linking the risk of noncancer health effects, such as damage to nasal tissue, with specific occupational exposure conditions, the Agency has qualitatively considered information on the extent of these effects and occupational factors affecting risk, as discussed below.

Damage to the nasal mucosa and septum can occur from inhalation of airborne Cr(VI) or transfer of Cr(VI) on workers' hands to the interior of the nose. Epidemiological studies have found varying, but substantial, prevalence of nasal damage among workers exposed to high concentrations of airborne Cr(VI). In the cohort of 2357 chromate production workers studied by Gibb *et al.*, over 60% experienced nasal tissue ulceration at some point during their employment, with half of these workers' first ulcerations occurring within 22 days from the date they were hired (Ex. 31–22–12). The authors found a statistically significant relationship between nasal ulceration and workers' contemporaneous exposures, with about half of the workers who developed ulcerations first diagnosed while employed in a job with average exposure concentrations greater than 20 μg/m^3. Nasal septum perforations were reported among 17% of the Gibb cohort workers, and developed over relatively long periods of exposure (median time 172 days from hire date to diagnosis).

A high prevalence of nasal damage was also found in a study of Swedish chrome platers (Ex. 9–126). Platers exposed to average 8-hour Cr(VI) concentrations above 2 μg/m^3 with short-term excursions above 20 μg/m^3 from work near the chrome bath had a nearly 50 percent prevalence (*i.e.* 11 out of 24 workers) of nasal ulcerations and septum perforations. These data, along with that from the Gibb cohort, suggest a substantial and clearly significant risk of nasal tissue damage from regular short-term exposures above 20 μg/m^3. More than half of the platers (*i.e.* 8 of 12 subjects) with short-term excursions to somewhat lower Cr(VI) concentrations between 2.5 and 11 μg/m^3 had atrophied nasal mucosa (*i.e.* cellular deterioration of the nasal passages) but not ulcerations or perforations. This high occurrence of nasal atrophy was substantially greater than found among the workers with mean Cr(VI) levels less than 2 μg/m^3 (4 out of 19 subjects) and short-term Cr(VI) exposures less than 1 μg/m^3 (1 of 10 subjects) or among the office workers not exposed to Cr(VI) (0 of 19 subjects). This result is consistent with a concentration-dependant gradation in response from relatively mild nasal tissue atrophy to the more serious nasal tissue ulceration with short-term exposures to Cr(VI) levels above about 10 μg/m^3. For this reason, OSHA believes short-term Cr(VI) exposures regularly exceeding about 10 μg/m^3 may still result in a considerable risk of nasal impairment. However, the available data do not allow a precise quantitative estimation of this risk.

While dermal exposure to Cr(VI) can cause material impairment to the skin, a credible quantitative assessment of the risk is not possible because few occupational studies have measured the amounts of Cr(VI) that contact the skin during job activities; studies rarely distinguish dermatitis due to Cr(VI) from other occupational and non-occupational sources of dermatitis; and immune hypersensitivity responses, such as ACD, have an exceedingly complex dose-response.

C. Significance of Risk and Risk Reduction

The Supreme Court's benzene decision of 1980 states that ''before he can promulgate any permanent health or safety standard, the Secretary [of Labor] is required to make a threshold finding that a place of employment is unsafe—in the sense that significant risks are

present and can be eliminated or lessened by a change in practices'' (*IUD* v. *API*, 448 U.S. at 642). The Court broadly describes the range of risks OSHA might determine to be significant:

> It is the Agency's responsibility to determine in the first instance what it considers to be a ''significant'' risk. Some risks are plainly acceptable and others are plainly unacceptable. If, for example, the odds are one in a billion that a person will die from cancer by taking a drink of chlorinated water, the risk clearly could not be considered significant. On the other hand, if the odds are one in a thousand that regular inhalation of gasoline vapors that are 2 percent benzene will be fatal, a reasonable person might well consider the risk significant and take the appropriate steps to decrease or eliminate it. (*IUD* v. *API*, 448 U.S. at 655).

The Court further stated, ''The requirement that a ''significant'' risk be identified is not a mathematical straitjacket * * *. Although the Agency has no duty to calculate the exact probability of harm, it does have an obligation to find that a significant risk is present before it can characterize a place of employment as ''unsafe''' and proceed to promulgate a regulation (*IUD* v. *API*, 448 U.S. at 655).

Table VII–1 presents the estimated excess risk of lung cancer associated with various levels of Cr(VI) exposure allowed under the current rule, based on OSHA's risk assessment and assuming either 20 years' or 45 years' occupational exposure to Cr(VI) as indicated. The purpose of the OSH Act, as stated in Section 6(b), is to ensure ''that no employee will suffer material impairment of health or functional capacity even if such employee has regular exposure to the hazard * * * for the period of his working life.'' 29 U.S.C. 655(b)(5). Taking a 45-year working life from age 20 to age 65, as OSHA has always done in significant risk determinations for previous standards, the Agency finds an excess lung cancer risk of approximately 100 to 350 per 1000 workers exposed at the previous PEL of 52 μg/m³ Cr(VI). This risk is clearly significant, falling well above the level of risk the Supreme Court indicated a reasonable person might consider acceptable. Even assuming only a 20-year working life, the excess risk of about 50 to 200 per 1000 workers is still clearly significant. The new PEL of 5 μg/m³ Cr(VI) is expected to reduce these risks substantially, to below 50 excess lung cancers per 1000 workers. However, even at the new PEL, the risk posed to workers with a lifetime of regular exposure is still clearly significant.

Table VII-1: Expected Excess Lung Cancer Deaths per 1000 Workers

	Cr(VI) Concentration, ug/m³	*20-year Exposure*	*45-year Exposure*
Previous PEL:	52	43 - 198	101 - 351
	20	17 - 83	41 - 164
	10	9 - 43	21 - 86
New PEL:	5.0	4.3 - 22	10 - 45
	1.0	0.85 - 4.4	2.1 - 9.1
	0.5	0.43 - 2.2	1.1 - 4.6
	0.25	0.21 - 1.1	0.53 - 2.3

Workers exposed to concentrations of Cr(VI) lower than the new PEL and for shorter periods of time may also have significant excess cancer risk. The Agency's risk estimates are roughly proportional to duration for any given exposure concentration. The estimated risk to workers exposed at any fixed concentration for 10 years is about one-half the risk to workers exposed for 20 years; the risk for five years' exposure is about one-fourth the risk for 20 years. For example, about 11 to 55 out of 1000 workers exposed at the previous PEL for five years are expected to develop lung cancer as a result of their exposure. Those exposed to 10 μg/m³ Cr(VI) for 5 years have an estimated excess risk of about 2–12 lung cancer deaths per 1000 workers. It is thus not only workers exposed for many years at high levels who have significant cancer risk under the old standard; even workers exposed for shorter periods at levels below the previous PEL are at substantial risk, and will benefit from implementation of the new PEL.

To further demonstrate significant risk, OSHA compares the risk from currently permissible Cr(VI) exposures to risks found across a broad variety of occupations. The Agency has used similar occupational risk comparisons in the significant risk determination for substance-specific standards promulgated since the benzene decision. This approach is supported by evidence in the legislative record that Congress intended the Agency to regulate unacceptably severe occupational hazards, and not ''to establish a utopia free from any hazards''(116 Cong. Rec. 37614 (1970), Leg. Hist 480), or to address risks comparable to those that exist in virtually any occupation or workplace. It is also consistent with Section 6(g) of the OSH Act, which states:

> In determining the priority for establishing standards under this section, the Secretary shall give due regard to the urgency of the need for mandatory safety and health standards for particular industries, trades, crafts, occupations, businesses, workplaces or work environments.

Fatal injury rates for most U.S. industries and occupations may be obtained from data collected by the Bureau of Labor Statistics. Table VII–2 shows average annual fatality rates per 1000 employees for several industries between 1992 and 2001, as well as projected fatalities per 1000 employees for periods of 20 and 45 years based on these annual rates (Ex. 35–305). While it is difficult to compare aggregate fatality rates meaningfully to the risks estimated in the quantitative risk assessment for Cr(VI), which target one specific hazard (inhalation exposure to Cr(VI)) and health outcome (lung cancer), these rates provide a useful frame of reference for considering risk from Cr(VI) inhalation. Regular exposures at high levels, including the previous PEL of 52 μg/m³ Cr(VI), are expected to cause substantially more deaths per 1000 workers from lung cancer than result from occupational injuries in most private industry. At the new PEL of 5 μg/m³ Cr(VI) the Agency's estimated range of excess lung cancer mortality overlaps the fatality risk for

mining and approaches that for construction, but still clearly exceeds the risk in lower-risk industries such as manufacturing.

Table VII-2: Fatal Injuries per 1000 Employees, by Industry

	over 1 year	*over 20 years*	*over 45 years*
All Private Industry:	0.06	1.1	2.5
Coal Mining:	0.41	8.3	18.6
Mining (General):	0.27	5.5	12.3
Construction:	0.19	3.9	8.7
Manufacturing:	0.04	0.8	1.8
Wholesale Trade:	0.04	0.8	1.7
Retail Trade:	0.03	0.6	1.4
Finance, Insurance, and Real Estate:	0.02	0.3	0.7
Health Services:	0.01	0.2	0.4

Because there is little available information on the incidence of occupational cancer, risk from Cr(VI) exposure cannot be compared with overall risk from other workplace carcinogens. However, OSHA's previous risk assessments provide estimates of risk from exposure to certain carcinogens. These risk assessments, like the current assessment for Cr(VI), were based on animal or human data of reasonable or high quality and used the best information then available. Table VII–3 shows the Agency's best estimates of cancer risk from 45 years' occupational exposure to several carcinogens, as published in the preambles to final rules promulgated since the benzene decision in 1980.

Table VII-3: Selected OSHA Risk Estimates (Excess Cancers per 1000 Workers)

Standard	*Risk at prior PEL*	*Risk at new PEL*	*Federal Register date*
Ethylene Oxide	63 - 109 per 1000	1.2 - 2.3 per 1000	June 22, 1984
Asbestos	64 per 1000	6.7 per 1000	June 20, 1986
Benzene	95 per 1000	10 per 1000	September 11, 1987
Formaldehyde	0.43 – 18.9 per 1000*	.0056 – 2.64 per 1000*	December 4, 1987
Methylenedianiline	6 - 30 per 1000**	0.8 per 1000	August 10, 1992
Cadmium	58 - 157 per 1000	3 - 15 per 1000	September 14, 1992
1,3-Butadiene	11.2 - 59.4 per 1000	1.3 - 8.1 per 1000	November 4, 1996
Methylene Chloride	126 per 1000	3.6 per 1000	January 10, 1997
Chromium VI	101 - 351 per 1000	10 - 45 per 1000	2006

* range is based on maximum likelihood estimate (0.43, .0056) and upper 95% confidence limit (18.9, 2.64)

** no prior standard; reported risk is based on estimated exposures at the time of the rulemaking

The Cr(VI) risk estimate at the previous PEL is higher than many risks the Agency has found to be significant in previous rules (Table VII–3, ''Risk at Previous PEL''). The estimated risk from lifetime occupational exposure to Cr(VI) at the new PEL is 10–45 excess lung cancer deaths per 1000 workers, a range which overlaps the estimated risks from exposure at the current PELs for benzene and cadmium (Table VII–3, ''Risk at new PEL'').

Based on the results of the quantitative risk assessment, the Supreme Court's guidance on acceptable risk, comparison with rates of occupational fatality in various industries, and comparison with cancer risk estimates developed in previous rules, OSHA finds that the risk of lung cancer posed to workers under the previous permissible level of occupational Cr(VI) exposure is significant. The new PEL of 5 is expected to reduce risks to workers in Cr(VI)-exposed occupations substantially (by about 8- to 10-fold). OSHA additionally finds that nasal tissue ulceration and septum perforation can occur under exposure conditions allowed by the previous PEL leading to an additional health risk beyond the significant lung cancer risk present. The reduction of the Cr(VI) PEL from 52 $\mu g/m^3$ to 5 $\mu g/m^3$ is expected to substantially reduce workers' risk of nasal tissue damage. With regard to dermal effects from Cr(VI) exposure, OSHA believes that provision of appropriate protective clothing and adherence to prescribed hygiene practices will serve to protect workers from the risk of Cr(VI)-induced skin impairment.

VIII. Summary of the Final Economic and Regulatory Flexibility Analysis

A. Introduction

OSHA's Final Economic and Regulatory Flexibility Analysis (FEA) addresses issues related to the costs, benefits, technological and economic feasibility, and economic impacts (including small business impacts) of the Agency's Occupational Exposure to Hexavalent Chromium rule. The full Final Economic and Regulatory Flexibility Analysis has been placed in the docket as Ex. 49. The analysis also evaluates alternatives that were

considered by the agency before adopting the final rule. This rule is an economically significant rule under Section 3(f)(1) of Executive Order 12866 and has been reviewed by the Office of Information and Regulatory Affairs in the Office of Management and Budget, as required by executive order. The purpose of this Final Economic and Regulatory Flexibility Analysis is to:

- Identify the establishments and industries potentially affected by the final rule;
- Estimate current exposures and the technologically feasible methods of controlling these exposures;
- Estimate the benefits of the rule in terms of the reduction in lung cancer and dermatoses employers will achieve by coming into compliance with the standard;
- Evaluate the costs and economic impacts that establishments in the regulated community will incur to achieve compliance with the final standard;
- Assess the economic feasibility of the rule for affected industries; and
- Evaluate the principal regulatory alternatives to the final rule that OSHA has considered.

The full Final Economic Analysis contains the following chapters:

Chapter I. Introduction
Chapter II. Industrial Profile
Chapter III. Technological Feasibility
Chapter IV. Costs of Compliance
Chapter V. Economic Impacts
Chapter VI. Benefits and Net Benefits
Chapter VII. Final Regulatory Flexibility Analysis
Chapter VIII. Environmental Impacts
Chapter IX. Assessing the Need for Regulation.

These chapters are summarized in sections B to H of this Preamble summary.

B. Introduction and Industrial Profile (Chapters I and II)

The final standard for occupational exposure to hexavalent chromium was developed by OSHA in response to evidence that occupational exposure to Cr(VI) poses a significant risk of lung cancer, nasal septum ulcerations and perforations, and dermatoses. Exposure to Cr(VI) may also lead to asthma. To protect exposed workers from these effects, OSHA has set a Permissible Exposure Limit (PEL) of 5 $\mu g/m^3$ measured as an 8-hour time weighted average. OSHA also examined alternative PELs ranging from 20 $\mu g/m^3$ to 0.25 $\mu g/m^3$ measured as 8-hour time weighted averages.

OSHA's final standards for occupational exposure to Cr(VI) are similar in format and content to other OSHA health standards promulgated under Section 6(b)(5) of the Act. In addition to setting PELs, the final rule requires employers to:

- Monitor the exposure of employees (though allowing a performance-oriented approach to monitoring);
- Establish regulated areas when exposures may reasonably be expected to exceed the PEL (except in shipyards and construction);
- Implement engineering and work practice controls to reduce employee exposures to Cr(VI);
- Provide respiratory protection to supplement engineering and work practice controls where those controls are not feasible, where such controls are insufficient to meet the PEL, or in emergencies;
- Provide other protective clothing and equipment as necessary for dermal protection;
- Make industrial hygiene facilities (hand washing stations) available in some situations;
- Provide medical surveillance when employees are exposed above the action level for 30 days or more;
- Train workers about the hazards of Cr(VI) (including elements already required by OSHA's Hazard Communication Standard); and
- Keep records related to the standard.

The contents of the standards, and the reasons for issuing separate standards for general industry, construction and shipyard employment, are more fully discussed in the Summary and Explanation section of this Preamble.

Chapter II of the full FEA describes the uses of Cr(VI) and the industries in which such uses occur. Employee exposures are defined in terms of ''application groups,'' i.e., groups of firms where employees are exposed to Cr(VI) when performing a particular function. This methodology is appropriate to exposure to Cr(VI) where a widely used chemical like chromium may lead to exposures in many kinds of firms in many industries but the processes used, exposures generated, and controls needed to achieve compliance may be the same. For example, because a given type of welding produces Cr(VI) exposures that are essentially the same regardless of whether the welding occurs in a ship, on a construction site, as part of a manufacturing process, or as part of a repair process, it is appropriate to analyze such processes as a group. However, OSHA's analyses of costs and economic feasibility reflect the fact that baseline controls, ease of implementing ancillary provisions, and the economic situation of the employer may differ within different industries in an application group.

The most common sources of occupational exposure to Cr(VI), in addition to the production and use of chromium metal and chromium metal alloys, are chromium electroplating; welding of metals containing chromium, particularly stainless steel or other high-chromium steels, or with chromium coatings; and the production and use of Cr(VI)-containing compounds, particularly Cr(VI) pigments, but also Cr(VI) catalysts, chromic acid, and the production of chromium-containing pesticides.

Some industries are seeing a sharp decline in chromium use. However, many of the industries that are seeing a sharp decline have either a small number of employees or have low exposure levels (e.g., wood working, printing ink manufacturers, and printing). In the case of lead chromate in pigment production, OSHA's sources indicate that there is no longer domestic output containing lead chromates. Therefore, this trend has been recognized in the FEA. Painting activities in general industry primarily involve the application of strontium chromate coatings to aerospace parts; these exposures are likely to continue into the foreseeable future. Similarly, removal of lead chromate paints in construction and maritime is likely to present occupational risks for many years.

In application groups where exposures are particularly significant, both in terms of workforce size and exposure levels—notably in electroplating and welding—OSHA anticipates very little decline in exposures to hexavalent chromium due to the low potential for substitution in the foreseeable future.

OSHA has made a number of changes to the industrial profile of the application groups as a result of comments on the proposed rule. Among the most important are:

- Additions to the electroplating application group to include such processes as chrome conversion, which were not considered at the time of the proposal;
- Additions to the painting application group to cover downstream users, particularly automobile repair shops and construction traffic painting;
- Additions to glass manufacturing to cover fiberglass, flat glass, and container glass industries;
- Addition of the forging industry;
- Addition of the ready mixed concrete industry;

• Additions to the welding application group to include welding on low-chromium steel and increase the estimated number of exposed workers in the maritime sector; and

• More careful division of the many different industries in which electroplating, welding and painting may appear as applications.

Table VIII–1 shows the application groups analyzed in OSHA's FEA, as well as the industries in each application group, and for each provides the number of establishments affected, the number of employees working in those establishments, the number of entities (firms or governments) fitting SBA's small business criteria for the industry, and the number of employees in those firms. (The table shows data for both establishments and entities—defined as firms or governments. An entity may own more than one establishment.) The table also shows the revenues of affected establishment and entities, updated to reflect 2002 data. (This table provides the latest available data at the time this analysis was produced.) As shown in the table, there are a total of 52,000 establishments affected by the final standard.

Various types of welding applications account for the greatest number of establishments and number of employees affected by the final standard.

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Table VIII-1. Characteristics of Industries and Application Groups Affected by OSHA's Final Standard for Hexavalent Chromium

	Industry or Application Group	NAICS	Category	SBA Small Business Classification (Limit for revenues or employment)[A]	Affected Entities[BB]		Affected Establishments[BB]			
					Small Business or Government Entities	Total	< 20 Employees	≥ 20 Employees	Small Businesses	Total
1	Electroplating - General Industry	All General Industry[B]	All General Industry	500 employees	5,284	5,399	3,820	2,030	5,582	5,850
		237	Heavy construction (234)	$28.5 million	3	3	1	2	3	3
		238	Special trade contractors (235)	$12 million	5	5	3	2	5	5
		313	Textile mills	500 employees	6	7	3	4	6	7
		314	Textile product mills	500 employees	14	15	10	5	14	15
		315	Apparel mfg	500 employees	3	3	1	2	3	3
		316	Leather & allied product mfg	500 employees	8	8	3	6	9	9
		321	Wood product mfg	500 employees	27	28	19	11	29	30
		322	Paper mfg	500 employees	42	45	22	42	48	64
		323	Printing & related support activities	500 employees	72	73	56	21	75	77
		324	Petroleum & coal products mfg	500 employees	6	7	5	4	7	9
		325	Chemical mfg	500 employees	40	42	28	25	43	53
		326	Plastics & rubber products mfg	500 employees	35	37	19	26	39	45
		327	Nonmetallic mineral product mfg	500 employees	2	3	1	2	2	3
		331[C]	Primary metal mfg	500 employees	18	19	11	11	19	22
		332813	Electroplating, Plating, Polishing, Anodizing, and Coloring	500 employees	2,598	2,630	1,948	879	2,771	2,827
		Other 332[D]	Fabricated Metal Product Manufacturing	500 employees	1,027	1,042	738	372	1,076	1,110
		333[E]	Machinery Manufacturing	500 employees	422	435	287	181	441	468
		334	Computer & electronic product mfg	500 employees	217	228	134	116	226	250
		335	Electrical equipment, appliance, & component mfg	500 employees	69	73	39	45	73	84
		336 (except 33661)[F]	Transportation Equipment Manufacturing	1,000 employees	214	226	108	164	224	272
		339	Miscellaneous Manufacturing	500 employees	366	371	298	85	374	383
		423	Wholesale trade, durable goods (421)	100 employees	0	1	5	0	0	5
		441	Motor vehicle & parts dealers	$6 million	2	2	2	0	2	2
		442	Furniture & home furnishings stores	$6 million	1	1	1	0	1	1
		443	Electronics & appliance stores	$7.50 million	1	1	1	0	1	1
		444	Building material & garden equipment & supplies dealers	$6 million	2	2	2	0	2	2
		446	Health & personal care stores	$6 million	1	1	1	0	1	1
		453	Miscellaneous store retailers	$6 million	2	2	2	0	2	2
		454	Nonstore retailers	$6 million	1	1	1	0	1	1
		511	Publishing industries	500 employees	11	12	7	10	13	17
		512	Motion picture & sound recording industries	$6 million	7	8	6	3	8	9
		519	Information services & data processing services (514)	$6 million	0	1	1	0	0	1
		522	Credit intermediation & related activities	$6 million	7	8	6	2	7	8
		532	Rental & leasing services	$6 million	2	3	2	1	2	3
		541	Professional, scientific, & technical services	$6 million	28	29	27	3	29	30
		561	Administrative & support services	$6 million	12	13	11	3	13	14
		562	Waste management & remediation services	$10.5 million	3	4	2	2	3	4
		711	Performing arts, spectator sports, & related industries	$6 million	1	1	1	0	1	1
		812	Personal & laundry services	$6 million	9	9	8	1	9	9
	Total Electroplating				5,284	5,399	3,820	2,030	5,582	5,850

Table VIII-1. Characteristics of Industries and Application Groups Affected by OSHA's Final Standard for Hexavalent Chromium

	Industry or Application Group	NAICS	Category	Affected Employees[BB]		Revenues ($)[CC]			Revenues per Entity or Establishment ($)		
				Small Business or Government Entities	Total	Small Business or Government Entities	Establishments with < 20 Employees	Total	Small Business or Government Entities	Establishments with < 20 Employees	Total
1	Electroplating - General Industry	All General Industry[B]	All General Industry	62,697	66,857	$51,456,897,289	$15,327,796,671	$73,703,107,293	$9,738,247	$4,012,512	$13,651,252
		237	Heavy construction (234)	6	6	$36,861,189	$1,105,508	$36,861,189	$12,287,063	$1,105,508	$12,287,063
		238	Special trade contractors (235)	54	54	$13,532,915	$1,314,463	$13,532,915	$2,706,583	$438,154	$2,706,583
		313	Textile mills	81	95	$32,610,167	$1,169,688	$43,090,327	$5,435,028	$389,896	$6,155,761
		314	Textile product mills	19	20	$66,732,450	$7,663,020	$81,499,808	$4,766,604	$766,302	$5,433,321
		315	Apparel mfg	18	18	$32,969,030	$1,041,838	$32,969,030	$10,989,677	$1,041,838	$10,989,677
		316	Leather & allied product mfg	30	30	$124,966,875	$2,920,839	$124,966,875	$15,620,859	$973,613	$15,620,859
		321	Wood product mfg	60	62	$154,224,250	$20,043,706	$167,642,304	$5,712,009	$1,054,932	$5,987,225
		322	Paper mfg	1,332	1,776	$1,133,840,705	$50,865,731	$1,800,286,843	$26,996,207	$2,312,079	$40,006,374
		323	Printing & related support activities	377	387	$213,850,692	$36,946,323	$232,472,204	$2,970,148	$659,756	$3,184,551
		324	Petroleum & coal products mfg	93	120	$995,627,241	$190,557,087	$1,800,697,395	$165,937,873	$38,111,417	$257,242,485
		325	Chemical mfg	335	413	$1,461,395,879	$128,038,151	$2,350,301,031	$36,534,897	$4,572,791	$55,959,548
		326	Plastics & rubber products mfg	389	449	$322,684,612	$19,062,639	$413,771,203	$9,219,560	$1,003,297	$11,183,005
		327	Nonmetallic mineral product mfg	7	10	$10,976,726	$1,179,027	$20,774,425	$5,488,363	$1,179,027	$6,924,808
		331[C]	Primary metal mfg	19	22	$354,993,904	$18,504,671	$481,177,367	$19,721,884	$1,682,243	$25,325,125
		332813	Electroplating, Plating, Polishing, Anodizing, and Coloring	29,834	30,437	$2,282,817,042	$485,520,234	$2,296,774,503	$878,682	$249,240	$873,298
		Other 332[D]	Fabricated Metal Product Manufacturing	8,425	8,691	$4,563,825,718	$707,722,840	$4,951,717,723	$4,443,842	$958,974	$4,752,128
		333[E]	Machinery Manufacturing	5,490	5,826	$4,440,193,595	$462,818,241	$5,137,525,638	$10,521,786	$1,612,607	$11,810,404
		334	Computer & electronic product mfg	5,332	5,898	$7,063,801,532	$322,969,784	$8,822,279,379	$32,552,081	$2,410,222	$38,694,208
		335	Electrical equipment, appliance, & component mfg	1,053	1,212	$2,711,183,335	$116,438,229	$3,550,659,693	$39,292,512	$2,985,596	$48,639,174
		336 (except 33661)[F]	Transportation Equipment Manufacturing	6,531	7,930	$17,497,397,037	$350,890,260	$24,592,503,290	$81,763,538	$3,248,984	$108,816,386
		339	Miscellaneous Manufacturing	2,678	2,742	$2,209,830,532	$365,607,935	$2,428,225,313	$6,037,788	$1,226,872	$6,545,082
		423	Wholesale trade, durable goods (421)	0	12	$0	$7,789,912	$7,789,912	NA	$1,557,982	$7,789,912
		441	Motor vehicle & parts dealers	6	6	$3,652,238	$3,652,238	$3,652,238	$1,826,119	$1,826,119	$1,826,119
		442	Furniture & home furnishings stores	4	4	$647,301	$647,301	$647,301	$647,301	$647,301	$647,301
		443	Electronics & appliance stores	3	3	$857,482	$857,482	$857,482	$857,482	$857,482	$857,482
		444	Building material & garden equipment & supplies dealers	6	6	$1,547,548	$1,547,548	$1,547,548	$773,774	$773,774	$773,774
		446	Health & personal care stores	5	5	$973,952	$973,952	$973,952	$973,952	$973,952	$973,952
		453	Miscellaneous store retailers	6	6	$1,200,604	$1,200,604	$1,200,604	$600,302	$600,302	$600,302
		454	Nonstore retailers	3	3	$706,333	$706,333	$706,333	$706,333	$706,333	$706,333
		511	Publishing industries	291	380	$104,695,551	$6,750,612	$169,992,176	$9,517,777	$964,373	$14,166,015
		512	Motion picture & sound recording industries	99	111	$32,687,285	$5,274,515	$46,393,670	$4,669,612	$879,086	$5,799,209
		519	Information services & data processing services (514)	0	1	$0	$137,552	$137,552	NA	$137,552	$137,552
		522	Credit intermediation & related activities	15	17	$14,440,128	$7,983,657	$20,896,599	$2,062,875	$1,330,610	$2,612,075
		532	Rental & leasing services	3	4	$1,299,324	$1,299,324	$3,673,519	$649,662	$649,662	$1,224,506
		541	Professional, scientific, & technical services	43	44	$17,340,327	$8,422,977	$21,799,002	$619,297	$311,962	$751,690
		561	Administrative & support services	33	36	$7,886,351	$1,475,905	$11,091,574	$657,196	$134,173	$853,198
		562	Waste management & remediation services	7	9	$8,620,657	$1,473,642	$15,767,673	$2,873,552	$736,821	$3,941,918
		711	Performing arts, spectator sports, & related industries	1	1	$82,883	$82,883	$82,883	$82,883	$82,883	$82,883
		812	Personal & laundry services	11	11	$2,219,893	$1,441,813	$2,219,893	$246,655	$180,227	$246,655
	Total Electroplating			62,697	66,857	$45,923,173,283	$3,344,098,464	$59,689,158,366	$8,690,987	$875,418	$11,055,595

Table VIII-1. Characteristics of Industries and Application Groups Affected by OSHA's Final Standard for Hexavalent Chromium

Industry or Application Group		NAICS	Category	SBA Small Business Classification (Limit for revenues or employment)[A]	Affected Entities[BB]		Affected Establishments[BB]			
					Small Business or Government Entities	Total	< 20 Employees	≥ 20 Employees	Small Businesses	Total
2A	Welding - General Industry (stainless steel)	All General Industry[H]	All General Industry		14,566	15,016	9,205	8,153	15,274	17,358
		113	Forestry and Logging	$6 million	5	6	4	2	5	6
		221	Utilities	500 employees	91	94	88	37	96	125
		311[C]	Food Manufacturing	500 employees	12	13	7	9	13	16
		312	Beverage and Tobacco Product Manufacturing	500 employees	2	2	1	1	2	2
		313	Textile mills	500 employees	9	10	3	10	10	13
		314	Textile product mills	500 employees	67	68	48	24	69	72
		315	Apparel mfg	500 employees	18	18	2	18	20	20
		316	Leather & allied product mfg	500 employees	5	5	0	5	6	5
		321	Wood product mfg	500 employees	61	62	50	15	63	65
		322	Paper mfg	500 employees	187	199	91	196	214	288
		323	Printing & related support activities	500 employees	56	57	17	50	63	67
		324	Petroleum & coal products mfg	500 employees	7	8	6	3	8	10
		325	Chemical mfg	500 employees	90	94	37	112	104	149
		326	Plastics & rubber products mfg	500 employees	88	90	21	106	104	127
		327	Nonmetallic mineral product mfg	500 employees	24	25	9	38	34	47
		332	Fabricated Metal Product Manufacturing	500 employees	3,975	4,017	2,164	2,337	4,286	4,501
		333	Machinery Manufacturing	500 employees	1,749	1,797	1,079	897	1,844	1,976
		334	Computer & electronic product mfg	500 employees	915	952	489	597	960	1,086
		335	Electrical equipment, appliance, & component mfg	500 employees	187	191	44	211	206	255
		336 (except 33661)	Transportation Equipment Manufacturing	1,000 employees	745	764	223	810	796	1,033
		337	Furniture & Related Product Manufacturing	500 employees	561	565	370	233	582	603
		339	Miscellaneous Manufacturing	500 employees	899	906	440	573	955	1,013
		423	Wholesale trade, durable goods (421)	100 employees	374	378	368	37	391	405
		424	Merchant Wholesalers, nondurable goods (422)	100 employees	7	8	2	12	10	14
		441	Motor vehicle & parts dealers	$6 million	220	221	176	114	273	290
		442	Furniture & home furnishings stores	$6 million	100	101	97	27	111	124
		443	Electronics & appliance stores	$7.50 million	60	61	60	17	65	77
		444	Building material & garden equipment & supplies dealers	$6 million	181	182	163	72	204	235
		445	Food and Beverage Stores	$6 million	10	11	9	2	10	11
		446	Health & personal care stores	$6 million	119	120	117	63	129	180
		447	Gasoline Stations	$7.5 million	6	7	6	2	7	8
		448	Clothing and Clothing Accessory Stores	$7.5 million	5	6	5	1	5	6
		451	Sporting Good, Hobby, Book and Music Stores	$6 million	8	9	8	2	9	10
		452	General Merchandise Stores	$23 million	1	2	1	4	1	5
		453	Miscellaneous store retailers	$6 million	188	189	183	48	208	231
		454	Nonstore retailers	$6 million	68	69	60	26	75	86
		481	Air Transportation	1,500 employees	1	2	0	2	1	2
		483	Water Transportation	500 employees	1	1	0	3	2	3
		484	Truck Transportation	$21.5 million	32	33	18	33	41	51
		485	Transit and Ground Passenger Transportation	$6 million	1	2	0	1	1	1

Table VIII-1. Characteristics of Industries and Application Groups Affected by OSHA's Final Standard for Hexavalent Chromium

Industry or Application Group		NAICS	Category	Affected Employees[BB]		Revenues ($)[CC]			Revenues per Entity or Establishment ($)		
				Small Business or Government Entities	Total	Small Business or Government Entities	Establishments with < 20 Employees	Total	Small Business or Government Entities	Establishments with < 20 Employees	Total
2A	Welding - General Industry (stainless steel)	All General Industry[H]	All General Industry	39,471	45,326	$87,511,907,381	$6,804,597,966	$97,668,286,331	$6,007,957	$739,228	$6,504,281
		113	Forestry and Logging	6	7	$6,886,523	$2,399,377	$9,356,786	$1,377,305	$599,844	$1,559,464
		221	Utilities	1,039	1,356	$711,902,470	$303,007,421	$2,005,609,190	$7,823,104	$3,437,806	$21,336,268
		311[C]	Food Manufacturing	96	122	$219,759,576	$10,468,330	$326,427,261	$18,313,298	$1,402,737	$25,109,789
		312	Beverage and Tobacco Product Manufacturing	12	12	$169,377,027	$4,012,897	$230,068,104	$84,688,514	$6,093,071	$115,034,052
		313	Textile mills	27	35	$74,530,806	$1,242,684	$102,782,542	$8,281,201	$389,896	$10,278,254
		314	Textile product mills	10	11	$346,897,006	$37,111,607	$388,976,686	$5,177,567	$766,302	$5,720,245
		315	Apparel mfg	26	26	$289,428,407	$2,083,675	$296,143,334	$16,079,356	$1,041,838	$16,452,407
		316	Leather & allied product mfg	11	10	$101,705,030	$0	$110,305,614	$20,341,006	$0	$22,061,123
		321	Wood product mfg	88	91	$227,181,301	$52,746,594	$257,424,388	$3,724,284	$1,054,932	$4,152,006
		322	Paper mfg	734	987	$5,333,703,845	$210,859,936	$8,390,782,758	$28,522,480	$2,312,079	$42,164,737
		323	Printing & related support activities	69	73	$439,510,634	$11,215,848	$478,639,087	$7,848,404	$659,756	$8,397,177
		324	Petroleum & coal products mfg	178	216	$1,033,738,658	$236,706,202	$1,640,901,514	$147,676,951	$38,111,417	$205,112,689
		325	Chemical mfg	547	784	$6,124,857,791	$169,329,905	$10,125,724,512	$68,053,975	$4,572,791	$107,720,474
		326	Plastics & rubber products mfg	308	377	$1,281,100,418	$21,069,233	$1,635,534,135	$14,557,959	$1,003,297	$18,172,602
		327	Nonmetallic mineral product mfg	40	55	$255,553,718	$10,611,245	$378,483,192	$10,648,072	$1,179,027	$15,139,328
		332	Fabricated Metal Product Manufacturing	7,082	7,437	$26,901,235,463	$2,122,071,019	$29,390,625,465	$6,767,606	$980,705	$7,316,561
		333	Machinery Manufacturing	4,983	5,340	$21,521,958,785	$1,740,687,254	$24,897,433,003	$12,305,294	$1,612,607	$13,854,999
		334	Computer & electronic product mfg	4,162	4,709	$35,759,586,131	$1,178,611,803	$44,940,507,682	$39,081,515	$2,410,222	$47,206,416
		335	Electrical equipment, appliance, & component mfg	879	1,089	$12,494,563,479	$131,366,207	$16,250,853,864	$66,815,847	$2,985,596	$85,083,005
		336 (except 33661)	Transportation Equipment Manufacturing	6,796	8,816	$82,576,680,965	$700,387,372	$116,386,566,187	$110,841,183	$3,140,751	$152,338,437
		337	Furniture & Related Product Manufacturing	1,296	1,343	$2,393,328,162	$193,006,181	$2,599,932,010	$4,266,182	$521,576	$4,601,650
		339	Miscellaneous Manufacturing	2,503	2,655	$13,036,858,497	$539,823,797	$14,445,497,799	$14,501,511	$1,226,872	$15,944,258
		423	Wholesale trade, durable goods (421)	355	368	$801,764,141	$482,726,253	$884,252,223	$2,143,754	$1,311,756	$2,339,292
		424	Merchant Wholesalers, nondurable goods (422)	1	2	$179,219,444	$4,397,011	$264,947,120	$25,602,778	$2,198,505	$33,118,390
		441	Motor vehicle & parts dealers	177	188	$1,589,150,769	$321,396,920	$1,777,817,446	$7,223,413	$1,826,119	$8,044,423
		442	Furniture & home furnishings stores	88	98	$105,473,838	$62,788,217	$133,289,363	$1,054,738	$647,301	$1,319,697
		443	Electronics & appliance stores	52	61	$76,573,336	$51,448,935	$115,268,384	$1,276,222	$857,482	$1,889,646
		444	Building material & garden equipment & supplies dealers	152	175	$309,122,426	$126,125,154	$430,090,019	$1,707,859	$773,774	$2,363,132
		445	Food and Beverage Stores	12	13	$14,272,941	$5,525,323	$24,116,746	$1,427,294	$640,255	$2,192,431
		446	Health & personal care stores	85	119	$170,204,687	$113,952,427	$349,945,484	$1,430,291	$973,952	$2,916,212
		447	Gasoline Stations	8	9	$6,390,144	$4,713,651	$7,723,610	$1,065,024	$785,609	$1,103,373
		448	Clothing and Clothing Accessory Stores	5	6	$1,966,617	$1,966,617	$3,316,864	$393,323	$393,323	$552,811
		451	Sporting Good, Hobby, Book and Music Stores	35	39	$6,169,002	$3,929,087	$8,516,688	$771,125	$485,283	$946,299
		452	General Merchandise Stores	0	1	$811,413	$811,413	$73,335,702	$811,413	$811,413	$36,667,851
		453	Miscellaneous store retailers	169	187	$177,718,492	$109,855,292	$225,261,991	$945,311	$600,302	$1,191,862
		454	Nonstore retailers	54	62	$149,611,401	$42,379,981	$215,276,968	$2,200,168	$706,333	$3,119,956
		481	Air Transportation	2	3	$0	$0	$67,287,597	$0	$0	$33,643,799
		483	Water Transportation	3	5	$45,630,582	$0	$68,445,873	$45,630,582	$0	$68,445,873
		484	Truck Transportation	47	59	$146,303,328	$7,842,895	$206,431,155	$4,571,979	$435,716	$6,255,490
		485	Transit and Ground Passenger Transportation	1	1	$0	$0	$3,038,336	$0	$0	$1,519,168

Table VIII-1. Characteristics of Industries and Application Groups Affected by OSHA's Final Standard for Hexavalent Chromium

	Industry or Application Group	NAICS	Category	SBA Small Business Classification (Limit for revenues or employment)[A]	Affected Entities[BB]		Affected Establishments[BB]			
					Small Business or Government Entities	Total	< 20 Employees	≥ 20 Employees	Small Businesses	Total
		486	Pipeline Transportation	1,500 employees	6	9	6	4	6	10
		487	Scenic and Sightseeing Transportation	$6 million	3	3	1	2	3	3
		488	Support Activities for Transportation	$6 million	78	79	47	99	105	146
		492	Couriers and Messengers	1,500 employees	4	5	2	11	5	13
		493	Warehousing and Storage	$21.5 million	2	3	1	4	3	5
		511	Publishing industries	500 employees	27	28	20	20	31	40
		512	Motion picture & sound recording industries	$6 million	22	23	18	14	25	32
		519	Information services & data processing services (514)	$6 million	19	20	15	14	22	29
		522	Credit intermediation & related activities	$6 million	28	29	24	57	42	81
		531	Real Estate	$6 million	43	44	40	16	52	56
		532	Rental & leasing services	$6 million	58	59	54	54	72	108
		541	Professional, scientific, & technical services	$6 million	417	418	311	250	487	561
		561	Administrative & support services	$6 million	1,774	1,794	1,568	518	1,874	2,086
		562	Waste management & remediation services	$10.5 million	105	106	90	44	116	133
		611	Educational Services	$6 million	24	25	14	15	26	29
		621	Ambulatory Health Care Services	$8.5 million	23	24	11	33	35	44
		622	Hospitals	$29 million	1	2	0	2	1	2
		623	Nursing and Residential Care Facilities	$6 million	2	2	1	2	3	3
		624	Social Assistance	$6 million	1	1	1	1	2	2
		711	Performing arts, spectator sports, & related industries	$6 million	17	17	10	8	18	18
		713	Amusement, Gambling, and Recreational Industries	$6 million	85	86	65	30	90	95
		722	Food Services and Drinking Places	$6 million	14	15	10	11	18	21
		811	Repair and Maintenance	$6 million	239	240	202	103	282	305
		812	Personal & laundry services	$6 million	85	86	78	38	103	116
		813	Religious, Grantmaking, Civil, Professional, and Similar Organizations	$6 million	21	21	18	4	22	22
2B	Welding - Maritime Industry (stainless steel)	336611[I]	Ship Building and Repairing	1,000 employees	261	279	111	196	276	307
2C	Welding - Construction Industry (stainless steel)	233[S], 234[T],235[U]	Building, Developing, and General Contracting; Heavy Construction; Special Trade Contractors	$28.5 million[J]	2,394	2,419	2,220	277	2,410	2,497
2D	Welding - Government (stainless steel)	999200	State	50,000 population	0	26	0	26	0	26
		999300	Local	50,000 population	231	815	0	815	231	815
	Total Welding (stainless steel)				17,119	18,023	0 11,405	9,417	18,343	20,821
2A1	Welding - General Industry (carbon steel)	All General Industry[H]	All General Industry		14,566	15,016	11,099	10,903	15,274	22,002
		113	Forestry and Logging	6 million	6	7	5	2	7	7
		221	Utilities	500 employees	111	114	107	45	117	152
		311	Food Manufacturing	500 employees	15	16	9	11	16	20
		312	Beverage and Tobacco Product Manufacturing	500 employees	2	2	1	2	2	2
		313	Textile mills	500 employees	11	12	4	12	13	16
		314	Textile product mills	500 employees	82	83	59	29	85	88
		315	Apparel mfg	500 employees	22	22	2	22	24	25
		316	Leather & allied product mfg	500 employees	6	6	0	7	7	7

Table VIII-1. Characteristics of Industries and Application Groups Affected by OSHA's Final Standard for Hexavalent Chromium

				Affected Employees[BB]		Revenues ($)[CC]			Revenues per Entity or Establishment ($)		
	Industry or Application Group	NAICS	Category	Small Business or Government Entities	Total	Small Business or Government Entities	Establishments with < 20 Employees	Total	Small Business or Government Entities	Establishments with < 20 Employees	Total
		486	Pipeline Transportation	18	31	$1,903,648	$1,903,648	$7,830,077	$317,275	$317,275	$870,009
		487	Scenic and Sightseeing Transportation	3	2	$9,254,377	$161,092	$9,431,378	$3,084,792	$268,756	$3,143,793
		488	Support Activities for Transportation	74	103	$356,490,924	$27,937,412	$581,536,105	$4,570,396	$594,413	$7,361,217
		492	Couriers and Messengers	12	29	$33,159,835	$783,885	$114,604,560	$8,289,959	$391,942	$22,920,912
		493	Warehousing and Storage	3	6	$8,482,865	$544,880	$16,420,850	$4,241,432	$544,880	$5,473,617
		511	Publishing industries	74	95	$198,853,184	$19,287,463	$340,105,130	$7,364,933	$964,373	$12,146,612
		512	Motion picture & sound recording industries	23	29	$111,768,241	$15,823,546	$206,324,342	$5,080,375	$879,086	$8,970,624
		519	Information services & data processing services (514)	17	23	$14,754,820	$2,063,276	$27,630,991	$776,569	$137,552	$1,381,550
		522	Credit intermediation & related activities	81	155	$153,276,964	$31,614,885	$400,276,586	$5,474,177	$1,330,610	$13,802,641
		531	Real Estate	67	72	$34,484,777	$10,226,543	$39,975,251	$801,972	$255,664	$908,528
		532	Rental & leasing services	87	131	$81,266,329	$35,081,742	$162,780,437	$1,401,144	$649,662	$2,758,990
		541	Professional, scientific, & technical services	702	808	$890,040,431	$97,020,222	$1,210,427,501	$2,134,390	$311,962	$2,895,760
		561	Administrative & support services	2,052	2,285	$1,212,679,105	$210,383,540	$1,872,143,260	$683,585	$134,173	$1,043,558
		562	Waste management & remediation services	3,196	3,677	$258,546,477	$66,215,253	$377,524,458	$2,462,347	$736,821	$3,561,551
		611	Educational Services	118	130	$12,557,956	$611,069	$15,136,125	$523,248	$43,194	$605,445
		621	Ambulatory Health Care Services	37	46	$32,670,695	$1,931,679	$43,790,509	$1,420,465	$175,607	$1,824,605
		622	Hospitals	6	12	$10,622,191	$4,342	$21,248,724	$10,622,191	$52,347	$10,624,362
		623	Nursing and Residential Care Facilities	6	6	$741,319	$35,341	$741,319	$370,660	$35,341	$370,660
		624	Social Assistance	4	4	$560,708	$90,370	$565,406	$560,708	$86,175	$565,406
		711	Performing arts, spectator sports, & related industries	12	12	$63,689,530	$2,108,223	$66,536,972	$3,746,443	$210,822	$3,913,940
		713	Amusement, Gambling, and Recreational Industries	96	101	$67,867,426	$10,303,330	$78,529,080	$798,440	$158,513	$913,129
		722	Food Services and Drinking Places	31	35	$10,771,664	$1,792,835	$13,836,396	$769,405	$179,284	$922,426
		811	Repair and Maintenance	364	394	$165,386,805	$50,469,484	$195,404,884	$691,995	$249,849	$814,187
		812	Personal & laundry services	154	173	$34,107,516	$14,057,679	$43,486,337	$401,265	$180,227	$505,655
		813	Religious, Grantmaking, Civil, Professional, and Similar Organizations	23	23	$1,092,786	$338,767	$1,127,772	$52,037	$18,820	$53,703
2B	Welding - Maritime Industry (stainless steel)	336611[I]	Ship Building and Repairing	18,907	21,031	$6,463,579,033	$101,920,988	$7,570,453,408	$24,764,671	$918,207	$27,134,242
2C	Welding - Construction Industry (stainless steel)	233[S], 234[T], 235[U]	Building, Developing, and General Contracting; Heavy Construction; Special Trade Contractors	53,837	60,450	$3,836,250,131	$1,474,412,753	$4,282,427,802	$1,602,444	$664,150	$1,770,330
2D	Welding - Government (stainless steel)	999200	State	0	128	$0	N/A	$336,858,834,000	N/A	N/A	$12,956,109,000
		999300	Local	231	815	$847,770,000	N/A	$64,736,832,720	$3,670,000	N/A	$79,431,697
	Total Welding (stainless steel)			112,371	127,750	$229,993,356,992	$11,195,802,005	$699,442,899,062	$13,434,976	$981,671	$38,808,350
2A1	Welding - General Industry (carbon steel)	All General Industry[H]	All General Industry	52,734	60,556	$87,511,907,381	$8,204,696,667	$129,716,630,219	$6,007,957	$739,228	$8,638,561
		113	Forestry and Logging	9	9	$11,973,513	$2,920,641	$11,389,548	$1,995,586	$599,844	$1,627,078
		221	Utilities	1,390	1,812	$868,957,084	$368,835,783	$2,441,327,786	$7,828,442	$3,437,806	$21,415,156
		311	Food Manufacturing	130	163	$257,555,120	$12,742,575	$397,343,583	$17,170,341	$1,402,737	$24,833,974
		312	Beverage and Tobacco Product Manufacturing	13	16	$169,377,027	$4,884,698	$280,050,400	$84,688,514	$6,093,071	$140,025,200
		313	Textile mills	39	47	$95,881,022	$1,512,657	$125,112,049	$8,716,457	$389,896	$10,426,004
		314	Textile product mills	14	14	$429,163,116	$45,174,103	$473,481,871	$5,233,697	$766,302	$5,704,601
		315	Apparel mfg	34	35	$353,282,792	$2,536,353	$360,480,473	$16,058,309	$1,041,838	$16,385,476
		316	Leather & allied product mfg	14	13	$122,046,036	$0	$134,269,509	$20,341,006	$0	$22,378,252

Table VIII-1. Characteristics of Industries and Application Groups Affected by OSHA's Final Standard for Hexavalent Chromium

Industry or Application Group	NAICS	Category	SBA Small Business Classification (Limit for revenues or employment)[A]	Affected Entities[BB]		Affected Establishments[BB]			
				Small Business or Government Entities	Total	< 20 Employees	≥ 20 Employees	Small Businesses	Total
	321	Wood product mfg	500 employees	74	75	61	19	77	79
	322	Paper mfg	500 employees	227	242	111	239	260	350
	323	Printing & related support activities	500 employees	69	70	21	61	77	82
	324	Petroleum & coal products mfg	500 employees	8	9	8	4	9	12
	325	Chemical mfg	500 employees	109	113	45	136	126	181
	326	Plastics & rubber products mfg	500 employees	107	109	26	129	126	155
	327	Nonmetallic mineral product mfg	500 employees	29	30	11	46	41	57
	332	Fabricated Metal Product Manufacturing	500 employees	4,839	4,890	2,634	2,845	5,217	5,479
	333	Machinery Manufacturing	500 employees	2,129	2,187	1,314	1,091	2,245	2,405
	334	Computer & electronic product mfg	500 employees	1,114	1,160	595	727	1,168	1,322
	335	Electrical equipment, appliance, & component mfg	500 employees	227	232	54	257	250	311
	336 (except 33661)	Transportation Equipment Manufacturing	1,000 employees	906	929	271	986	968	1,257
	337	Furniture & Related Product Manufacturing	500 employees	683	688	450	284	708	734
	339	Miscellaneous Manufacturing	500 employees	1,094	1,103	536	698	1,163	1,233
	423	Wholesale trade, durable goods (421)	100 employees	455	460	448	45	476	493
	424	Merchant Wholesalers, nondurable goods (422)	100 employees	8	9	2	15	12	17
	441	Motor vehicle & parts dealers	6 million	268	269	214	139	332	353
	442	Furniture & home furnishings stores	6 million	122	123	118	33	136	151
	443	Electronics & appliance stores	7.5 million	74	75	73	20	79	93
	444	Building material & garden equipment & supplies dealers	6 million	219	220	198	88	247	286
	445	Food and Beverage Stores	6 million	11	12	11	3	12	13
	446	Health & personal care stores	6 million	144	145	142	76	156	219
	447	Gasoline Stations	7.5 million	7	8	7	2	8	9
	448	Clothing and Clothing Accessory Stores	7.5 million	6	7	6	1	6	7
	451	Sporting Good, Hobby, Book and Music Stores	6 million	10	11	10	2	11	12
	452	General Merchandise Stores	23 million	1	2	1	5	1	7
	453	Miscellaneous store retailers	6 million	229	230	223	58	253	281
	454	Nonstore retailers	6 million	83	84	73	31	92	104
	481	Air Transportation	1,500 employees	1	2	0	2	1	2
	483	Water Transportation	500 employees	2	2	0	4	3	4
	484	Truck Transportation	21.5 million	40	41	22	40	50	62
	485	Transit and Ground Passenger Transportation	6 million	2	3	0	1	1	1
	486	Pipeline Transportation	1,500 employees	7	11	7	5	7	13
	487	Scenic and Sightseeing Transportation	6 million	3	3	1	3	3	3
	488	Support Activities for Transportation	6 million	95	96	57	121	128	178
	492	Couriers and Messengers	1,500 employees	4	5	2	13	5	15
	493	Warehousing and Storage	21.5 million	3	4	1	5	4	6
	511	Publishing industries	500 employees	33	34	24	24	38	48
	512	Motion picture & sound recording industries	6 million	27	28	22	17	31	39
	519	Information services & data processing services (514)	6 million	23	24	18	17	26	35
	522	Credit intermediation & related activities	6 million	33	34	29	70	51	98
	531	Real Estate	6 million	53	54	49	19	63	68

Table VIII-1. Characteristics of Industries and Application Groups Affected by OSHA's Final Standard for Hexavalent Chromium

			Affected Employees[BB]		Revenues ($)[CC]			Revenues per Entity or Establishment ($)		
Industry or Application Group	NAICS	Category	Small Business or Government Entities	Total	Small Business or Government Entities	Establishments with < 20 Employees	Total	Small Business or Government Entities	Establishments with < 20 Employees	Total
	321	Wood product mfg	118	122	$279,039,715	$64,205,791	$313,349,836	$3,770,807	$1,054,932	$4,177,998
	322	Paper mfg	979	1,318	$6,462,920,392	$256,669,257	$10,213,680,312	$28,471,015	$2,312,079	$42,205,291
	323	Printing & related support activities	92	98	$535,257,220	$13,652,491	$582,623,429	$7,757,351	$659,756	$8,323,192
	324	Petroleum & coal products mfg	220	289	$1,071,850,075	$288,130,625	$1,997,387,368	$133,981,259	$38,111,417	$221,931,930
	325	Chemical mfg	727	1,047	$7,405,907,333	$206,116,827	$12,325,538,162	$67,944,104	$4,572,791	$109,075,559
	326	Plastics & rubber products mfg	409	503	$1,544,195,579	$25,646,524	$1,990,853,926	$14,431,734	$1,003,297	$18,264,715
	327	Nonmetallic mineral product mfg	53	73	$306,900,266	$12,916,538	$460,708,666	$10,582,768	$1,179,027	$15,356,956
	332	Fabricated Metal Product Manufacturing	9,461	9,936	$32,740,706,609	$2,583,090,947	$35,775,738,847	$6,766,007	$980,705	$7,316,102
	333	Machinery Manufacturing	6,658	7,134	$26,212,436,668	$2,118,851,560	$30,306,400,323	$12,312,089	$1,612,607	$13,857,522
	334	Computer & electronic product mfg	5,557	6,291	$43,488,600,542	$1,434,665,217	$54,703,832,975	$39,038,241	$2,410,222	$47,158,477
	335	Electrical equipment, appliance, & component mfg	1,171	1,455	$15,192,494,979	$159,905,515	$19,781,351,866	$66,927,291	$2,985,596	$85,264,448
	336 (except 33661)	Transportation Equipment Manufacturing	9,071	11,778	$100,445,867,018	$852,546,528	$141,671,547,691	$110,867,403	$3,140,751	$152,498,975
	337	Furniture & Related Product Manufacturing	1,730	1,794	$2,910,358,769	$234,936,773	$3,164,767,239	$4,261,140	$521,576	$4,599,952
	339	Miscellaneous Manufacturing	3,345	3,547	$15,895,479,171	$657,100,516	$17,583,782,196	$14,529,688	$1,226,872	$15,941,779
	423	Wholesale trade, durable goods (421)	475	491	$980,665,827	$587,598,532	$1,076,356,019	$2,155,310	$1,311,756	$2,339,904
	424	Merchant Wholesalers, nondurable goods (422)	2	2	$222,925,052	$5,352,262	$322,506,882	$27,865,631	$2,198,505	$35,834,098
	441	Motor vehicle & parts dealers	236	251	$1,925,922,049	$391,220,401	$2,164,048,286	$7,186,276	$1,826,119	$8,044,789
	442	Furniture & home furnishings stores	118	131	$129,567,757	$76,428,957	$162,246,477	$1,062,031	$647,301	$1,319,077
	443	Electronics & appliance stores	69	81	$91,554,801	$62,626,216	$140,310,440	$1,237,227	$857,482	$1,870,806
	444	Building material & garden equipment & supplies dealers	202	234	$373,336,817	$153,525,844	$523,527,076	$1,704,734	$773,774	$2,379,669
	445	Food and Beverage Stores	16	17	$23,423,843	$6,725,699	$29,356,109	$2,129,440	$640,255	$2,446,342
	446	Health & personal care stores	113	158	$204,857,307	$138,708,592	$425,971,140	$1,422,620	$973,952	$2,937,732
	447	Gasoline Stations	10	12	$7,175,753	$5,737,692	$9,401,564	$1,025,108	$785,609	$1,175,195
	448	Clothing and Clothing Accessory Stores	7	8	$2,359,940	$2,393,864	$4,037,453	$393,323	$393,323	$576,779
	451	Sporting Good, Hobby, Book and Music Stores	46	52	$7,139,568	$4,782,682	$10,366,938	$713,957	$485,283	$942,449
	452	General Merchandise Stores	0	2	$811,413	$987,693	$89,267,883	$811,413	$811,413	$44,633,942
	453	Miscellaneous store retailers	226	250	$215,667,740	$133,721,354	$274,200,158	$941,781	$600,302	$1,192,175
	454	Nonstore retailers	73	82	$185,778,169	$51,587,032	$262,045,889	$2,238,291	$706,333	$3,119,594
	481	Air Transportation	2	4	$0	$0	$81,905,827	$0	$0	$40,952,914
	483	Water Transportation	5	6	$68,445,873	$0	$83,315,739	$34,222,937	$0	$41,657,870
	484	Truck Transportation	63	79	$178,146,287	$9,546,763	$251,278,324	$4,453,657	$435,716	$6,128,740
	485	Transit and Ground Passenger Transportation	1	1	$0	$0	$3,698,415	$0	$0	$1,232,805
	486	Pipeline Transportation	23	41	$2,220,922	$2,317,215	$9,531,161	$317,275	$317,275	$866,469
	487	Scenic and Sightseeing Transportation	3	3	$9,254,377	$196,090	$11,480,345	$3,084,792	$268,756	$3,826,782
	488	Support Activities for Transportation	99	138	$434,959,173	$34,006,814	$707,874,824	$4,578,518	$594,413	$7,373,696
	492	Couriers and Messengers	13	39	$33,159,835	$954,183	$139,502,401	$8,289,959	$391,942	$27,900,480
	493	Warehousing and Storage	5	8	$12,451,857	$663,255	$19,988,280	$4,150,619	$544,880	$4,997,070
	511	Publishing industries	100	127	$251,683,146	$23,477,665	$413,992,969	$7,626,762	$964,373	$12,176,264
	512	Motion picture & sound recording industries	31	39	$142,697,354	$19,261,211	$251,148,305	$5,285,087	$879,086	$8,969,582
	519	Information services & data processing services (514)	22	30	$16,980,553	$2,511,522	$33,633,824	$738,285	$137,552	$1,401,409
	522	Credit intermediation & related activities	107	207	$190,881,756	$38,483,218	$487,236,675	$5,784,296	$1,330,610	$14,330,490
	531	Real Estate	89	96	$40,557,118	$12,448,259	$48,659,874	$765,229	$255,664	$901,109

Table VIII-1. Characteristics of Industries and Application Groups Affected by OSHA's Final Standard for Hexavalent Chromium

	Industry or Application Group	NAICS	Category	SBA Small Business Classification (Limit for revenues or employment)[A]	Affected Entities[BB]		Affected Establishments[BB]			
					Small Business or Government Entities	Total	< 20 Employees	≥ 20 Employees	Small Businesses	Total
		532	Rental & leasing services	6 million	71	72	66	65	88	131
		541	Professional, scientific, & technical services	6 million	507	508	379	304	592	683
		561	Administrative & support services	6 million	2,160	2,184	1,909	631	2,281	2,540
		562	Waste management & remediation services	10.5 million	128	129	109	53	142	162
		611	Educational Services	6 million	29	30	17	18	32	35
		621	Ambulatory Health Care Services	8.5 million	28	29	13	40	43	53
		622	Hospitals	29 million	1	2	0	2	1	3
		623	Nursing and Residential Care Facilities	6 million	2	2	1	2	3	4
		624	Social Assistance	6 million	1	1	1	1	2	2
		711	Performing arts, spectator sports, & related industries	6 million	20	20	12	10	22	22
		713	Amusement, Gambling, and Recreastional Industries	6 million	103	104	79	36	110	115
		722	Food Services and Drinking Places	6 million	17	18	12	13	22	25
		811	Repair and Maintenance	6 million	291	292	246	125	344	371
		812	Personal & laundry services	6 million	103	104	95	46	125	141
		813	Religious, Grantmaking, Civil, Professional, and Similar Organizations	6 million	26	26	22	5	27	27
2B1	Welding - Maritime Industry (carbon steel)	336611[I]	Ship Building and Repairing	1,000 employees	261	279	240	423	276	663
2C1	Welding - Construction Industry (carbon steel)	233[S], 234[T],235[U]	Building, Developing, and General Contracting; Heavy Construction; Special Trade Contractors	28.5 million[J]	2,394	2,419	3,143	416	2,410	3,559
2D1	Welding - Government (carbon steel)	999200	State	50,000 population						
		999300	Local	50,000 population						
	Total Welding (carbon steel)				19,975	20,314	14,482	11,742	17,960	26,224
3A	Painting - General Industry	All General Industry[G]	All General Industry		2,071	2,089	1,686	511	2,163	2,197
		332812	Metal Coating, Engraving (Except Jewelry and Silverware), and Allied Services to Manufacturers	500 employees	102	106	20	110	120	130
		3361[K]	Motor vehicle mfg	1,000 employees	19	21	9	16	19	25
		3362	Motor vehicle body & trailer mfg	1,000 employees	68	71	62	8	69	70
		336411	Aircraft mfg	1,500 employees	14	16	6	11	14	17
		336414	Guided missile & space vehicle mfg	1,000 employees	2	4	0	3	3	3
		336415	Guided missile & space vehicle propulsion unit & parts mfg	1,000 employees	2	2	1	1	2	2
		336419	Other guided missile & space vehicle parts & auxiliary equip mfg	1,000 employees	2	3	2	0	2	2
		336992	Military armored vehicle, tank, & tank component mfg	1,000 employees	1	1	1	0	1	1
		44111	New car dealers	$24.50 million	400	402	162	291	446	453
		44112	Used car dealers	$19.50 million	459	459	454	14	466	468
		811121	Automotive body, paint, & interior repair & maintenance	$6 million	1,002	1,004	969	55	1,021	1,024
3B	Painting - Maritime Industry	336611	Ship building & repairing	1,000 employees[L]	320	335	222	128	326	350
		336612	Boat building	500 employees	493	501	333	193	510	526

Table VIII-1. Characteristics of Industries and Application Groups Affected by OSHA's Final Standard for Hexavalent Chromium

				Affected Employees[BB]		Revenues ($)[CC]			Revenues per Entity or Establishment ($)		
Industry or Application Group		NAICS	Category	Small Business or Government Entities	Total	Small Business or Government Entities	Establishments with < 20 Employees	Total	Small Business or Government Entities	Establishments with < 20 Employees	Total
		532	Rental & leasing services	117	175	$98,559,054	$42,703,250	$198,144,487	$1,388,156	$649,662	$2,752,007
		541	Professional, scientific, & technical services	936	1,079	$1,080,371,541	$118,097,865	$1,473,392,875	$2,130,910	$311,962	$2,900,380
		561	Administrative & support services	2,741	3,052	$1,476,118,971	$256,089,364	$2,278,866,383	$683,388	$134,173	$1,043,437
		562	Waste management & remediation services	4,295	4,912	$316,164,987	$80,600,517	$459,541,647	$2,470,039	$736,821	$3,562,338
		611	Educational Services	159	174	$15,675,848	$743,824	$18,424,448	$540,546	$43,194	$614,148
		621	Ambulatory Health Care Services	50	61	$40,706,663	$2,351,336	$53,303,997	$1,453,809	$175,607	$1,838,069
		622	Hospitals	6	16	$10,622,191	$5,285	$25,865,010	$10,622,191	$52,347	$12,932,505
		623	Nursing and Residential Care Facilities	6	8	$741,319	$43,019	$902,371	$370,660	$35,341	$451,186
		624	Social Assistance	5	6	$560,708	$110,003	$688,240	$560,708	$86,175	$688,240
		711	Performing arts, spectator sports, & related industries	16	17	$79,506,501	$2,566,234	$80,992,130	$3,975,325	$210,822	$4,049,606
		713	Amusement, Gambling, and Recreastional Industries	129	135	$83,901,988	$12,541,729	$95,589,522	$814,582	$158,513	$919,130
		722	Food Services and Drinking Places	41	47	$13,374,938	$2,182,329	$16,842,353	$786,761	$179,284	$935,686
		811	Repair and Maintenance	487	526	$201,715,602	$61,433,980	$237,856,596	$693,181	$249,849	$814,577
		812	Personal & laundry services	205	231	$41,659,619	$17,111,710	$52,933,744	$404,462	$180,227	$508,978
		813	Religious, Grantmaking, Civil, Professional, and Similar Organizations	30	30	$1,356,572	$412,364	$1,372,781	$52,176	$18,820	$52,799
2B1	Welding - Maritime Industry (carbon steel)	336611[I]	Ship Building and Repairing	259	623	$6,463,579,033	$220,369,703	$16,338,682,017	$24,764,671	$918,207	$58,561,584
2C1	Welding - Construction Industry (carbon steel)	233[S], 234[T],235[U]	Building, Developing, and General Contracting; Heavy Construction; Special Trade Contractors	54,475	80,447	$3,836,250,131	$2,087,423,100	$6,304,514,294	$1,602,444	$664,150	$2,606,248
2D1	Welding - Government (carbon steel)	999200	State								
		999300	Local								
	Total Welding (carbon steel)			107,351	141,626	$276,313,740,002	$21,463,651,807	$370,769,820,227	$13,832,978	$1,482,092	$18,251,936
3A	Painting - General Industry	All General Industry[G]	All General Industry	36,569	37,539	$42,673,605,403	$1,708,029,958	$58,390,181,330	$20,605,314	$1,013,066	$27,951,260
		332812	Metal Coating, Engraving (Except Jewelry and Silverware), and Allied Services to Manufacturers	1,440	1,560	$458,550,398	$11,219,551	$503,283,483	$4,495,592	$560,978	$4,747,957
		3361[K]	Motor vehicle mfg	1,061	1,417	$19,094,740,748	$68,241,187	$31,167,653,129	$1,004,986,355	$7,565,616	$1,484,173,959
		3362	Motor vehicle body & trailer mfg	3,854	3,929	$362,508,890	$121,747,774	$401,277,973	$5,331,013	$1,956,533	$5,651,802
		336411	Aircraft mfg	782	976	$7,013,921,668	$15,627,491	$10,068,017,924	$500,994,405	$2,608,704	$629,251,120
		336414	Guided missile & space vehicle mfg	168	191	$4,485,766,686	$1,101,536	$4,723,275,047	$2,242,883,343	$4,302,791	$1,180,818,762
		336415	Guided missile & space vehicle propulsion unit & parts mfg	112	91	$240,813,679	$1,679,251	$245,838,181	$120,406,840	$2,811,191	$122,919,091
		336419	Other guided missile & space vehicle parts & auxiliary equip mfg	112	136	$4,407,908	$4,325,712	$29,659,724	$2,203,954	$2,203,954	$9,886,575
		336992	Military armored vehicle, tank, & tank component mfg	56	75	$2,757,538	$2,611,992	$35,542,489	$2,757,538	$2,757,538	$35,542,489
		44111	New car dealers	6,688	6,793	$9,877,036,996	$588,446,707	$10,076,295,124	$24,692,592	$3,632,387	$25,065,411
		44112	Used car dealers	6,988	7,018	$683,921,155	$544,775,932	$688,720,943	$1,490,024	$1,199,947	$1,500,481
		811121	Automotive body, paint, & interior repair & maintenance	15,310	15,355	$449,179,737	$348,252,825	$450,617,313	$448,283	$359,394	$448,822
3B	Painting - Maritime Industry	336611	Ship building & repairing	1,174	1,260	$5,542,807,975	$195,127,165	$6,776,888,162	$17,321,275	$878,951	$20,229,517
		336612	Boat building	1,836	1,894	$4,982,262,975	$354,867,690	$5,400,558,594	$10,106,010	$1,065,669	$10,779,558

Table VIII-1. Characteristics of Industries and Application Groups Affected by OSHA's Final Standard for Hexavalent Chromium

	Industry or Application Group	NAICS	Category	SBA Small Business Classification (Limit for revenues or employment)[A]	Affected Entities[BB]		Affected Establishments[BB]			
					Small Business or Government Entities	Total	< 20 Employees	≥ 20 Employees	Small Businesses	Total
3C	Painting - Construction Industry	233[S], 234[T],235[U]	Building, Developing, and General Contracting; Heavy Construction; Special Trade Contractors	$28.5 million	6,343	6,440	5,524	1,055	6,482	6,579
		234[T]	Heavy Construction	$28.5 million	909	943	208	770	944	978
		235[U]	Special Trade Contractors	$12.0 million	5,434	5,497	5,316	285	5,538	5,601
3D	Painting - Government	999200	State	50,000 population	0	26	0	26	0	26
		999300	Local	50,000 population	628	1,439	0	1,439	628	1,439
	Total Painting				9,855	10,830	7,765	3,352	10,109	11,117
4	Chromate (Chromite Ore Production)	325188	All Other Basic Inorganic Chemical Mfg.	1,000 employees	0	1	0	2	0	2
5	Chromate Pigment Producers	325131	Inorganic Dye and Pigment Mfg.	1,000 employees	2	3	1	2	2	3
6	Chromated Copper Arsenate Producers	325320	Pesticide and Other Agricultural Chemical Mfg.	500 employees	3	3	0	3	3	3
7	Chromium Catalyst Producers	325188	All Other Basic Inorganic Chemical Mfg.	1,000 employees	3	3	0	5	5	5
8	Paint and Coatings Producers	325510	Paint and Coating Mfg.	500 employees	165	174	132	84	180	216
9	Printing Ink Producers	325910	Printing Ink Mfg.	500 employees	6	9	10	3	9	13
10	Plastic Colorant Producers and Users	325211	Plastics Material and Resin Mfg.	500 employees	96	104	45	92	100	137
		325991	Custom Compounding of Purchased Resin	500 employees						
		3261	Plastic Product Mfg.	500 employees[M]						
11	Plating Mixture Producers	325998	All Other Miscellaneous Chemical Product and Preparation Mfg.	500 employees	10	10	4	6	10	10
12	Wood Preserving	321114	Wood Preservation	500 employees	N/A	N/A	N/A	N/A	N/A	N/A
13	Chromium Metal Producers	331112	Electrometallurgical Ferroalloy Product Mfg.	750 employees	0	1	0	1	0	1
14	Steel Mills (Stainless)	331111	Iron and Steel Mills	1,000 employees	48	54	17	53	49	70
14A	Steel Mills (Carbon)	331111	Iron and Steel Mills	1,000 employees	205	221	50	159	206	209
14B	Reshaping (Stainless)	332111	Iron and Steel Forging	500 employees	78	87	49	52	88	101
15	Iron and Steel foundries	3315	Iron foundries	500 employees	278	306	144	198	289	342
		331512	Steel Investment foundries	500 employees						
		331513	Steel foundries (except investment)	500 employees						

Table VIII-1. Characteristics of Industries and Application Groups Affected by OSHA's Final Standard for Hexavalent Chromium

				Affected Employees[BB]		Revenues ($)[CC]			Revenues per Entity or Establishment ($)		
Industry or Application Group		NAICS	Category	Small Business or Government Entities	Total	Small Business or Government Entities	Establishments with < 20 Employees	Total	Small Business or Government Entities	Establishments with < 20 Employees	Total
3C	Painting - Construction Industry	233[S], 234[T],235[U]	Building, Developing, and General Contracting; Heavy Construction; Special Trade Contractors	32,915	33,408	$22,221,976,765	$5,116,853,453	$23,916,707,178	$3,503,386	$926,295	$3,713,774
		234[T]	Heavy Construction	4,794	4,966	$7,825,578,202	$121,421,527	$8,171,150,337	$8,608,997	$583,757	$8,665,059
		235[U]	Special Trade Contractors	28,122	28,442	$1,907,472,692	$1,222,717,518	$2,098,147,009	$351,026	$230,007	$381,689
3D	Painting - Government	999200	State	0	1,535	$0	N/A	$336,858,834,000	N/A	N/A	$12,956,109,000
		999300	Local	1,878	6,613	$2,304,760,000	N/A	$91,027,413,880	$3,670,000	N/A	$63,257,411
	Total Painting			74,372	82,249	$65,236,487,247	$3,602,163,858	$508,723,173,311	$6,619,633	$463,897	$46,973,516
4	Chromate (Chromite Ore Production)	325188	All Other Basic Inorganic Chemical Mfg.	0	150	$0	$0	$114,000,000	N/A	N/A	$114,000,000
5	Chromate Pigment Producers	325131	Inorganic Dye and Pigment Mfg.	50	52	$140,969,299	$1,988,410	$142,957,709	$70,484,649	$1,988,410	$47,652,570
6	Chromated Copper Arsenate Producers	325320	Pesticide and Other Agricultural Chemical Mfg.	27	27	$345,794,332	$0	$345,794,332	$115,264,777	N/A	$115,264,777
7	Chromium Catalyst Producers	325188	All Other Basic Inorganic Chemical Mfg.	313	313	$227,176,835	$0	$227,176,835	$75,725,612	N/A	$75,725,612
8	Paint and Coatings Producers	325510	Paint and Coating Mfg.	1,779	2,569	$2,664,296,816	$419,867,883	$3,716,487,140	$16,147,253	$3,180,817	$21,359,121
9	Printing Ink Producers	325910	Printing Ink Mfg.	77	112	$67,338,538	$36,789,238	$99,168,346	$11,223,090	$3,678,924	$11,018,705
10	Plastic Colorant Producers and Users	325211	Plastics Material and Resin Mfg.	303	492	$915,429,632	$50,552,985	$1,450,120,652	$9,535,725	$1,123,400	$13,943,468
		325991	Custom Compounding of Purchased Resin								
		3261	Plastic Product Mfg.								
11	Plating Mixture Producers	325998	All Other Miscellaneous Chemical Product and Preparation Mfg.	49	118	$223,120,857	$17,540,363	$655,524,599	$22,312,086	$4,385,091	$65,552,460
12	Wood Preserving	321114	Wood Preservation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
13	Chromium Metal Producers	331112	Electrometallurgical Ferroalloy Product Mfg.	0	63	$0	$0	$37,114,939	N/A	N/A	$37,114,939
14	Steel Mills (Stainless)	331111	Iron and Steel Mills	6,493	9,276	$5,524,744,428	$24,043,629	$9,134,579,327	$115,098,842	$1,414,331	$169,158,876
14A	Steel Mills (Carbon)	331111	Iron and Steel Mills	28,945	29,367	$26,886,632,951	$70,716,555	$27,402,323,650	$131,154,307	$1,414,331	$123,992,415
14B	Reshaping (Stainless)	332111	Iron and Steel Forging	938	1,076	$494,327,769	$41,014,150	$645,432,309	$6,337,536	$837,023	$7,418,762
15	Iron and Steel foundries	3315	Iron foundries	23,461	30,222	$1,862,053,224	$52,084,042	$2,443,630,547	$6,698,033	$361,695	$7,985,721
		331512	Steel Investment foundries								
		331513	Steel foundries (except investment)								

Table VIII-1. Characteristics of Industries and Application Groups Affected by OSHA's Final Standard for Hexavalent Chromium

	Industry or Application Group	NAICS	Category	SBA Small Business Classification (Limit for revenues or employment)[A]	Affected Entities[BB]		Affected Establishments[BB]			
					Small Business or Government Entities	Total	< 20 Employees	≥ 20 Employees	Small Businesses	Total
16	Chromium Dioxide Producers	325188	All Other Inorganic Chemicals, n.e.c.	1,000 employees	N/A	N/A	N/A	N/A	N/A	N/A
17	Chromium Dye Producers	3251317	Chrome Colors and Other Inorganic Pigments	1,000 employees	3	3	1	3	4	4
18	Chromium Sulfate Producers	325188	All Other Inorganic Chemicals, n.e.c.	1,000 employees	2	3	5	0	2	5
19	Chemical Distributors	42269[V]	Other Chemical and Allied Products	100 employees	1,228	1,258	1,577	209	1,568	1,786
20	Textile Dyeing	313 314	Textile Mills Textile Product Mills	500 employees[N] 500 employees[O]	992	1,026	759	374	1,030	1,133
21	Colored Glass Producers	3272123 3272129	Other Pressed and Blown Glass and Glassware Mfg. Other Pressed and Blown Glass and Glassware Mfg.	750 employees 750 employees	22	23	19	6	22	25
21A	Fiber, Flat, and Container Glass	327993 327211 327212 327213	Mineral Wool Manufacturing Flat Glass Manufacturing Other Pressed and Blown Glass Mfg. Glass Container Manufacturing	750 employees 750 employees 750 employees 750 employees	19	45	5	86	19	91
22	Printing	32311 323113	Printing Ink Mfg. Commercial Screen Printing\	500 employees 500 employees	490	495	400	100	493	500
23	Leather Tanning	3161	Leather and Hide Tanning and Finishing	500 employees[P]	N/A	N/A	N/A	N/A	N/A	N/A
24	Chromium Catalyst Users	325110 325120 325211 325199	Petrochemical Mfg., Including Styrene Industrial Gas Mfg., Including Hydrogen and Ammonia Gas Plastics Materials, Synthetic Resins, and Nonvulcanizable Elastomers, Including Polyethylene Industrial Inorganic Chemicals, Not Otherwise Classified, Including Butadiene and Methanol	1,000 employees 1,000 employees 750 employees 1,000 employees	33	71	0	163	44	163
24A	Chromium Catalyst Users - Service Companies	561790	Other Services to Buildings and Dwellings, Including Catalyst handling	$6 million	5	11	4	21	6	25
	Total Chromium Catalyst Users				38	82	4	184	50	188
25	Refractory Brick Producers	327125	Nonclay Refractory Mfg.	750 employees	1	6	0	6	1	6
26A	Wood Working -General Industry	321	General Industry	500 employees	203	219	100	187	236	287
26B	Wood Working - Maritime Industry	336611	Ship Building and Repairing	1,000 employees[Q]	48	64	37	42	52	79

Table VIII-1. Characteristics of Industries and Application Groups Affected by OSHA's Final Standard for Hexavalent Chromium

				Affected Employees[BB]		Revenues ($)[CC]			Revenues per Entity or Establishment ($)		
	Industry or Application Group	NAICS	Category	Small Business or Government Entities	Total	Small Business or Government Entities	Establishments with < 20 Employees	Total	Small Business or Government Entities	Establishments with < 20 Employees	Total
16	Chromium Dioxide Producers	325188	All Other Inorganic Chemicals, n.e.c.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
17	Chromium Dye Producers	3251317	Chrome Colors and Other Inorganic Pigments	104	104	$213,463,839	$1,959,383	$213,463,839	$71,154,613	$1,959,383	$71,154,613
18	Chromium Sulfate Producers	325188	All Other Inorganic Chemicals, n.e.c.	4	11	$4,703,241	$11,758,103	$11,758,103	$2,351,621	$2,351,621	$3,919,368
19	Chemical Distributors	42269[V]	Other Chemical and Allied Products	2,917	3,572	$5,001,323,425	$2,283,847,465	$6,109,221,001	$4,072,739	$1,448,223	$4,856,297
20	Textile Dyeing	313 314	Textile Mills Textile Product Mills	19,798	25,341	$3,887,392,814	$329,198,101	$4,959,484,396	$3,918,743	$433,726	$4,833,805
21	Colored Glass Producers	3272123 3272129	Other Pressed and Blown Glass and Glassware Mfg. Other Pressed and Blown Glass and Glassware Mfg.	154	295	$137,970,586	$12,517,183	$263,423,990	$6,271,390	$658,799	$11,453,217
21A	Fiber, Flat, and Container Glass	327993 327211 327212 327213	Mineral Wool Manufacturing Flat Glass Manufacturing Other Pressed and Blown Glass Mfg. Glass Container Manufacturing	1,063	5,089	$798,998,481	$9,266,899	$4,860,475,189	$42,052,552	$1,853,380	$108,010,560
22	Printing	32311 323113	Printing Ink Mfg. Commercial Screen Printing\	6,289	6,600	$798,951,071	$205,371,939	$837,385,303	$1,630,512	$513,430	$1,691,687
23	Leather Tanning	3161	Leather and Hide Tanning and Finishing	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
24	Chromium Catalyst Users	325110 325120 325211 325199	Petrochemical Mfg., Including Styrene Industrial Gas Mfg., Including Hydrogen and Ammonia Gas Plastics Materials, Synthetic Resins, and Nonvulcanizable Elastomers, Including Polyethylene Industrial Inorganic Chemicals, Not Otherwise Classified, Including Butadiene and Methanol	65	243	$4,429,054,507	N/A	$16,407,633,744	$134,213,773	N/A	$231,093,433
24A	Chromium Catalyst Users - Service Companies	561790	Other Services to Buildings and Dwellings, Including Catalyst handling	121	707	$11,284,171	$5,597,660	$65,306,031	$2,256,834	$1,399,415	$5,936,912
	Total Chromium Catalyst Users			186	950	$4,440,338,679	$5,597,660	$16,472,939,775	$116,851,018	$1,399,415	$200,889,509
25	Refractory Brick Producers	327125	Nonclay Refractory Mfg.	15	90	$10,214,017	N/A	$61,284,104	$10,214,017	N/A	$10,214,017
26A	Wood Working -General Industry	321	General Industry	320	388	$1,380,484,802	$114,093,788	$1,731,495,032	$6,800,418	$1,140,938	$7,906,370
26B	Wood Working - Maritime Industry	336611	Ship Building and Repairing	261	319	$1,386,462,574	$33,973,663	$1,634,373,467	$28,884,637	$918,207	$25,537,085

Table VIII-1. Characteristics of Industries and Application Groups Affected by OSHA's Final Standard for Hexavalent Chromium

					Affected Entities[BB]		Affected Establishments[BB]			
	Industry or Application Group	NAICS	Category	SBA Small Business Classification (Limit for revenues or employment)[A]	Small Business or Government Entities	Total	< 20 Employees	≥ 20 Employees	Small Businesses	Total
26C	Wood Working - Construction Industry	2332[W], 2333[X], 2349[Y], 23551[Z]	Construction	$28.5 million[R]	7,217	7,285	5,960	1,489	7,304	7,449
26D	Wood Working - Government	999200	State	50,000 population	0	26	0	26	0	26
		999300	Local	50,000 population	27	94	0	94	27	94
	Total Wood Working				7,495	7,688	6,097	1,838	7,619	7,935
27	Solid Waste Incineration	562213	Solid Waste Combustors and Incinerators	$10.5 million	67	97	66	55	70	121
27A	Solid Waste Incineration - Government	999300	Local	50,000 population	0	33	0	33	0	33
	Total Incineration				67	130	66	88	70	154
28	Oil and Gas Well Drilling	213111	Drilling Oil and Gas Wells	500 employees	N/A	N/A	N/A	N/A	N/A	N/A
29	Portland Cement Producers	327310	Cement Mfg.	750 employees	N/A	N/A	N/A	N/A	N/A	N/A
30	Superalloy Producers and Users	331492	Secondary Smelting, Refining and Alloying of Nonferrous Metal	750 employees	1	11	0	18	1	18
		331528	Other Nonferrous Foundries	500 employees						
31B	Construction - Refractory Brick Restoration and Maintenance	235[U]	Special Trade Contractors	$12.0 million	180	180	166	18	182	184
31C	Construction - Hazardous Waste Site Work	2333[X]	Nonresidential Building Construction	$28.5 million	201	201	161	49	204	210
31CG	Hazardous Waste Site Work - Government	999200	State	50,000 population	0	1	0	1	0	1
		999300	Local	50,000 population	64	226	0	226	64	226
31D	Construction - Industrial Rehabilitation and Maintenance	23493[AA]	Industrial Nonbuilding Structure Construction	$28.5 million	231	231	221	62	240	283
31DG	Industrial Rehabilitation and Maintenance - Government	999200	State	50,000 population	0	18	0	18	0	18
		999300	Local	50,000 population	24	83	0	83	24	83
	Total Construction				700	940	548	457	714	1,005
32A	Ready-Mixed Concrete	327320	Ready Mixed Concrete Manufacturing	500 employees	N/A	N/A	N/A	N/A	N/A	N/A
32	Precast Concrete Products Producers	327331, 327332, 327390	Concrete Pipe, Brick, and Block Mfg.	500 employees	N/A	N/A	N/A	N/A	N/A	N/A
	Total Industry				42,321	44,232	31,628	20,363	44,036	51,991

Note: Total affected entities, establishments, revenue, and profit were estimated by adding entities (establishments, etc.) from each industry segment calculated by the following method:

General Industry = Welding--General Industry entities + 1/2 (remaining General Industry entities)
Maritime = Painting--Maritime entities + 1/2 (remaining Maritime entities)
Construction = Woodworking--Construction entities + 1/2 (remaining Construction entities)
Government = Painting--Government entities

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				Affected Employees[BB]		Revenues ($)[CC]			Revenues per Entity or Establishment ($)		
Industry or Application Group		NAICS	Category	Small Business or Government Entities	Total	Small Business or Government Entities	Establishments with < 20 Employees	Total	Small Business or Government Entities	Establishments with < 20 Employees	Total
26C	Wood Working - Construction Industry	2332[W], 2333[X], 2349[Y], 23551[Z]	Construction	12,947	13,952	$28,454,882,468	$5,519,795,980	$30,681,541,267	$3,942,758	$926,140	$4,211,605
26D	Wood Working - Government	999200	State	0	27	$0	N/A	$336,858,834,000	N/A	N/A	$12,956,109,000
		999300	Local	27	94	$99,090,000	N/A	$7,428,828,360	$3,670,000	N/A	$79,030,089
	Total Wood Working			13,555	14,780	$31,320,919,844	$5,667,863,431	$378,335,072,127	$4,178,909	N/A	$49,211,118
27	Solid Waste Incineration	562213	Solid Waste Combustors and Incinerators	682	2,285	$244,931,875	$107,137,116	$1,228,073,485	$3,655,700	$1,623,290	$12,660,551
27A	Solid Waste Incineration - Government	999300	Local	0	106	$0	N/A	$3,610,169,640	N/A	N/A	$109,399,080
	Total Incineration			682	2,391	$244,931,875	$107,137,116	$4,838,243,125	$3,655,700		$37,217,255
28	Oil and Gas Well Drilling	213111	Drilling Oil and Gas Wells	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
29	Portland Cement Producers	327310	Cement Mfg.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
30	Superalloy Producers and Users	331492	Secondary Smelting, Refining and Alloying of Nonferrous Metal	121	2,164	$20,351,647	N/A	$366,329,641	$20,351,647	N/A	$33,302,695
		331528	Other Nonferrous Foundries								
31B	Construction - Refractory Brick Restoration and Maintenance	235[U]	Special Trade Contractors	1,029	1,040	$161,751,294	$73,278,258	$172,810,424	$898,618	$441,435	$960,058
31C	Construction - Hazardous Waste Site Work	2333[X]	Nonresidential Building Construction	1,111	1,213	$928,919,198	$196,411,140	$1,013,517,325	$4,621,489	$1,219,945	$5,042,375
31CG	Hazardous Waste Site Work - Government	999200	State	0	2	$0	N/A	$12,956,109,000	N/A	N/A	$12,956,109,000
		999300	Local	192	677	$234,880,000	N/A	$17,957,530,960	$3,670,000	N/A	$79,458,102
31D	Construction - Industrial Rehabilitation and Maintenance	23493[AA]	Industrial Nonbuilding Structure Construction	1,139	1,684	$3,881,841,378	$690,150,104	$5,738,920,384	$16,804,508	$3,122,851	$24,843,811
31DG	Industrial Rehabilitation and Maintenance - Government	999200	State	0	18	$0	N/A	$233,209,962,000	N/A	N/A	$12,956,109,000
		999300	Local	24	83	$88,080,000	N/A	$6,542,625,720	$3,670,000	N/A	$78,826,816
	Total Construction			3,495	4,714	$5,295,471,871	$959,839,503	$277,591,475,813	$7,564,960	$1,751,532	$295,310,081
32A	Ready-Mixed Concrete	327320	Ready Mixed Concrete Manufacturing	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
32	Precast Concrete Products Producers	327331, 327332, 327390	Concrete Pipe, Brick, and Block Mfg.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total Industry			467,608	558,420	$269,586,773,181	$40,219,731,592.34	$767,562,532,462	$6,370,047	$1,271,650	$17,353,105

Note: Total affected entities, establishments, revenue, and profit were estimated by adding entities (establishments, etc.) from each industry segment calculated by the following method:

General Industry = Welding--General Industry entities + 1/2 (remaining General Industry entities)
Maritime = Painting--Maritime entities + 1/2 (remaining Maritime entities)
Construction = Woodworking--Construction entities + 1/2 (remaining Construction entities)
Government = Painting--Government entities

Footnotes to Table VIII-1

[A] SBA size standards taken from 13 CFR Ch.1 § 121.201. January 1, 2003

[B] Includes industries in NAICS 31-33, NAICS 42, NAICS 51.

[C] Except 311221 "Wet Corn Milling", 311312 "Cane Sugar Refining", 311313 "Beet Sugar Manufacturing", and 311821 Cookie and Cracker Manufacturing, which have an SBA size standard of 750 employees, and also 311223 "Other Oilseed Processing", 311225 "Fats and Oils Refining and Blending", 311230 "Breakfast Cereal Manufacturing", 311422 "Special Canning", which have an SBA size standard of 1,000 employees.

[D] Except 332811 "Metal Heat Treating," 332991 "Ball and Roller Bearing Manufacturing," and 332998 "Enameled Iron and Metal Sanitary Ware Manufacturing," all of which have an SBA size standard of 750 employees; 332431 "Metal Can Manufacturing," 332992 "Small Arms Ammunition Manufacturing," and 332994 "Small Arms Manufacturing," all of which have an SBA size standard of 1,000 employees; and 332993 "Ammunition (except Small Arms) Manufacturing," the SBA size standard for which is 1,500 employees.

[E] Except 333120 "Construction Machinery Manufacturing," 333415 "Air-Conditioning and Warm Air Heating Equipment," and 333924 Industrial Truck, Tractor, Trailer," all of which have an SBA size standard of 750 employees; and except 333313 Office Machinery Manufacturing," 333611 "Turbine and Turbine Generator Set Unit Manufacturing," and 333618 "Other Engine Equipment Manufacturing," all of which have an SBA size standard of 1,000 employees.

[F] Except for 336212 "Truck Trailer Manufacturing," 336214 "Travel Trailer and Camper Manufacturing," 336311 "Carburetor, Piston, Piston Ring and Valve Manufacturing," 336321 "Vehicular Lighting Equipment Manufacturing," 336360 "Motor Vehicle Seating and Interior Trim Manufacturing," 336370 "Motor Vehicle Metal Stamping," 336991 Motorcycle, Bicycle and Parts Manufacturing," and 336999 "All Other Transportation Equipment Manufacturing," all of which have an SBA size standard of 500 employees; 336312 "Gasoline Engine and Engine Parts Manufacturing," 336322 "Other Motor Vehicle Electrical and Electronic Equipment Manufacturing," 336330 "Motor Vehicle Steering and Suspension Components Manufacturing (except Spring)," 336340 "Motor Vehicle Brake System Manufacturing," 336350 "Motor Vehicle Transmission and Power Train Parts Manufacturing," 336391 Motor Vehicle Air-Conditioning Manufacturing," 336399 "All Other Motor Vehicle Parts Manufacturing, all of which have an SBA size standard of 750 employees; and 336411 "Aircraft Manufacturing," which has an SBA size standard of 1,500 employees.

[G] Includes industries in NAICS 332, NAICS 336, NAICS 441, and NAICS 811.

[H] Includes industries in NAICS 11, NAICS 22, NAICS 31-33, NAICS 42, NAICS 44-45, NAICS 48-49, NAICS 51, NAICS 52, NAICS 53, NAICS 54, NAICS 56, NAICS 61, NAICS 62, NAICS 71, NAICS 72, and NAICS 81.

[I] Except 336612 "Boat Building," which has an SBA size standard of 500 employees.

[J] Except 2331 "Land Subdivision and Land Development," which has an SBA size standard of $6.0 million.

[K] Except 336411 "Aircraft Manufacturing"

[L] Except 336612 "Boat Building," which has an SBA size standard of 500 employees.

[M] All of NAICS CODE 3261 have an SBA size standard of 500 employees except 326192 "Resilient Floor Covering Mfg.", the size standard for which is 750 employees.

[N] All of NAICS CODE 313 have an SBA size standard of 500 employees except 313210 "Broad Woven Fabric Mills", 313320 "Broad Woven Finishing Mills", and 313320 "Fabric Coating Mills" all of which have a size standard of 1,000 employees.

[O] All of NAICS CODE 314 have an SBA size standard of 500 employees except 314992 "Tire Cord and Tire Fabric Mill", the size standard for which is 1,000 employees.

[P] All of NAICS CODE 3161 have an SBA size standard of 500 employees except 316211 "Rubber and Plastics Footwear Mfg.", the size standard for which is 1,000 employees.

[Q] Except 336612 "Boat Building," which has an SBA size standard of 500 employees.

[R] Except 23551 which has an SBA size standard of $12 million.

[S] 1997 NAICS Code is 233, Building, Developing, and General Contracting. 2002 NAICS Code is 236, Construction of Buildings.

[T] 1997 NAICS Code is 234, Heavy Construction. 2002 NAICS Code is 236, Heavy and Civil Engineering Construction.

[U] 1997 NAICS Code is 235, Special Trades Contractors. 2002 NAICS Code is 236, Special Trades Contractors.

[V] 1997 NAICS Code is 42269, Other Chemical and Allied Products. 2002 NAICS Code is 424690, Other Chemical and Allied Products Merchant Wholesalers.

[W] 1997 NAICS Code is 2332, Residential Building Construction. 2002 NAICS Code is 23611, Residential Building Construction.

[X] 1997 NAICS Code is 2333, Nonresidential Building Construction. 2002 NAICS Code is 2362, Nonresidential Building Construction.

[Y] 1997 NAICS Code is 2349, Other Heavy Construction. 2002 NAICS Code is 237, Heavy and Civil Engineering Construction.

[Z] 1997 NAICS Code is 23551, Carpentry. 2002 NAICS Codes are 23835, Finish Carpentry Contractors, and 23813, Framing Contractors.

[AA] 1997 NAICS Code is 23493, Industrial Non-Building Structure Construction. 2002 NAICS Code is 23621, Industrial Building Construction.

[BB] "Entities" refer to business firms or governmental bodies; "establishments" refer to industrial plants. Data on affected entities, establishments, and employees are from multiple sources; see the industry profiles in Chapter II for the complete list of references.

[CC] Industry revenues were estimated from data reported in I.R.S., ***Corporation Source Book of Statistics of Income, 2002*** (IRS, 2005). Data on revenues for State and Local Governments were taken from U.S. Census Bureau, ***Government Finances: 1999-2000***, January 2003.

Source: U.S. Dept. of Labor, OSHA, Office of Regulatory Analysis, based on Shaw, 2006.

BILLING CODE 4510–26–C

Table VIII–2 shows the current exposures to Cr(VI) by application group. The exposure data relied on by OSHA in developing the exposure profile and evaluating technological feasibility were compiled in a database of exposures taken from OSHA compliance officers, site visits by OSHA contractors and the National Institute for Occupational Safety and Health (NIOSH), the U.S. Navy, published

literature, commenters on the proposed rule and other interested parties.

It is also important to note that Table VIII–2 and OSHA's cost and feasibility analyses reflect the full range of exposures occurring in each application group, not the median exposures. Some commenters (e.g., Ex. 47–27–1) misunderstood this and believed OSHA determined that only employers with median exposures above the PEL would incur costs for engineering and work practice controls. OSHA did not use exposure medians to assign compliance costs in this rulemaking. OSHA made limited use of exposure medians for only a few purposes. The first was in the analysis of baseline controls, described in the technological feasibility discussion below. Where both exposure data and information on the controls in place were available, OSHA used the median exposure level experienced in the presence of a specific type of control to assign an effectiveness level to the control. Second, to determine whether to assume baseline controls were already in place in cases where OSHA only had exposure data available, it compared median exposure levels to the median exposure levels previously assigned to baseline controls.

BILLING CODE 4510–26–P

Table VIII-2. Exposure Profile for Job Categories of Affected Workers in Each Industry Sector

Industry Sector		Job Category	Number of Exposed Workers (μg/m³) Total	Below LOD	LOD to 0.25	0.25 to 0.5	0.5 to 1.0	1.0 to 5.0	5.0 to 10.0	10.0 to 20.0	> 20.0
1	Electroplating	Hard Chrome	2,590	0	200	424	139	1,261	496	69	0
		Decorative Chrome	1,850	0	529	881	0	88	44	132	176
		Job Shop Chrome Plater	3,330	0	833	740	185	370	570	355	278
		Captive Shop Chrome Plater	2,683	0	278	1,018	370	370	370	93	185
		Job Shop Plater	13,600	0	3,365	6,083	416	1,409	924	671	732
		Captive Shop Plater	7,494	0	1,165	3,975	457	1,005	594	183	114
		Anodizer	1,943	0	795	795	88	0	177	0	88
		Operator	5,181	0	954	1,751	373	842	636	342	282
		Helper/Other	6,939	0	990	3,975	0	688	765	347	173
		Conversion Coater	21,247	0	12,301	7,828	0	1,118	0	0	0
	Subtotal Electroplating		**66,857**	**0**	**21,409**	**27,471**	**2,028**	**7,152**	**4,577**	**2,191**	**2,029**
2A	Welding	SMAW	20,391	4,690	0	0	0	3,670	2,447	6,525	3,059
	(General	GMAW	14,954	6,878	449	0	3,589	2,392	150	1,047	449
	Industry)	TIG	4,531	3,579	0	0	952	0	0	0	0
	(stainless steel/	SAW	1,812	1,812	0	0	0	0	0	0	0
	high-chromium alloy)	Plasma Cutting	467	204	0	0	0	45	23	0	195
		Plasma Welding	453	390	0	0	0	0	63	0	0
		Resistance Welding	2,718	2,718	0	0	0	0	0	0	0
	Subtotal Welding -- General Industry (stainless steel)		**45,326**	**20,271**	**449**	**0**	**4,541**	**6,107**	**2,683**	**7,572**	**3,703**
2B	Welding	SMAW	1,893	555	212	138	250	305	129	157	148
	(Maritime	GMAW	2,734	1,113	432	243	405	487	55	0	0
	Industry)	TIG	631	423	158	25	19	6	0	0	0
	(stainless steel/	FCAW	12,619	5,605	1,251	1,869	1,717	1,088	153	153	784
	high-chromium alloy)	Plasma Cutting	421	58	58	0	29	160	72	0	43
		Plasma Welding	168	0	113	55	0	0	0	0	0
		Oxy-fuel Cutting	420	106	161	76	26	26	13	13	0
		Air Carbon Arc Cutting/Gouging	167	51	15	37	7	0	22	29	7
		Electron Torch Cutting	42	42	0	0	0	0	0	0	0
		Thermal Spray Tungsten Carbide	42	0	42	0	0	0	0	0	0
		SAW	1,682	1,682	0	0	0	0	0	0	0
		Grinding	210	84	126	0	0	0	0	0	0
	Subtotal Welding -- Maritime (stainless steel)		**21,029**	**9,718**	**2,567**	**2,444**	**2,452**	**2,071**	**443**	**351**	**981**
2C	Welding	SMAW	45,338	13,284	5,078	3,310	5,985	7,299	3,083	3,763	3,536
	(Construction	Plasma Cutting	604	83	83	0	42	229	104	0	62
	Industry)	GMAW	9,067	3,690	1,433	807	1,342	1,614	181	0	0
	(stainless steel/	Brazing	4,534	0	0	0	0	0	0	4,534	0
	high-chromium alloy)	Metallizing	906	0	0	0	0	0	154	0	752
	Subtotal Welding -- Construction (stainless steel)		**60,449**	**17,058**	**6,594**	**4,117**	**7,368**	**9,143**	**3,522**	**8,297**	**4,351**

Table VIII-2. Exposure Profile for Job Categories of Affected Workers in Each Industry Sector

Industry Sector		Job Category	Number of Exposed Workers (μg/m³) Total	Below LOD	LOD to 0.25	0.25 to 0.5	0.5 to 1.0	1.0 to 5.0	5.0 to 10.0	10.0 to 20.0	> 20.0
2D	Welding	SMAW	707	207	79	52	93	114	48	59	55
	(Government)	Plasma Cutting	9	1	1	0	1	3	2	0	1
	(stainless steel/	GMAW	141	57	22	13	21	25	3	0	0
	high-chromium alloy)	Brazing	72	0	0	0	0	0	0	72	0
		Metallizing	14	0	0	0	0	0	2	0	12
	Subtotal Welding -- Government (stainless steel)		**943**	**266**	**103**	**64**	**115**	**142**	**55**	**131**	**68**
2A1	Welding	SMAW	17,360	0	0	8,680	8,680	0	0	0	0
	(General	GMAW	12,732	0	0	6,366	6,366	0	0	0	0
	Industry)	TIG	3,472	3,472	0	0	0	0	0	0	0
	(carbon steel)	SAW	1,543	1,543	0	0	0	0	0	0	0
		Plasma Cutting	386	0	0	193	193	0	0	0	0
		Plasma Welding	386	386	0	0	0	0	0	0	0
		Resistance Welding	2,315	2,315	0	0	0	0	0	0	0
		FCAW	385	0	0	154	231	0	0	0	0
		Confined Space	22,021	0	1,233	1,233	8,544	7,333	3,678	0	0
	Subtotal Welding -- General Industry (carbon steel)		**60,600**	**7,716**	**1,233**	**16,626**	**24,014**	**7,333**	**3,678**	**0**	**0**
2B1	Welding	SMAW	20	0	0	10	10	0	0	0	0
	(Maritime	GMAW	28	0	0	14	14	0	0	0	0
	Industry)	TIG	7	7	0	0	0	0	0	0	0
	(carbon steel)	FCAW	130	0	0	52	78	0	0	0	0
		Plasma Cutting	4	0	0	2	2	0	0	0	0
		Plasma Welding	2	2	0	0	0	0	0	0	0
		Oxy-fuel Cutting	4	0	0	2	2	0	0	0	0
		Air Carbon Arc Cutting/Gouging	2	0	0	1	1	0	0	0	0
		Electron Torch Cutting	0	0	0	0	0	0	0	0	0
		Thermal Spray Tungsten Carbide	0	0	0	0	0	0	0	0	0
		SAW	18	18	0	0	0	0	0	0	0
		Grinding	2	2	0	0	0	0	0	0	0
		Confined Space	412	0	23	23	160	137	69	0	0
	Subtotal Welding -- Maritime (carbon steel)		**629**	**29**	**23**	**104**	**267**	**137**	**69**	**0**	**0**
2C1	Welding	SMAW	42,720	0	0	21,360	21,360	0	0	0	0
	(Construction	Plasma Cutting	0	0	0	0	0	0	0	0	0
	Industry)	GMAW	8,750	0	0	4,375	4,375	0	0	0	0
	(carbon steel)	Brazing	0	0	0	0	0	0	0	0	0
		Metallizing	0	0	0	0	0	0	0	0	0
		Confined Space	28,934	0	1,619	1,619	11,228	9,636	4,832	0	0
	Subtotal Welding -- Construction (carbon steel)		**80,404**	**0**	**1,619**	**27,354**	**36,963**	**9,636**	**4,832**	**0**	**0**

Table VIII-2. Exposure Profile for Job Categories of Affected Workers in Each Industry Sector

Industry Sector		Job Category	Number of Exposed Workers (μg/m³) Total	Below LOD	LOD to 0.25	0.25 to 0.5	0.5 to 1.0	1.0 to 5.0	5.0 to 10.0	10.0 to 20.0	> 20.0
3A	Painting	Spray Painter (Aerospace)	3,921	274	657	247	298	874	321	490	760
		Assembler (Aerospace)	2,895	955	492	608	492	116	116	0	116
		Operator (Coil Coating)	1,171	772	129	0	176	94	0	0	0
		Maintenance (Coil Coating)	390	390	0	0	0	0	0	0	0
3A1	Painting	Spray Painter (Auto Body Repair)	4,346	0	217	2,173	0	217	435	869	435
		Sander (Auto Body Repair)	24,820	0	8,191	12,410	0	0	2,730	1,489	0
	Subtotal Painting -- General Industry		**37,543**	**2,391**	**9,686**	**15,438**	**966**	**1,301**	**3,602**	**2,848**	**1,311**
3B	Painting	Spray Painter	135	24	16	0	8	47	16	8	16
	(Maritime	Abrasive Blaster	1,510	121	91	151	106	559	106	106	272
	Industry)	Grinder/Sander	1,510	393	242	151	181	393	151	0	0
	Subtotal Painting -- Maritime		**3,155**	**538**	**348**	**302**	**295**	**998**	**273**	**114**	**288**
3C	Painting	Spray painter	16,304	4,891	4,402	1,141	1,956	1,630	1,141	326	815
	(Construction)	Laborer	16,304	1,793	3,587	0	7,337	3,587	0	0	0
		Traffic painter	800	0	100	600	0	0	100	0	0
	Subtotal Painting -- Construction		**33,408**	**6,684**	**8,089**	**1,741**	**9,293**	**5,217**	**1,241**	**326**	**815**
3D	Painting	Spray painter	4,074	1,222	1,100	285	489	407	285	81	204
	(Government)	Laborer	4,074	448	896	0	1,833	896	0	0	0
	Subtotal Painting -- Government		**8,147**	**1,670**	**1,996**	**285**	**2,322**	**1,304**	**285**	**81**	**204**
4	Chromate	Process Operators	65	1	39	11	13	1	0	0	0
	(Chromite Ore)	Packaging Workers	21	0	7	0	5	9	0	0	0
	Production	Maintenance workers	42	0	32	2	6	2	0	0	0
		Other Exposed Workers	22	0	11	11	0	0	0	0	0
	Subtotal Chromate Production		**150**	**1**	**89**	**24**	**24**	**12**	**0**	**0**	**0**
5	Chromate	Strike Tank Operator	6	0	0	0	0	4	0	1	1
	Pigment	Drying/Blending/Packaging Operator	6	0	0	0	0	2	0	1	3
	Producers	Maintenance Worker	6	0	0	0	1	0	0	1	4
		Laborer	6	0	0	0	0	3	0	0	3
		Laboratory Technician	9	0	0	0	0	5	2	0	2
		Wastewater Treatment Operator	6	0	0	0	0	0	2	2	2
		Manager/Supervisor	7	0	0	0	0	2	1	1	3
		Proprietary Process Operator	3	0	0	0	0	0	0	0	3
		Dispersion Operator	3	0	0	0	0	0	0	0	3
	Subtotal Chromate Pigment Producers		**52**	**0**	**0**	**0**	**1**	**16**	**5**	**6**	**24**

Table VIII-2. Exposure Profile for Job Categories of Affected Workers in Each Industry Sector

Industry Sector		Job Category	Number of Exposed Workers (μg/m³) Total	Below LOD	LOD to 0.25	0.25 to 0.5	0.5 to 1.0	1.0 to 5.0	5.0 to 10.0	10.0 to 20.0	> 20.0
6	Chromated Copper Arsenate (CCA) Producers	Production Operator	15	0	0	0	5	5	5	0	0
		Production Supervisor	6	0	6	0	0	0	0	0	0
		CCA Truck Loader	3	0	3	0	0	0	0	0	0
		Warehouse Operator	3	0	3	0	0	0	0	0	0
	Subtotal CCA Producers		**27**	**0**	**12**	**0**	**5**	**5**	**5**	**0**	**0**
7	Chromium Catalyst Producers	Wet Process Operator	34	0	0	0	1	19	2	2	10
		Dry Process Operator	35	0	0	0	2	5	0	20	8
		Screening Operator	16	0	2	4	8	0	2	0	0
		Quality Control Inspector	15	0	15	0	0	0	0	0	0
		Dry Mix Operator	52	0	52	0	0	0	0	0	0
		Process Control Operator	12	0	12	0	0	0	0	0	0
		Control Room Operator	3	0	0	3	0	0	0	0	0
		Forming Operator	9	0	0	0	0	9	0	0	0
		Team Leader	6	0	0	6	0	0	0	0	0
		Lead Person	4	0	0	0	0	1	1	2	0
		Floor Person	31	0	0	4	5	18	2	1	1
		Warehouse Operator	24	0	16	8	0	0	0	0	0
		Maintenance Person	60	0	30	0	15	15	0	0	0
		Solid Waste Handler	12	0	0	0	0	4	4	4	0
	Subtotal Chromium Catalyst Producers		**313**	**0**	**127**	**25**	**31**	**71**	**11**	**29**	**19**
8	Paint and Coatings Producers	Batchmaker	1,201	400	75	38	38	150	0	21	479
		Packager	600	0	600	0	0	0	0	0	0
		Shipping/receiving Technician	384	0	384	0	0	0	0	0	0
		Laboratory Chemist Technician	384	0	384	0	0	0	0	0	0
	Subtotal Paint and Coating Producers		**2,569**	**400**	**1,443**	**38**	**38**	**150**	**0**	**21**	**479**
9	Printing Ink Producers	Batch Weigher	68	4	0	0	17	47	0	0	0
		Mill Operator	16	4	4	0	0	8	0	0	0
		Utility Worker	12	6	0	0	0	6	0	0	0
		Maintenance Worker	3	0	0	3	0	0	0	0	0
		Production Supervisor	13	13	0	0	0	0	0	0	0
	Subtotal Printing Ink Producers		**112**	**27**	**4**	**3**	**17**	**61**	**0**	**0**	**0**
10	Plastic Colorant Producers and Users	Dry Color Handler	348	0	0	0	0	232	35	58	23
		Wet Mill Operator	30	0	15	15	0	0	0	0	0
		Dry Color Blender/packager	40	0	0	0	0	18	1	6	15
		Production Supervisor	74	37	0	0	0	0	0	0	37
	Subtotal Plastic Colorant Producers and Users		**492**	**37**	**15**	**15**	**0**	**250**	**36**	**64**	**75**

Table VIII-2. Exposure Profile for Job Categories of Affected Workers in Each Industry Sector

Industry Sector		Job Category	Number of Exposed Workers ($\mu g/m^3$) Total	Below LOD	LOD to 0.25	0.25 to 0.5	0.5 to 1.0	1.0 to 5.0	5.0 to 10.0	10.0 to 20.0	> 20.0
11	Plating Mixture Producers	Blender/Mixer Operator-Dry Chrome Process	22	0	0	0	0	22	0	0	0
		Blender/Mixer Operator-Liquid Chrome Process	80	0	0	80	0	0	0	0	0
		Laboratory Chemist	16	0	16	0	0	0	0	0	0
	Subtotal Plating Mixture Producers		**118**	**0**	**16**	**80**	**0**	**22**	**0**	**0**	**0**
12	Wood Preserving	Not Applicable	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
13	Chromium Metal Producers	Leach Operator	8	0	0	8	0	0	0	0	0
		Ager Operator	4	0	0	0	0	4	0	0	0
		Lower-cell-room Operator	4	0	0	0	4	0	0	0	0
		Cell Assembler	4	0	0	0	0	4	0	0	0
		Cell Operator	4	0	0	0	4	0	0	0	0
		Plate Hooker	5	0	0	0	0	0	5	0	0
		Plater Stripper	9	0	0	0	9	0	0	0	0
		Mill Operator	4	2	2	0	0	0	0	0	0
		Blender Operator	1	0	1	0	0	0	0	0	0
		Briquetting Operator	1	0	1	0	0	0	0	0	0
		Furnace Loader	3	3	0	0	0	0	0	0	0
		Furnace Operator	3	3	0	0	0	0	0	0	0
		VG Picker	3	0	3	0	0	0	0	0	0
		Brick Layer	3	3	0	0	0	0	0	0	0
		Shipper	3	3	0	0	0	0	0	0	0
		Bagger	4	2	1	1	0	0	0	0	0
	Subtotal Chromium Metal Producers		**63**	**16**	**8**	**9**	**17**	**8**	**5**	**0**	**0**
14	Steel Mills (stainless)	Raw Material Handler	412	0	0	206	206	0	0	0	0
		Furnace Operator	1,260	0	832	214	214	0	0	0	0
		Furnace Helper/Laborer	1,563	391	0	203	297	672	0	0	0
		Crane Operator	1,014	0	254	0	121	639	0	0	0
		Continuous Casting Operator	466	0	233	233	0	0	0	0	0
		Rolling-Mill Operator	1,808	868	108	542	145	145	0	0	0
		Welder	1,219	0	49	0	158	317	49	463	183
		Steel Conditioning Operator	1,534	0	0	1023	0	511	0	0	0
	Subtotal Steel Mills (stainless)		**9,276**	**1,259**	**1,476**	**2,421**	**1,141**	**2,284**	**49**	**463**	**183**

Table VIII-2. Exposure Profile for Job Categories of Affected Workers in Each Industry Sector

Industry Sector		Job Category	Number of Exposed Workers (μg/m³) Total	Below LOD	LOD to 0.25	0.25 to 0.5	0.5 to 1.0	1.0 to 5.0	5.0 to 10.0	10.0 to 20.0	> 20.0
14A	Steel Mills (carbon)	Raw Material Handler	1,302	0	651	651	0	0	0	0	0
		Furnace Operator	3,991	2635	678	678	0	0	0	0	0
		Furnace Helper/Laborer	4,945	1236	643	940	2126	0	0	0	0
		Crane Operator	3,210	803	0	385	2022	0	0	0	0
		Continuous Casting Operator	1,476	738	738	0	0	0	0	0	0
		Rolling-Mill Operator	5,726	3092	1718	458	458	0	0	0	0
		Welder	3,860	0	154	502	1004	154	1467	579	0
		Steel Conditioning Operator	4,858	0	3255	0	1603	0	0	0	0
	Subtotal Steel Mills (carbon)		**29,368**	**8,504**	**7,837**	**3,614**	**7,213**	**154**	**1,467**	**579**	**0**
14B	Reshaping (stainless)	Raw Material Handler	70	0	0	35	35	0	0	0	0
		Laborer	266	128	16	80	21	21	0	0	0
		Crane Operator	172	0	43	0	21	108	0	0	0
		Rolling-Mill/Forging Operator	307	147	18	92	25	25	0	0	0
		Steel Conditioning Operator	261	0	0	175	0	86	0	0	0
	Subtotal Reshaping		**1,076**	**275**	**77**	**382**	**102**	**240**	**0**	**0**	**0**
15	Iron and Steel Foundries	Molders	12,024	2,669	4,016	1,335	2,669	1,335	0	0	0
		Furnace Operator	1,728	0	1,083	359	143	143	0	0	0
		Crane Operator	1,530	0	0	383	256	891	0	0	0
		Pourers	1,584	0	1,584	0	0	0	0	0	0
		Shake-out and Abrasive Blasting Operators	396	0	0	0	0	396	0	0	0
		Torch Cutter/Gouger	792	0	0	99	198	0	198	99	198
		Welder	1,782	0	0	223	445	0	445	223	446
		Grinder Operator	6,480	648	3,888	648	0	1,296	0	0	0
		Laborer	3,906	867	1,304	434	867	434	0	0	0
	Subtotal Iron and Steel Foundries		**30,222**	**4,184**	**11,875**	**3,481**	**4,578**	**4,495**	**643**	**322**	**644**

Table VIII-2. Exposure Profile for Job Categories of Affected Workers in Each Industry Sector

Industry Sector		Job Category	Number of Exposed Workers (μg/m³) Total	Below LOD	LOD to 0.25	0.25 to 0.5	0.5 to 1.0	1.0 to 5.0	5.0 to 10.0	10.0 to 20.0	> 20.0
16	Chromium Dioxide Producers	Not Applicable	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
17	Chromium Dye Producers	Color Maker	16	0	0	0	0	11	0	1	4
		Drying/Blending/Packaging Operator	30	0	0	0	0	9	0	3	18
		Maintenance Worker	10	0	0	0	0	2	0	2	6
		Laborer	20	0	0	0	0	10	0	0	10
		Laboratory Technician	9	0	0	0	0	5	2	0	2
		Wastewater Treatment Operator	9	0	0	0	0	0	3	3	3
		Manager/Supervisor	10	0	0	0	0	3	1	1	5
	Sub Total Chromium Dye Producers		**104**	**0**	**0**	**0**	**0**	**40**	**6**	**10**	**48**
18	Chromium Sulfate Producers	Reactor Operators	6	0	3	0	0	3	0	0	0
		Railcar Operators	5	0	5	0	0	0	0	0	0
	Subtotal Chromium Sulfate Producers		**11**	**0**	**8**	**0**	**0**	**3**	**0**	**0**	**0**
19	Chemical Distributors	Shipping	3,572	3,572	0	0	0	0	0	0	0
20	Textile Dyeing	Blender	7,926	3,963	0	3,963	0	0	0	0	0
		Dyer	16,125	13,384	2,741	0	0	0	0	0	0
		Maintenance Worker	1,290	645	645	0	0	0	0	0	0
	Subtotal Textile Dyeing		**25,341**	**17,992**	**3,386**	**3,963**	**0**	**0**	**0**	**0**	**0**
21	Colored Glass Producers	Lab Assistant	7	3	2	0	0	2	0	0	0
		Batch Mixer	43	43	0	0	0	0	0	0	0
		Furnace Worker	245	245	0	0	0	0	0	0	0
	Subtotal Colored Glass Producers		**295**	**291**	**2**	**0**	**0**	**2**	**0**	**0**	**0**
21A	Fiber and Other Glass Producers	Batch Operator	468	70	250	37	0	37	37	37	0
		Furnace Operator	1,620	373	989	81	0	113	32	32	0
		EP/Baghouse Operator	72	36	36	0	0	0	0	0	0
		Forehearth Operator	648	110	428	0	0	110	0	0	0
		Hot End Repair/Maintenance	2,281	0	1665	0	0	456	0	0	160
	Subtotal Fiber and Other Glass Producers		**5,089**	**589**	**3,368**	**118**	**0**	**716**	**69**	**69**	**160**

Table VIII-2. Exposure Profile for Job Categories of Affected Workers in Each Industry Sector

Industry Sector		Job Category	Number of Exposed Workers (μg/m³) Total	Below LOD	LOD to 0.25	0.25 to 0.5	0.5 to 1.0	1.0 to 5.0	5.0 to 10.0	10.0 to 20.0	> 20.0
22	Printing	Printer	5,700	5,700	0	0	0	0	0	0	0
		Mixer	200	200	0	0	0	0	0	0	0
		Shipper	700	700	0	0	0	0	0	0	0
	Subtotal Printing		**6,600**	**6,600**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
23	Leather Tanning	Not Applicable	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
24	Chromium Catalyst Users	Process Operators, Phillips Polyethylene Plants	112	38	28	11	15	10	10	0	0
		Process Operators, all Catalyst Plants except Phillips Polyethylene Plants	131	0	22	43	22	22	22	0	0
		Field Technician	707	0	119	231	119	119	119	0	0
	Subtotal Chromium Catalyst Users		**950**	**38**	**169**	**285**	**156**	**151**	**151**	**0**	**0**
25	Refractory Brick Producers	Cleaner	6	0	6	0	0	0	0	0	0
		Crusher Operator	12	0	12	0	0	0	0	0	0
		Pressman	12	0	12	0	0	0	0	0	0
		Batchman	18	3	9	3	3	0	0	0	0
		Mold Filler	6	0	6	0	0	0	0	0	0
		Brick Loader	18	0	9	0	9	0	0	0	0
		Grinder Operator	6	6	0	0	0	0	0	0	0
		Saw Operator	6	6	0	0	0	0	0	0	0
		Engineering Intern	6	6	0	0	0	0	0	0	0
	Subtotal Refractory Brick Producers		**90**	**21**	**54**	**3**	**12**	**0**	**0**	**0**	**0**
26	Woodworking	Construction	13,952	4,651	0	4,651	0	3,100	0	1,550	0
		Maritime	319	239	80	0	0	0	0	0	0
		General Industry	388	334	0	0	0	0	0	54	0
		Government	121	40	0	40	0	27	0	14	0
	Subtotal Woodworking		**14,780**	**5,264**	**80**	**4,691**	**0**	**3,127**	**0**	**1,618**	**0**
27	Solid Waste Incineration	Laborer	741	296	0	149	296	0	0	0	0
		Shredder/Heavy Equipment Operator	451	451	0	0	0	0	0	0	0
		Maintenance Mechanic/ Maintenance Helper	451	225	0	113	113	0	0	0	0
		Boiler Operator/Assistant Operator	290	217	0	0	73	0	0	0	0
		Maintenance Electrician	224	112	0	112	0	0	0	0	0
		Truck Operator (ash hauling)	128	64	0	64	0	0	0	0	0
	Subtotal Solid Waste Incineration		**2,285**	**1,365**	**0**	**438**	**482**	**0**	**0**	**0**	**0**

Table VIII-2. Exposure Profile for Job Categories of Affected Workers in Each Industry Sector

Industry Sector		Job Category	Number of Exposed Workers (μg/m³) Total	Below LOD	LOD to 0.25	0.25 to 0.5	0.5 to 1.0	1.0 to 5.0	5.0 to 10.0	10.0 to 20.0	> 20.0
27A	Solid Waste Incineration (government)	Laborer	34	14	0	6	14	0	0	0	0
		Shredder/Heavy Equipment Operator	21	21	0	0	0	0	0	0	0
			0								
		Maintenance Mechanic/ Maintenance Helper	21	11	0	5	5	0	0	0	0
		Boiler Operator/Assistant Operator	14	10	0	0	4	0	0	0	0
		Maintenance Electrician	10	5	0	5	0	0	0	0	0
		Truck Operator (ash hauling)	6	3	0	3	0	0	0	0	0
	Subtotal Solid Waste Incineration -- Government		**106**	**64**	**0**	**19**	**23**	**0**	**0**	**0**	**0**
28	Oil and Gas Well Drilling	Not Applicable	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
29	Portland Cement Producers	Millers	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
30	Superalloy Producers and Users	Melt Specialist	72	72	0	0	0	0	0	0	0
		Reclaim Weigh Operator	72	0	0	72	0	0	0	0	0
		EAF Operator	48	0	48	0	0	0	0	0	0
		VIM/AIM Furnace Operator	168	84	56	28	0	0	0	0	0
		Crane Operator	143	0	36	0	17	90	0	0	0
		Refining Unit Operator	236	236	0	0	0	0	0	0	0
		Floor Person	800	400	400	0	0	0	0	0	0
		Welder	40	30	0	0	0	0	0	10	0
		Inert Screener	8	8	0	0	0	0	0	0	0
		Laboratory Technician	144	86	58	0	0	0	0	0	0
		Machine Operator	288	262	26	0	0	0	0	0	0
		Maintenance Worker	144	144	0	0	0	0	0	0	0
	Subtotal Superalloy Producers		**2,163**	**1,322**	**624**	**100**	**17**	**90**	**0**	**10**	**0**
31	Construction	Refractory Brick Repairer	1,040	156	104	0	156	520	52	52	0
		Hazardous Waste Site Worker	1,213	910	230	73	0	0	0	0	0
		Industrial Rehabilitation	1,684	1,684	0	0	0	0	0	0	0
	Subtotal Construction -- Other Operations		**3,937**	**2,750**	**334**	**73**	**156**	**520**	**52**	**52**	**0**

Table VIII-2. Exposure Profile for Job Categories of Affected Workers in Each Industry Sector

Industry Sector		Job Category	Number of Exposed Workers ($\mu g/m^3$) Total	Below LOD	LOD to 0.25	0.25 to 0.5	0.5 to 1.0	1.0 to 5.0	5.0 to 10.0	10.0 to 20.0	> 20.0
31	Construction	Hazardous Waste Site Worker	679	509	129	41	0	0	0	0	0
	(government)	Industrial Rehabilitation	101	101	0	0	0	0	0	0	0
	Subtotal Construction -- Other Operations -- Government		**780**	**610**	**129**	**41**	**0**	**0**	**0**	**0**	**0**
32A	Ready-Mixed Concrete	Truck Driver	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
32	Precast Concrete Products Producer	Mixer	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total		**558,431**	**121,522**	**85,249**	**115,769**	**104,638**	**62,957**	**27,759**	**25,154**	**15,382**

Source: U.S. Dept. of Labor, OSHA, Office of Regulatory Analysis, 2006.

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In all sectors OSHA has used the best available information to determine baseline exposures and technological feasibility. Throughout the rulemaking process OSHA requested industry-specific information. These requests included site visits, discussions with industry experts and trade associations, the 2002 Request for Information (RFI), and the SBREFA process. These requests continued through the proposal and the public hearing process where OSHA continued to request information. OSHA reviewed all the data submitted to the record and where appropriate updated the exposure profile. For exposure information to be useful in the profile, only individual personal exposures representing a full shift were used.

As noted earlier, OSHA used a variety of sources to obtain information about exposures in each application group. These sources include: NIOSH Health Hazard Evaluations (HHEs), OSHA's Integrated Management Information System (IMIS) exposure data, data from other government agencies, published literature, OSHA/NIOSH site visits, discussions with industry experts and trade associations, and data submitted to the OSHA record. In some instances OSHA's contractor had difficulty obtaining permission to perform site visits in a specific application group. For instance, OSHA's contractor could obtain permission to conduct a site visit only at a steel mill that used the teeming and primary rolling method—in contrast to continuous casting, now used in approximately 95 percent of steel mills. In these few cases, OSHA acknowledged these potential problems and OSHA (or its contractor) discussed its concerns with industry experts and used their professional judgment to determine technological feasibility.

In response to the exposure data submitted to the record OSHA has made the following major changes to the exposure profile:

- Electroplating—Revised the exposure distribution for hard chrome electroplating to use only the more-detailed exposure data from site visits and other NIOSH reports.
- Welding—In construction, OSHA used exposure data from the maritime sector for analogous operations to supplement the exposure profile. Added additional exposure data to the profile as provided to the record.
- Painting—Revised the exposure profile to reflect the additional aerospace exposure data submitted to the record.
- Steel Mills—Revised the exposure profile to reflect additional exposure data supplied to the record; welders were added directly to this application group.
- Chromium Catalyst Users—Revised the exposure profile based on additional exposure data from a NIOSH HHE.
- Wood working—Added information from the record.
- Construction—Revised the exposure profile to reflect the additional exposure information submitted to the record.

Detailed information on the changes made in the exposure profile for each application group can be found in Chapter III of the Final Economic Analysis.

OSHA's analysis of technological feasibility examined employee exposures at the operation or task level to the extent that such data were available. There are approximately 558,000 workers exposed to Cr(VI), of which 352,000 are exposed above 0.25 micrograms per cubic meter and 68,000 above the PEL of 5 micrograms per cubic meter.

C. Technological Feasibility

In Chapter III of OSHA's FEA, OSHA assesses the current exposures and the technological feasibility of the final standard in all affected industry sectors. The analysis presented in this chapter is organized by application group and analyzes employee exposures at the operation or task level to the extent that such data are available. Accordingly, OSHA collected exposure data at the operation or task level to identify the Cr(VI)-exposed workers or job operations that need to improve their process controls to achieve exposures at or below the PEL. In the few instances where there were insufficient exposure data, OSHA used analogous operations to characterize these operations.

In general, OSHA considered the following kinds of controls that could reduce employee exposures to Cr(VI): local exhaust ventilation (LEV), which could include maintenance or upgrade of the current local exhaust ventilation or installation of additional LEV; process enclosures that would isolate the worker from the exposure; process modifications that would reduce the generation of Cr(VI) dust or fume in the work place; improved general dilution ventilation including assuring that adequate make-up air is supplied to the work place; improved housekeeping; improved work practices; and the supplemental use of respiratory protection if engineering and work practice controls were not sufficient to meet the PEL.

The technologies used in this analysis are commonly known, readily available and are currently used to some extent in the affected industries and processes. OSHA's assessment of feasible controls and the exposure levels they can achieve is based on information collected by Shaw Environmental, Inc. (Ex. 50), a consultant to OSHA, on the current exposure levels associated with existing controls, on the availability of additional controls needed to reduce employee exposures, and on other evidence presented in the docket.

Through the above analysis, OSHA finds that a PEL of 5 $\mu g/m^3$ is technologically feasible for most operations in all affected industries through the use of engineering and work practice controls. As discussed further below, the final rule requires that when painting of aircraft or large aircraft parts is performed in the aerospace industry, the employer is only required to use engineering and work practice controls to reduce employee exposures to Cr(VI) to or below 25 $\mu g/m^3$. The employer must then use respiratory protection to achieve the PEL. Apart from this limited exception, all other industries can achieve the PEL with only minimal reliance on respiratory protection. Table VIII–3 shows OSHA's estimate of respirator use by industry for each of the PELs that OSHA considered. At the final PEL of 5 $\mu g/m^3$, only 3.5 percent of exposed employees will be required to use respirators.

In only three sectors will respirator use be required for more than 5 percent of exposed employees. In two of these sectors, chromate pigment producers and chromium dye producers, use of respirators will be intermittent. The third sector, stainless steel welding, presents technological challenges in certain environments such as confined spaces. OSHA has concluded that, with a few limited exceptions which are discussed below, employers will be able to reduce exposures to the PEL through the use of engineering and work practice controls.

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Table VIII-3. Estimated Number of Hexavalent Chromium-Exposed Workers Requiring Respirators after Application of Engineering and Work Practice Controls (by Industry and Alternative PEL)

Industry	Total No. of Exposed Employees	Number of Employees Requiring Respirators and Percentage of All Exposed Employees					
		0.25	0.5	1	5	10	20
		PEL (μg/m³)					
Electroplating	66,859	10,171	5,701	964	0	0	0
		15.2%	8.5%	1.4%	0.0%	0.0%	0.0%
Welding - General Industry (stainless steel)	45,326	23,328	17,627	12,360	7,230	1,862	189
Welding –Maritime (stainless steel)	21,029	5,735	2,220	1,547	940	787	23
Welding – Construction (stainless steel)	60,450	28,756	20,721	14,377	5,875	2,261	840
Welding – Government (stainless steel)	942	407	302	224	93	36	13
Welding Stainless Steel Grand Total	*127,746*	*58,225*	*41,982*	*28,509*	*14,353*	*5,009*	*1,066*
		45.6%	*32.9%*	*22.3%*	*11.2%*	*3.9%*	*0.8%*
Welding - General Industry (carbon steel)	60,600	32,784	13,147	5,511	920	0	0
Welding – Maritime (carbon steel)	629	468	246	103	17	0	0
Welding - Construction (carbon steel)	80,404	32,784	17,275	7,241	1,208	0	0
Welding Carbon Steel Grand Total	*141,633*	*72,273*	*30,668*	*12,856*	*2,145*	*0*	*0*
		51.0%	*21.7%*	*9.1%*	*1.5%*	*0.0%*	*0.0%*
Painting - General Industry	37,543	11,037	10,802	1,350	810	704	432
Painting – Construction	33,408	17,120	15,978	5,543	1,460	326	815
Painting – Maritime	3,155	1,839	1,518	1,518	321	321	321
Painting – Government	8,147	4,278	3,993	1,385	366	81	203
Grand Total Painting	*82,253*	*34,274*	*32,291*	*9,796*	*2,957*	*1,432*	*1,771*
		41.7%	*39.3%*	*11.9%*	*3.6%*	*1.7%*	*2.2%*
Producers of Chromates	150	75	**21**	**21**	0	0	0
		50.0%	14.0%	14.0%	0.0%	0.0%	0.0%
Chromate Pigment Producers	52	39	**18**	**18**	**6**	**6**	**6**
		75.0%	**34.6%**	**34.6%**	**11.5%**	**11.5%**	**11.5%**
Chromated Copper Arsenate Producers	27	6	0	0	0	0	0
		22.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Chromium Catalyst Producers	313	125	85	**85**	0	0	0
		39.9%	27.2%	**27.2%**	0.00%	0.00%	0.00%
Paint and Coatings Producers	2,569	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Table VIII-3, contd. Estimated Number of Hexavalent Chromium-Exposed Workers Requiring Respirators after Application of Engineering and Work Practice Controls (by Industry and Alternative PEL)

Printing Ink Producers	112	85	**85**	**0**	0	0	0
		75.9%	**75.9%**	**0.00%**	0.00%	0.00 %	0.00 %
Plastic Colorant Producers and Users	492	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Plating Mixture Producers	118	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Ferrochromium Producers	63	7	0	0	0	0	0
		11.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Steel Mills – Stainless Steel	9,276	1,236	1,180	0	0	0	0
Steel Mills – Carbon Steel	29,368	3,230	3,207	0	0	0	0
Downstream (Forging/Hot Rolling Mills)	1,076	0	0	0	0	0	0
Steel Mills – Grand Total	*39,720*	*4,466*	*4,387*	*0*	*0*	*0*	*0*
		11.2%	*11.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Iron and Steel Foundries	30,222	2,577	0	0	0	0	0
		8.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Chromium Dye Producers	104	**103**	**103**	**103**	**64**	**58**	**45**
		99.0%	**99.0%**	**99.0%**	**61.5%**	**55.8 %**	**43.3 %**
Chromium Sulfate Producers	11	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Chemical Distributors	3,572	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Textile Dyeing	25,341	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Producers of Glass	5,384	612	612	612	177	177	177
		11.4%	11.4%	11.4%	3.3%	3.3%	3.3%
Printing	6,600	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Chromium Catalyst Users	949	**705**	**705**	**705**	0	0	0
		74.3%	**74.3%**	**74.3%**	0.0%	0.0%	0.0%
Producers of Refractory Brick	90	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Wood Working	14,780	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Table VIII-3, contd. Estimated Number of Hexavalent Chromium-Exposed Workers Requiring Respirators after Application of Engineering and Work Practice Controls (by Industry and Alternative PEL)

Solid Waste Incinerations	2,391	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Non-Ferrous Metallurgical Uses of Chromium	2,164	39	39	0	0	0	0
		1.8%	1.8%	0.0%	0.0%	0.0%	0.0%
Construction – Other[1]	4,069	90	0	0	0	0	0
		2.2%	0.0%	0.0%	0.0%	0.0%	0.0%
All Industries	*558,431*	*191,290*	*116,697*	*53,123*	*19,702*	*6,682*	*3,065*
		34.3%	*20.9%*	*9.5%*	*3.5%*	*1.2%*	*0.6%*

Bold numbers indicate intermittent use.
[1]"Construction – Other" includes industrial rehabilitation and maintenance, hazardous waste site work, and refractory restoration and maintenance.
Source: U.S. Dept. of Labor, OSHA, Directorate of Standards and Guidance, 2006.

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In determining technological feasibility OSHA has used the median to describe the exposure data. Since the median is a statistical term indicating the central point of a sequence of numbers (50 percent below and 50 percent above) it best describes exposures for most people. The median is also a good substitute for the geometric mean for a log normal distribution which often describes exposure data. As described by the Color Pigments Manufacturers Association, Inc. (CPMA) in an economic impact study by IES Engineers:

> The exposure distribution (assuming it is log normal) can be characterized by the geometric mean and standard deviation. The median (not the average) is a reasonable estimate of the geometric mean (Ex. 47–3, p. 54).

In contrast, the use of an arithmetic mean (or average) may tend to misrepresent the exposure of most people. For example, if there are a few workers with very high exposures due to poor engineering or work practice controls, the arithmetic mean will be artificially high, not representing realistic exposures for the workers.

The technological feasibility chapter of the FEA is broken down into five main parts: Introduction, Exposure Profile, Baseline Controls, Additional Controls and Substitution. The first part is an introduction to the application group, which outlines the major changes in the analysis between the Preliminary Economic Analysis and the Final Economic Analysis and addresses comments specific to the application group.

The next part of the technological feasibility analysis is the exposure profile. The exposure profile describes the prevailing exposures in each application group on a job-by-job basis. The exposure profile represents exposure situations that may be well controlled or poorly controlled. The data used to determine the current exposures were obtained from any of the following sources: OSHA site visits; the OSHA compliance database, Integrated Management Information System (IMIS); NIOSH site visits; NIOSH control technology or health hazard evaluation reports (HHE); information from the U.S. Navy; published literature; submissions by individual companies or associations; or, in a few cases, by consideration of analogous operations. While the exposure profile was developed from current exposures and is not intended to demonstrate feasibility, there were a few instances where the exposure profile was used as ancillary support for technological feasibility if there were a significant number of facilities already meeting the PEL. An example of this case can be seen in the production of colored glass, where over 90 percent of the exposure data were below 0.25 $\mu g/m^3$.

In the cases where analogous operations were used to determine exposures, OSHA used data from industries or operations where materials and exposure routes are similar. OSHA also tended to be conservative (over-estimating exposures). For example, exposure data for the bagging of pigments were used to estimate exposures for the bagging of plastic colorants. In both cases the operation consists of bagging a pigmented powder. However, exposures would tend to be higher for bagging pigments due to the fact that in pigments there is a higher percentage of Cr(VI) and the pigments tend to consist of finer particles than those in plastic colorants where the Cr(VI) particles are diluted with other ingredients. As Mr. Jeff Cox from Dominion Colour Corporation stated:

> Exposure of packers in the pigment industry, who are making a fine powder, is very much higher than packers in the plastics colorants industry, who are basically packing pellets of encapsulated product which are a few millimeters in diameter (Tr. 1710).

The use of operations that are more difficult to control to estimate analogous operations would result in an overestimate of exposures, subsequently resulting in an overestimate of the controls needed to reduce the exposures to Cr(VI) in those analogous operations.

The next section of OSHA's analysis of technological feasibility in the FEA describes the baseline controls. OSHA determined controls to be "baseline" if OSHA believed that such controls are commonly used in the application group. This should not be interpreted to mean that OSHA believes that all firms use these controls, but rather that the controls are common and widely

available in the industry. Information on the controls used in each specific application group was obtained from several different sources such as: site visits, NIOSH HHEs, industry experts, industry associations, published literature, submissions to the docket, and published reports from other federal agencies. OSHA used the median to estimate the exposure level associated with the baseline controls. For the majority of the operations, the median was calculated using the exposures directly associated with the baseline controls. However, there were a few cases where the median was calculated from the exposure profile and OSHA determined these exposures reflected the baseline controls (*e.g.*, fiberglass production).

The fourth section of the technological feasibility analysis determined the need for additional controls. If the median exposure was above the PEL with the use of baseline controls, OSHA would recommend additional engineering or work practice controls that would reduce exposures to or below the PEL. The final rule does not require an employer to use these specific controls. The engineering controls or work practices are, however, OSHA's suggestions for possible ways to achieve the PEL. Through this process a few situations could arise when the exposures with baseline exposures are above the PEL:

- Engineering and work practice controls alone: OSHA determined that additional controls would reduce worker's exposure below the PEL if: 1) the proposed additional controls were already in use at other facilities in the same application group and exposures there were below the PEL, or 2) the additional controls were used in analogous industries or operations and they were effective.
- Respiratory protection required to meet the PEL: There were a few instances where workers' exposures would remain above the PEL even with the installation of additional controls. In these cases OSHA indicated that the supplemental use of respirators may be needed (*e.g.* enclosed spray-painting operations in aerospace).
- Intermittent respiratory protection: There were instances where a worker performs specific job-related activities that could result in higher exposures above the PEL for limited periods of time. In these cases OSHA noted that the supplemental use of respirators during these activities may be necessary. For example, an employee who works in pigment production generally, may need to use a respirator only when entering the enclosure where the bagging operations take place because the enclosure is the engineering control in this operation.

The final component of the technological feasibility section in the FEA is a discussion of substitution. Here, OSHA describes the options available for eliminating or reducing the use of ingredients that either contain or can produce Cr(VI) during processing. This is primarily a discussion of the possibility of substitution. In some cases there is no readily available substitute for either chromium metal or Cr(VI) ingredients such as a non-Cr(VI) coating for corrosion control in the aerospace industry. In other cases an application group has been steadily reducing their use of Cr(VI), such as in the printing industry. In some industries there are substitutes available for at least some operations, such as the use of trivalent chromium in some decorative electroplating operations. Finally, through hearing testimony and docket submissions, OSHA received information regarding new technologies that can be used to reduce some of the sources of exposure to the workers.

In most cases OSHA does not rely on material substitution for reducing exposures to Cr(VI) to determine technological feasibility. For example, in the case of some welding operations, OSHA has determined that the use of an alternate welding process that reduces fume generation, such as the switching from shielded metal arc welding (SMAW) to gas metal arc welding (GMAW), could be effective in reducing a worker's exposure to hexavalent chromium to a level at or below the PEL. Alternatively, experiments have also shown that elimination or reduction of sodium and potassium in the flux reduces the production of Cr(VI) in the welding fume (Ex. 50). However, this technology has yet to be commercialized due to potential weld quality problems. Thus, OSHA ultimately determined that material substitution was currently not feasible for SMAW welding operations.

There were comments submitted to the record that did not agree with certain aspects of OSHA's feasibility analysis. These comments addressed:

- OSHA's use of median values to describe exposure data and failure to address costs for exposures above the PEL where the median was below the PEL;
- OSHA's use of the number of workers to determine the number of facilities needing additional controls;
- The use/validity of OSHA's analytical method; and
- The lack of data/site visits to properly characterize an application group.

Several commenters objected to OSHA's use of the median in the technological feasibility analysis. The National Coil Coating association stated:

> It is inappropriate to use median exposure values to reach a conclusion that no coil coating facility will be subject to regulatory requirements associated with exceedances of the proposed PEL. Of the 15 samples supplied, one sample exceeded the proposed PEL and another one was equal to the proposed PEL (Ex. 39–72–1).

Collier Shannon Scott, representing the Specialty Steel Industry of North America, stated:

> OSHA conducted a technological feasibility analysis to determine what engineering or administrative controls would be necessary to achieve the proposed PEL only where the median exposure value for any particular job category exceeded the proposed PEL. If correct, this means that where the median exposure value fell below 1 ug/m3, even though numerous of the exposure values for that job category were above 1 ug/m3, OSHA's analysis does not recognize that controls would have to be implemented for that job category at any facilities where that job is conducted (Ex. 47–27–1).

OSHA believes that these commenters misunderstood OSHA's use of the median value and the term ''additional controls.'' As stated earlier, OSHA used the median value to describe either the overall exposures or the effectiveness of various controls. However, to estimate the cost of controls, OSHA used the entire exposure profile. Thus, if any exposures were over the PEL, then costs for engineering controls would be assigned. If for a job category the ''baseline controls'' have been determined to reduce employee exposures to below the PEL, then OSHA would include costs for ''baseline controls'' for the percentage of the facilities that had exposures over the PEL. However, if the ''baseline'' controls would not be sufficient to reduce worker exposures to below the PEL then OSHA would cost the ''additional controls.''

Collier Shannon Scott, representing the Specialty Steel Industry of North America also stated:

> OSHA wrongly uses percentage distribution by job category to estimate the number of facilities that would be required to install engineering controls. This is a logical error. There is no connection between the number of facilities that must install controls and the percentage of employees above a given exposure level (Ex. 47–27–1).

OSHA was also concerned about accurately using individual exposures to

represent the number of facilities that would need to implement either baseline controls or additional controls. Thus, whenever exposure data were associated with individual facilities, OSHA normalized the exposure data by job category to the facility, with each facility having a weighting factor of 1. However, if exposure data varied significantly, OSHA accounted for this. For example, if fifty percent of the exposure data for a job class in a facility was above the PEL and fifty percent below the PEL, then OSHA counted this as representing 0.5 facilities above the PEL and 0.5 facilities below the PEL.

The use of this weighting system ensured that each facility received the same weight so that one facility that supplied a large amount of data would not overwhelm the exposure profile and skew the distribution in an application group. This is particularly important when there is a wide range of sizes of facilities and a large facility could outweigh a smaller facility. OSHA then used this weighting system to determine the percentage of facilities affected, so that the costs were based on a per-facility versus a per-employee basis. However, in a few instances OSHA could not use the weighting factor system because certain exposure data were presented to OSHA as representing the industry. For examples, in maritime welding and aerospace painting the exposure data could not be attributed to individual facilities but were presented to OSHA as representing a group of facilities.

There were comments about several different aspects of OSHA's analytical method. The Policy Group, representing the Surface Finishing Industry Council, was concerned about how OSHA interpreted the term non-detect (ND):

> Appropriate assessment of ND qualitative value would require that the sample specific quantitation limit be lower than any targeted analytical value, such as the new proposed AL and PEL. According to a leading OSHA/NIOSH contract laboratory (DataChem Laboratories) in the field of IH analyses, laboratories only report to the lowest calibration standard. Thus, the lowest standard value in the curve is the quantitation limit or reporting limit. This limit is the minimum value the labs generally report, regardless of any theoretical LOD value (Ex. 47–17–8).

OSHA agrees with The Policy Group's assessment and has updated the exposure profiles to reflect non-detect samples as the Limit of Quantification (LOQ) where the source of the data did not indicate the limit of detection. This is discussed in more detail in the electroplating section of the technological feasibility chapter in the FEA.

Several comments questioned whether OSHA's analytical method truly represents a worker's exposure (Ex. 38–216–1). Several other sources indicate that OSHA's analytical method ID 215 is appropriate and it accurately represents a worker's exposure. In a *Journal of Environmental Monitoring* article the authors conclude:

> * * * a field comparison of three recently developed or modified CrVI sampling and analytical methods showed no statistically significant differences among the means of the three methods based on statistical analysis of variance. The overall performances of the three CrVI methods were comparable in electroplating and spray painting operations where soluble CrVI was present. Although the findings reported herein are representative of workplace operations utilizing soluble forms of CrVI, these analytical methods (using identical sample preparation procedures) also have been shown to quantitatively measure insoluble forms of CrVI in other occupational settings. There were no significant differences observed among CrVI concentrations measured by NIOSH 7605 and OSHA ID 215 (Ex. 40–10–5).

In addition URS Corporation stated:

> The new OSHA method 215 was used to analyze samples collected during the Site Visits for Company 1 and Company 18. This method is far superior to the old OSHA method ID 103 and to other relative older methods. The new method utilizes separations of the hexavalent chromium from potential interferences prior to the analysis. It is also designed to detect much lower CrVI concentrations levels and to remove both positive and negative interferences at these lower concentrations. Furthermore, this method has been fully validated in the presence of interferences over a CrVI concentration range that includes the proposed new AL and PEL values (Ex. 47–17–8).

OSHA's analytical method ID 215 is a fully validated analytical method that can analyze Cr(VI) well below the PEL within the accuracy of measurement as specified in the final standard.

Dr. Joel Barnhart, on behalf of the Chrome Coalition, questioned how the samples were taken during the OSHA-sponsored site visits (Ex. 40–12–1). At all site visits conducted by OSHA's contractors, certified industrial hygienists (CIHs) were responsible for either taking samples or reviewing sampling data provided by the facility visited. All samples were taken following procedures from either NIOSH or OSHA which detail the type of sampler, filter and flow rates appropriate for the analytical methods used. Full details about the samples, operations they represent and engineering controls can be found in each site visit report.

Several commenters mentioned that OSHA relied solely on one site visit for an entire application group (Exs. 38–218; 38–205). While the OSHA/NIOSH site visits were important to OSHA's understanding of the processes used in the different application groups, the site visits were not the sole source of information. OSHA, as stated earlier, used many different sources to properly characterize an application group. These sources included: OSHA site visits, OSHA's compliance data base (IMIS), NIOSH site visits, NIOSH engineering control technology reports or health hazard evaluation reports, published literature, submissions by individual companies, as well as detailed discussions with industry experts. In addition, throughout the rulemaking process OSHA has requested information regarding processes, exposures, engineering controls, substitutes and other information pertinent to Cr(VI) application groups. These requests came in many forms such as stakeholder meetings, site visits, OSHA's 2002 Request for Information, and the SBREFA review. OSHA continued to update the technological feasibility analysis based on information submitted to the docket during the hearings and during the pre- and post-hearing comment periods.

OSHA also received comments specific to application groups regarding issues such as the number of employees potentially exposed, additional exposure data, and the effectiveness of controls. Comments that were application group-specific are addressed in the FEA in the individual sections on those application groups.

The major changes made to the technological feasibility analysis for the Final Economic Analysis are listed below:

- Electroplating—The number of affected workers and establishments was revised, the exposure distribution was revised for hard chrome electroplating, and chromate conversion workers and establishments were added.
- Welding—The number of maritime welders was increased, mild steel welding was added, and control technology for reducing worker exposure was revised.
- Painting—Auto body repair workers were added to general industry and traffic painting was added to construction. Control technology for reducing worker exposure was revised for aerospace spray painting.
- Chromium Catalyst Production—Control technology for reducing worker exposure was revised.

• Steel Mills—OSHA revised the distribution of steel workers, carbon steel workers were added, and downstream users (*e.g.* rolling mills and forging operations) were added to this application group.

• Glass Production—Fiber, flat, and container glass production were added.

• Producers of Pre-Cast Concrete Products—Ready mixed concrete workers were added.

• Throughout the analysis the exposure profiles were updated to reflect additional exposure data submitted to the docket.

Technological Feasibility of the New PEL: There are over 558,000 workers exposed to Cr(VI). Table VIII–2 shows the current exposures to Cr(VI) by application group. There are employers and some entire application groups that already have nearly all exposures below the PEL. However, many others will need to install or improve engineering and work practice controls to achieve the PEL.

OSHA has determined that the primary controls most likely to be effective in reducing employee exposure to Cr(VI) are local exhaust ventilation (LEV), process enclosure, process modification, and improving general dilution ventilation. In some cases, a firm may not need to upgrade its local exhaust system, but instead must ensure that the exhaust system is working to design specification throughout the process. In other cases, employers will need to upgrade or install new LEV. This includes installing duct work, a type of hood and/or a collection system. OSHA estimates that process enclosures may be necessary for difficult-to-control operations such as dusty operations. These enclosures would isolate the employees from high exposure processes and reduce the need for respirators. Process modifications can also be effective in reducing exposures in some industries to a level at or below the PEL.

Below are discussions of the types of engineering and work practice controls that may be needed for the application groups where exposures are more difficult to control.

Electroplating: OSHA has determined that the PEL of 5 μg/m³ is technologically feasible for all job categories through the use of a combination of engineering controls. For decorative plating and anodizing the vast majority (over 80 percent) of workers are already below 5 μg/m³. For the workers above the PEL, there are several control options to reduce exposures, such as properly maintained ventilation and the use of fume suppressants. Some firms may not need to upgrade their local exhaust systems, but must ensure that their current exhaust systems are working according to design specification. For example, in hard chrome electroplating (where Cr(VI) exposures are highest) nearly 100 percent of hard chrome electroplating baths have LEV at the tank; however, none of the systems inspected during site visits and for NIOSH reports were operating at the designed capabilities. Many had disconnected supply lines or holes in the hoods and were working at 40 percent of their design capabilities. In such cases, OSHA recommends that these facilities perform the proper maintenance necessary to bring the system back to its initial parameters. Even with these deficiencies in engineering controls, over 75 percent of workers are below 5 μg/m³.

In addition to improving LEV, the use of fume suppressants can further reduce the volume of Cr(VI) fumes released from the plating bath. However, OSHA was unable to conclude, based on the evidence in the record, that the proposed PEL of 1 μg/m³ would have been technologically feasible for all hard chrome electroplating operations. In particular, OSHA has significant concerns about the technological feasibility of the proposed PEL for hard chrome electroplating operations in which fume suppressants cannot be used to control exposures to Cr(VI) because they would interfere with product specifications and render the resulting product unusable.

Welding: The welding operations OSHA expects to trigger requirements under the new Cr(VI) rule are those performed on stainless steel, as well as those performed on high-chrome-content carbon steel and those performed on carbon steel in confined and enclosed spaces. At the time of the proposal, OSHA believed that carbon steel contained only trace amounts of chromium and therefore that welding on carbon steel would not be affected by the standard. Comments and evidence received during the rulemaking, however, led OSHA to conclude that 10 percent of carbon steel contains chromium in more than trace amounts; OSHA adjusted its analysis accordingly. See Tr. 581–82.

OSHA has determined that the PEL of 5 μg/m³ is technologically feasible for all affected welding job categories on carbon steel. OSHA has concluded that no carbon steel welders are exposed to Cr(VI) above 5 μg/m³, with the exception of a small portion of workers welding on carbon steel in enclosed and confined spaces. Furthermore, OSHA has determined that engineering and work practice controls are available to permit the vast majority (over 95 percent) of welding operations on carbon steel in enclosed and confined spaces to comply with a PEL of 5 μg/m³.

Although stainless steel welding generally results in higher exposures than carbon steel welding, OSHA has determined that the PEL of 5 μg/m³ is also technologically feasible for all affected welding job categories on stainless steel. Many welding processes, such as tungsten-arc welding (TIG) and submerged arc welding (SAW), already achieve Cr(VI) exposures below the PEL because they inherently generate lower fume volumes. However, the two most common welding processes, shielded metal arc welding (SMAW) and gas metal arc welding (GMAW), generate greater exposures and may require the installation or improvement of LEV (defined to include portable LEV systems such as fume extraction guns (FEG)).

OSHA has found process substitution to be the most effective method of reducing Cr(VI) exposures. For example, the generation of Cr(VI) in GMAW welding fume is approximately 4 percent of the total Cr content, compared to upwards of 50 percent for SMAW. In the proposal, OSHA estimated that all SMAW workers outside of confined spaces (over 90 percent of the welders) could switch welding processes. However, hearing testimony and comments indicated that switching to GMAW is not feasible to the extent that OSHA had originally estimated.

Some comments indicated that this conversion has already taken place where possible. For example, Atlantic Marine stated they have already ''greatly reduced the use of SMAW and replaced it with GMAW over the last several years' (Ex. 39–60). Other comments indicated it is still an ongoing process. For instance, General Dynamics stated, ''There are ongoing efforts to reduce the use of SMAW and replace it with GMAW for both efficiency and health reasons'' (Ex. 38–214). In addition, some comments expressed concerns about the quality of the weld if GMAW is used instead of SMAW. (Ex. 39–70).

In view of these concerns OSHA has revised its estimate of the percentage of SMAW welders that can switch to GMAW from 90 percent to 60 percent. This estimate is consistent with the estimate made by Edison Welding Institute in a report for the Department of Defense on Cr(VI) exposures which ''identifies engineering controls that can be effective in reducing worker exposure for many applications in the shipbuilding and repair industry'' (Ex. 35–410).

For those stainless steel SMAW operations that cannot switch to GMAW, and even for some GMAW operations, the installation or improvement of LEV may be needed and can be used to reduce exposures. OSHA has found that LEV would permit most SMAW and GMAW operations to comply with a PEL of 5 μg/m³. OSHA recognizes that the supplemental use of respirators may still be necessary in some situations. A significant portion of the welders who may need supplemental respiratory protection are working in confined spaces or other enclosed areas, where the use of engineering controls may be limited due to space constraints. However, respirator use in those circumstances will not be extensive and does not undermine OSHA's finding that the PEL of 5 μg/m³ is technologically feasible.

For a more detailed explanation of OSHA's technological feasibility analysis for all welding operations, see Chapter III of the FEA.

Aerospace: OSHA has determined that most operations in the aerospace industry can achieve a PEL of 5 μg/m³. These operations include sanding Cr(VI) coated parts, assembly, and two-thirds of the spray painting operations. Field studies have shown that use of LEV at the sanding source can reduce exposures by close to 90 percent, with workers exposures well below the final PEL of 5 μg/m³. Exposure data provided to the docket show that the spray painting operations in paint booths or paint rooms using optimum engineering controls can achieve worker exposures below the final PEL of 5 μg/m³ (excluding large parts, whole planes, or the interior of the fuselage)

OSHA recognizes that there are certain instances where the supplemental use of respirators may be necessary because engineering and work practice controls are not sufficient to reduce exposures below the PEL. For example, when spray painting large parts or entire planes in hangars, engineering controls become less effective because of the large area needing ventilation and the constantly changing position of workers in relationship to these controls. As a result, OSHA estimates that engineering and work practice controls can limit exposures to approximately 25 μg/m³ under the conditions described above and supplemental use of respirators will be needed to achieve the PEL of 5 μg/m³. Accordingly, OSHA has adopted a provision for the painting of whole aircrafts (interior or exterior) and large aircraft parts that requires employers to reduce exposures to 25 μg/m³ with engineering and work practice controls and supplement these controls with the use of respiratory protection to achieve the PEL. For a more detailed explanation of OSHA's technological feasibility analysis for aerospace painting, see Chapter III of the FEA.

Other Industries: Other application groups that generate fine dusts such as chromate pigment production, chromium catalyst production, and chromium dye production may require new or improved ventilation to achieve the PEL of 5 μg/m³. Housekeeping measures are also important for controlling Cr(VI) exposures in these industries. General housekeeping and the use of HEPA vacuums instead of dry sweeping will minimize background exposures for most job categories. For a more detailed explanation of OSHA's technological feasibility analysis for chromate pigment producers, chromium catalyst producers, and chromium dye producers, see Chapter III of the FEA.

Apart from the aerospace painting operations discussed above, OSHA recognizes that there are a few limited operations where the supplemental use of respirators may be necessary to achieve the PEL of 5 μg/m³. However, OSHA believes that the final PEL can be achieved in most operations most of the time with engineering and work practice controls. As noted previously, Table VIII–3 shows OSHA's estimate of respirator use by industry for each of the PELs that OSHA considered.

Technological Feasibility of the Proposed PEL: As discussed more thoroughly in paragraph (c) of the Summary and Explanation of the Standard and in Chapter III of the FEA, OSHA has determined that the proposed PEL of 1 μg/m³ is not feasible across all industries because it cannot be achieved using engineering and work practice controls in a substantial number of industries and operations employing a large number of workers covered by the standard (in particular, see ''Technological Feasibility of the Proposed 1 μg/m³ 8-Hour TWA PEL'' in Chapter III of the FEA). Specifically, OSHA has determined that a PEL of 1 μg/m³ is not feasible for welding, which affects the largest number of establishments and employees.

A PEL of 1 μg/m³ is also technologically infeasible for aerospace painting, where two-thirds of all spray painting operations cannot reduce exposures to at or below 1 μg/m³ using engineering and work practice controls. Finally, OSHA was unable to conclude that the proposed PEL was technologically feasible for existing facilities in several other industries or operations, such as pigment production, catalyst production, and some hard chrome electroplating operations, where a PEL of 1 μg/m³ would significantly increase the number of workers requiring respiratory protection.

D. Costs

The costs employers are expected to incur to comply with the final standard are $282 million per year. In addition, OSHA estimates that employers will incur $110 million per year to comply with the personal protective equipment and hygiene requirements already present in existing generic standards. The final requirements to provide protective clothing and equipment and hygiene areas are closely aligned with the requirements of OSHA's current generic PPE and sanitation standards (e.g., 1910.132 and 1926.95 for PPE and 1910.142 and 1926.51 for the hygiene requirements). Therefore, OSHA estimates that the marginal cost of complying with the new PPE and sanitation requirements of the Cr(VI) standard was lower for firms currently subject to and in compliance with existing generic standards. OSHA's research on these current standards, however, uncovered some noncompliance. The baseline chosen for the Cr(VI) regulatory impact analysis reflects this non-compliance with current requirements. Although OSHA estimates that employers would need to spend an additional $110 million per year to bring themselves into compliance with the personal protective equipment and hygiene requirements already prescribed in existing generic standards, this additional expenditure is not attributable to the Cr(VI) rulemaking. However, the rule does require employers to pay for PPE. In some cases where employers do not now pay for PPE, employers will incur costs they did not previously have. However, because these costs were previously borne by employees, this change does not represent a net cost to the country. OSHA estimates that employers would be essentially transferring a benefit to employees of $6 million per year, the value of the portion of the total expense now paid by employees.

All costs are measured in 2003 dollars. Any one-time costs are annualized over a ten-year period, and all costs are annualized at a discount rate of 7 percent. (A sensitivity analysis using a discount rate of 3 percent is presented in the discussion of net benefits.) The derivation of these costs is presented in Chapter IV of the full FEA. Table VIII–4 provides the annualized costs by provision and by industry. Engineering control costs represent 41 percent of the costs of the

new provisions of the final standard, and respiratory protection costs represent 25 percent of the costs of the new provisions of the final standard. Costs for the new provisions for general industry are $192 million per year, costs for constructions are $67 million per year, and costs for the shipyard sector are $23 million per year. In developing the costs for construction, OSHA assumed that all work by construction firms would be covered by the construction standard. However, in practice some work by construction firms takes the form of maintenance operations that would be covered by the general industry standard. (OSHA sought comment on this issue but received none.)

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Table VIII-4. Annualized Costs for All Establishments Affected by OSHA's Final Standard for Hexavalent Chromium (by Application Group and Regulatory Requirement for a PEL of 5 ug/m^3)

	Application Group	Engineering Controls	Initial Exposure Monitoring	Periodic Exposure Monitoring	Total Exposure Monitoring	Respirator Programs
1	Electroplating	$32,993,514	$1,868,271	$8,037,794	$9,906,066	$3,834,175
2A	Welding (general industry - stainless steel)	$26,194,600	$1,862,872	$2,105,903	$3,968,775	$19,422,964
2B	Welding (maritime industry - stainless steel)	$3,817,884	$59,010	$14,050	$73,060	$13,885,327
2C	Welding (construction industry - stainless steel)	$22,526,110	$214,945	$1,671,735	$1,886,680	$9,881,964
2D	Welding (government - stainless steel)	$70,184	$71,233	$559,456	$630,689	$152,939
2A1	Welding (general industry - carbon steel)	$5,130,000	$2,385,283	$0	$2,385,283	$4,715,849
2B1	Welding (maritime industry - carbon steel)	$109,082	$127,460	$0	$127,460	$95,580
2C1	Welding (construction industry - carbon steel)	$6,628,674	$306,615	$0	$306,615	$2,052,166
3A	Painting (general industry - aerospace)	$1,188,397	$62,640	$274,182	$336,822	$6,282,571
3A1	Painting (general industry - auto repair)	$10,698,340	$189,780	$344,421	$534,201	$767,666
3A2	Painting (general industry - coil coating)	$0	$18,408	$14,751	$33,160	$109,978
3B	Painting (maritime industry)	$140,150	$163,375	$496,135	$659,510	$2,931,363
3C	Painting (construction industry)	$0	$458,367	$2,083,165	$2,541,532	$0
3D	Painting (government)	$0	$53,594	$244,765	$298,359	$0
4	Chromate (chromite ore) production	$0	$3,054	$4,974	$8,029	$8,130
5	Chromate Pigment Producers	$36,867	$4,316	$17,667	$21,983	$47,000
6	Chromated Copper Arsenate (CCA) Producers	$0	$1,665	$3,002	$4,667	$2,680
7	Chromium Catalyst Producers	$1,693,578	$13,742	$45,282	$59,024	$34,844
8	Paint and Coatings Producers	$1,029,714	$65,401	$61,749	$127,150	$32,797
9	Printing Ink Producers	$0	$14,753	$31,046	$45,799	$18,965
10	Plastic Colorant Producers and Users	$0	$161,120	$727,007	$888,126	$267,828
11	Plating Mixture Producers	$0	$6,369	$18,439	$24,808	$6,387
12	Wood Preserving	$0	$0	$0	$0	$0
13	Chromium Material Producers	$6,400	$4,659	$4,288	$8,947	$4,797
14	Steel Mills (stainless)	$42,627	$115,093	$121,954	$237,047	$1,347,550
14A	Steel Mills (carbon)	$123,171	$284,116	$0	$284,116	$132,717
14B	Reshaping	$0	$64,940	$168,866	$233,806	$86,821
15	Iron and Steel Foundries	$940,658	$878,347	$3,546,183	$4,424,531	$2,371,966
16	Chromium Dioxide Producers	$0	$0	$0	$0	$0
17	Chromium Dye Producers	$0	$23,448	$112,263	$135,710	$57,007
18	Chromium Sulfate Producers	$0	$2,734	$3,087	$5,822	$1,919
19	Chemical Distributors	$0	$502,670	$0	$502,670	$0
20	Textile Dyeing	$0	$439,585	$0	$439,585	$0
21	Colored Glass Producers	$0	$20,185	$9,434	$29,619	$3,226
21A	Fiber, Flat, and Container Glass	$24,624	$34,764	$51,629	$86,393	$766,567
22	Printing	$0	$157,113	$0	$157,113	$0
23	Leather Tanning	$0	$0	$0	$0	$0
24	Chromium Catalyst Users	$0	$94,408	$59,347	$153,756	$566
24A	Chromium Catalyst Users (Service)	$0	$28,584	$136,534	$165,118	$0
25	Refractory Brick Producers	$0	$14,484	$0	$14,484	$0
26A	Woodworking (general industry)	$0	$75,840	$0	$75,840	$0
26B	Woodworking (maritime industry)	$0	$19,485	$0	$19,485	$0
26C	Woodworking (construction industry)	$744,793	$2,374,426	$3,235,810	$5,610,236	$0
26D	Woodworking (government)	$12,496	$38,254	$52,143	$90,397	$0
27	Solid Waste Incineration	$0	$298,340	$0	$298,340	$0
27A	Incinerators (government)	$0	$16,688	$0	$16,688	$0
28	Oil and Gas Well Drilling	$0	$0	$0	$0	$0
29	Portland Cement Producers	$0	$0	$0	$0	$0
30	Superalloy Producers	$10,800	$42,068	$0	$42,068	$30,980
31B	Construction (Refractory Repair)	$66,000	$40,440	$237,733	$278,173	$0
31C	Construction (Hazardous Waste Work)	$0	$47,213	$0	$47,213	$0
31CG	Haz. Waste (government)	$0	$51,035	$0	$51,035	$0
31D	Construction (Industrial Rehabilitation)	$0	$1,251	$0	$1,251	$0
31DG	Industrial Rehab. (government)	$0	$33,233	$0	$33,233	$0
32A	Ready-Mixed Concrete	$0	$0	$0	$0	$0
32	Precast Concrete Products Producers	$0	$0	$0	$0	$0
	General Industry (including Government)	$80,195,969	$10,003,090	$16,756,168	$26,759,258	$40,508,889
	Construction	$29,965,577	$3,443,258	$7,228,443	$10,671,701	$11,934,130
	Maritime	$4,067,116	$369,329	$510,185	$879,514	$16,912,270
	Total	$114,228,662	$13,815,677	$24,494,795	$38,310,473	$69,355,289

Table VIII-4. Annualized Costs for All Establishments Affected by OSHA's Final Standard for Hexavalent Chromium (by Application Group and Regulatory Requirement for a PEL of 5 ug/m^3)

	Application Group	Housekeeping	Medical Surveillance	Training and Familiarization	Recordkeeping
1	Electroplating	$12,379,200	$1,433,002	$917,183	$268,100
2A	Welding (general industry - stainless steel)	$0	$1,911,121	$1,839,045	$105,900
2B	Welding (maritime industry - stainless steel)	$0	$549,827	$265,467	$44,900
2C	Welding (construction industry - stainless steel)	$0	$3,285,863	$1,726,575	$171,200
2D	Welding (government - stainless steel)	$0	$31,783	$82,026	$11,800
2A1	Welding (general industry - carbon steel)	$0	$646,799	$2,791,713	$208,900
2B1	Welding (maritime industry - carbon steel)	$0	$14,504	$63,508	$2,400
2C1	Welding (construction industry - carbon steel)	$0	$1,729,924	$3,060,321	$317,600
3A	Painting (general industry - aerospace)	$352,200	$596,733	$367,677	$33,600
3A1	Painting (general industry - auto repair)	$4,067,700	$389,289	$1,637,407	$147,400
3A2	Painting (general industry - coil coating)	$375,300	$54,125	$89,051	$7,900
3B	Painting (maritime industry)	$0	$108,410	$214,672	$13,400
3C	Painting (construction industry)	$0	$592,592	$2,068,114	$155,900
3D	Painting (government)	$0	$125,284	$824,567	$43,100
4	Chromate (chromite ore) production	$6,400	$4,345	$2,734	$900
5	Chromate Pigment Producers	$3,150	$4,441	$979	$300
6	Chromated Copper Arsenate (CCA) Producers	$0	$1,157	$460	$130
7	Chromium Catalyst Producers	$16,000	$13,139	$5,872	$1,820
8	Paint and Coatings Producers	$231,160	$31,644	$39,535	$11,120
9	Printing Ink Producers	$16,430	$0	$1,620	$1,130
10	Plastic Colorant Producers and Users	$21,320	$0	$12,608	$2,860
11	Plating Mixture Producers	$27,600	$5,412	$1,829	$510
12	Wood Preserving	$0	$0	$0	$0
13	Chromium Material Producers	$4,190	$1,559	$815	$270
14	Steel Mills (stainless)	$224,500	$712,400	$164,853	$46,200
14A	Steel Mills (carbon)	$670,500	$153,661	$443,738	$120,600
14B	Reshaping	$324,000	$7,600	$15,658	$4,600
15	Iron and Steel Foundries	$720,800	$1,194,114	$421,457	$186,800
16	Chromium Dioxide Producers	$0	$0	$0	$0
17	Chromium Dye Producers	$5,290	$0	$2,009	$580
18	Chromium Sulfate Producers	$10,100	$1,362	$291	$100
19	Chemical Distributors	$3,319,100	$4	$34,858	$0
20	Textile Dyeing	$712,800	$0	$276,803	$76,300
21	Colored Glass Producers	$18,500	$1,289	$1,099	$200
21A	Fiber, Flat, and Container Glass	$256,500	$171,256	$60,601	$14,000
22	Printing	$52,600	$0	$70,307	$18,700
23	Leather Tanning	$0	$0	$0	$0
24	Chromium Catalyst Users	$466,300	$5,404	$6,331	$990
24A	Chromium Catalyst Users (Service)	$71,510	$27,531	$10,593	$3,350
25	Refractory Brick Producers	$12,420	$5	$937	$300
26A	Woodworking (general industry)	$814,900	$5,798	$6,313	$500
26B	Woodworking (maritime industry)	$0	$13	$2,292	$400
26C	Woodworking (construction industry)	$0	$1,241,423	$320,136	$44,700
26D	Woodworking (government)	$0	$18,620	$3,736	$400
27	Solid Waste Incineration	$0	$41	$22,923	$4,820
27A	Incinerators (government)	$0	$2	$1,150	$140
28	Oil and Gas Well Drilling	$0	$0	$0	$0
29	Portland Cement Producers	$0	$0	$0	$0
30	Superalloy Producers	$16,580	$18,828	$11,256	$3,530
31B	Construction (Refractory Repair)	$0	$52,224	$27,554	$4,260
31C	Construction (Hazardous Waste Work)	$0	$25	$34,747	$5,620
31CG	Haz. Waste (government)	$0	$14	$22,405	$3,270
31D	Construction (Industrial Rehabilitation)	$0	$34	$50,939	$8,220
31DG	Industrial Rehab. (government)	$0	$2	$4,740	$490
32A	Ready-Mixed Concrete	$0	$0	$0	$0
32	Precast Concrete Products Producers	$0	$0	$0	$0
	General Industry (including Government)	$25,197,050	$7,567,765	$10,197,180	$1,331,610
	Construction	$0	$6,902,085	$7,288,387	$707,500
	Maritime	$0	$672,753	$545,940	$61,100
	Total	$25,197,050	$15,142,603	$18,031,507	$2,100,210

Table VIII-4. Annualized Costs for All Establishments Affected by OSHA's Final Standard for Hexavalent Chromium (by Application Group and Regulatory Requirement for a PEL of 5 ug/m^3)

	Application Group	Total Costs to the National Economy	Transfer of PPE Payments	Total Costs to Employers	Associated Costs due to Non-Compliance with Existing Requirements: PPE (not supplied in baseline)	Associated Costs due to Non-Compliance with Existing Requirements: Hygiene Areas	Total for New and Existing Requirements (a)
1	Electroplating	$61,731,240	$1,219,625	$62,950,865	$0	$4,439,800	$67,390,665
2A	Welding (general industry - stainless steel)	$53,442,406	$0	$53,442,406	$0	$0	$53,442,406
2B	Welding (maritime industry - stainless steel)	$18,636,465	$0	$18,636,465	$0	$0	$18,636,465
2C	Welding (construction industry - stainless steel)	$39,478,391	$0	$39,478,391	$0	$0	$39,478,391
2D	Welding (government - stainless steel)	$979,421	$0	$979,421	$0	$0	$979,421
2A1	Welding (general industry - carbon steel)	$15,878,544	$0	$15,878,544	$0	$0	$15,878,544
2B1	Welding (maritime industry - carbon steel)	$412,533	$0	$412,533	$0	$0	$412,533
2C1	Welding (construction industry - carbon steel)	$14,095,301	$0	$14,095,301	$0	$0	$14,095,301
3A	Painting (general industry - aerospace)	$9,158,001	$1,628	$9,159,629	$11,711,583	$275,400	$21,146,611
3A1	Painting (general industry - auto repair)	$18,242,003	$1,395,069	$19,637,072	$59,784,259	$2,500,700	$81,922,032
3A2	Painting (general industry - coil coating)	$669,513	$358	$669,871	$2,797,183	$116,400	$3,583,454
3B	Painting (maritime industry)	$4,067,505	$1,220,626	$5,288,131	$5,661,140	$407,800	$11,357,071
3C	Painting (construction industry)	$5,358,139	$930,935	$6,289,074	$0	$0	$6,289,074
3D	Painting (government)	$1,291,310	$256,945	$1,548,255	$0	$0	$1,548,255
4	Chromate (chromite ore) production	$30,537	$30	$30,567	$0	$4,400	$34,967
5	Chromate Pigment Producers	$114,720	$10	$114,730	$0	$3,000	$117,730
6	Chromated Copper Arsenate (CCA) Producers	$9,094	$3	$9,097	$12,587	$1,200	$22,884
7	Chromium Catalyst Producers	$1,824,277	$40	$1,824,317	$110,290	$12,700	$1,947,307
8	Paint and Coatings Producers	$1,503,120	$213	$1,503,332	$3,777,438	$142,300	$5,423,071
9	Printing Ink Producers	$83,944	$1	$83,946	$7,570	$7,300	$98,816
10	Plastic Colorant Producers and Users	$1,192,742	$139	$1,192,881	$31,030	$33,600	$1,257,512
11	Plating Mixture Producers	$66,546	$20	$66,566	$0	$9,400	$75,966
12	Wood Preserving	$0	$0	$0	$0	$0	$0
13	Chromium Material Producers	$26,979	$0	$26,979	$0	$0	$26,979
14	Steel Mills (stainless)	$2,775,177	$0	$2,775,177	$0	$0	$2,775,177
14A	Steel Mills (carbon)	$1,928,503	$0	$1,928,503	$0	$0	$1,928,503
14B	Reshaping	$672,485	$0	$672,485	$0	$0	$672,485
15	Iron and Steel Foundries	$10,260,326	$0	$10,260,326	$0	$0	$10,260,326
16	Chromium Dioxide Producers	$0	$0	$0	$0	$0	$0
17	Chromium Dye Producers	$200,596	$2	$200,598	$21,250	$5,800	$227,648
18	Chromium Sulfate Producers	$19,593	$1	$19,594	$36,226	$3,200	$59,020
19	Chemical Distributors	$3,856,632	$0	$3,856,632	$0	$0	$3,856,632
20	Textile Dyeing	$1,505,488	$44,605	$1,550,094	$1,236,379	$1,383,800	$4,170,272
21	Colored Glass Producers	$53,934	$4	$53,938	$2,555	$1,200	$57,693
21A	Fiber, Flat, and Container Glass	$1,379,941	$0	$1,379,941	$0	$0	$1,379,941
22	Printing	$298,720	$3,857	$302,577	$373,708	$171,700	$847,985
23	Leather Tanning	$0	$0	$0	$0	$0	$0
24	Chromium Catalyst Users	$633,348	$45	$633,393	$143,158	$39,200	$815,751
24A	Chromium Catalyst Users (Service)	$278,102	$8,735	$286,837	$0	$33,900	$320,737
25	Refractory Brick Producers	$28,146	$42	$28,188	$29,900	$5,300	$63,388
26A	Woodworking (general industry)	$903,350	$0	$903,350	$0	$0	$903,350
26B	Woodworking (maritime industry)	$22,190	$0	$22,190	$0	$0	$22,190
26C	Woodworking (construction industry)	$7,961,289	$229,988	$8,191,277	$5,444,838	$2,906,900	$16,543,015
26D	Woodworking (government)	$125,649	$3,997	$129,646	$48,096	$27,600	$205,342
27	Solid Waste Incineration	$326,124	$66,100	$392,224	$0	$80,200	$472,424
27A	Incinerators (government)	$17,980	$5,042	$23,022	$0	$19,700	$42,722
28	Oil and Gas Well Drilling	$0	$0	$0	$0	$0	$0
29	Portland Cement Producers	$0	$0	$0	$0	$0	$0
30	Superalloy Producers	$134,042	$0	$134,042	$0	$0	$134,042
31B	Construction (Refractory Repair)	$428,211	$28,821	$457,032	$460,158	$99,800	$1,016,991
31C	Construction (Hazardous Waste Work)	$87,604	$54,552	$142,157	$90,563	$107,500	$340,219
31CG	Haz. Waste (government)	$76,723	$32,523	$109,246	$0	$60,900	$170,146
31D	Construction (Industrial Rehabilitation)	$60,445	$0	$60,445	$0	$0	$60,445
31DG	Industrial Rehab. (government)	$38,466	$0	$38,466	$0	$0	$38,466
32A	Ready-Mixed Concrete	$0	$0	$0	$0	$0	$0
32	Precast Concrete Products Producers	$0	$0	$0	$0	$0	$0
	General Industry (including Government)	$191,757,721	$3,039,034	$194,796,756	$80,123,213	$9,378,700	$284,298,668
	Construction	$67,469,379	$1,244,297	$68,713,676	$5,995,559	$3,114,200	$77,823,435
	Maritime	$23,138,693	$1,220,626	$24,359,319	$5,661,140	$407,800	$30,428,259
	Total	$282,365,793	$5,503,957	$287,869,751	$91,779,911	$12,900,700	$392,550,362

(a) Excludes Transfer of PPE Payments.

Source: U.S. Dept. of Labor, OSHA, Office of Regulatory Analysis, based on Shaw, 2006.

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Table VIII–4 also shows the costs by application group. The various types of welding represent the most expensive application group, accounting for 51 percent of the total costs.

Table VIII–5 presents OSHA's final total annualized costs by cost category for each of the alternative PELs considered by OSHA in the proposed rule. At a discount rate of 7 percent, total costs range from $112 million for

a PEL of 20 μg/m³ to $1.8 billion for a PEL of 0.25 μg/m³.

OSHA also presents, in Table VIII–6, the distribution of compliance costs at the time they are imposed. Because firms will have the choice of whether to finance expenditures in a single year, or spread them out over four years, OSHA considers it unlikely that a firm would be impacted in an amount equal to the entire startup cost in the year that the initial requirements are imposed. On the other hand, capital markets are not perfectly liquid and particular firms may face additional lending constraints, therefore OSHA believes that identifying startup costs, in addition to the annualized costs, is relevant when exploring the question of economic feasibility and the overall impact of this rulemaking.

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Table VIII-5. Estimated Total Annualized Compliance Costs Associated with the Final Standard for Hexavalent Chromium, by Provision (Discount Rate = 7%)

	PEL Option (μg/m³)					
Cost Category	**20**	**10**	**5**	**1**	**0.5**	**0.25**
Engineering Controls	$27,254,895	$55,266,244	$114,228,662	$274,563,256	$466,012,632	$1,011,793,069
Exposure Monitoring	$23,831,107	$26,338,265	$38,310,473	$72,500,309	$164,549,329	$186,723,054
Respirator Protection	$11,245,040	$36,634,677	$69,355,289	$152,353,487	$312,409,999	$517,648,026
Housekeeping	$25,197,050	$25,197,050	$25,197,050	$25,197,050	$25,197,050	$25,197,050
Medical Surveillance	$4,344,847	$6,788,931	$15,142,603	$25,421,755	$44,159,876	$52,917,437
Communication of Hazards	$17,881,354	$18,020,404	$18,031,507	$18,134,752	$18,434,375	$18,535,343
Recordkeeping	$2,100,220	$2,100,510	$2,100,210	$2,099,650	$2,099,650	$2,099,350
Total for New Requirements	**$111,854,513**	**$170,346,080**	**$282,365,793**	**$570,270,259**	**$1,032,862,911**	**$1,814,913,330**
PPE (supplied by employers and paid-for by employees prior to reg.)	$5,554,768	$5,503,957	$5,503,957	$5,454,363	$5,434,749	$5,066,306
Total for New Requirements and PPE Supplied in the Baseline (employer costs)	**$117,409,281**	**$175,850,038**	**$287,869,751**	**$575,724,622**	**$1,038,297,660**	**$1,819,979,637**
PPE (not supplied prior to reg.)	$93,453,088	$91,779,911	$91,779,911	$91,161,311	$91,155,875	$85,597,562
Hygiene Areas	$13,001,400	$12,900,700	$12,900,700	$12,850,000	$12,840,700	$9,880,700
Total for New and Existing Requirements	**$223,863,769**	**$280,530,649**	**$392,550,362**	**$679,735,933**	**$1,142,294,235**	**$1,915,457,899**

Source: U.S. Dept. of Labor, OSHA, Office of Regulatory Analysis, based on Shaw, 2006.

Table VIII-6. Estimated Total First-Year Compliance Costs Associated with the Final Standard for Hexavalent Chromium

Cost Category	General Industry	Government	Construction	Maritime	Total
Engineering Controls	$184,143,569	$264,445	$109,905,359	$15,802,678	$310,116,051
Initial Exposure Assessment	$80,250,132	$1,427,590	$26,133,186	$2,504,284	$110,315,192
Respiratory Protection	$42,185,867	$55,831	$13,390,104	$17,527,846	$73,159,648
Housekeeping	$34,504,957	$0	$0	$0	$34,504,957
Medical Surveillance	$16,135,951	$409,753	$11,901,618	$1,117,960	$29,565,281
Training and Familiarization	$24,158,394	$1,603,776	$14,190,444	$1,203,156	$41,155,771
Recordkeeping	$1,530,408	$56,452	$812,576	$73,647	$2,473,083
Total for New Requirements	**$382,909,278**	**$3,817,848**	**$176,333,286**	**$38,229,571**	**$601,289,983**
PPE (supplied by employers and paid-for by employees prior to reg.)	$2,740,529	$298,506	$1,244,297	$1,220,626	$5,503,957
Total for New Requirements and PPE Supplied in the Baseline	**$385,649,807**	**$4,116,354**	**$177,577,583**	**$39,450,197**	**$606,793,941**
PPE (not supplied in baseline)	$80,075,116	$48,096	$5,995,559	$5,661,140	$91,779,911
Hygiene Areas	$41,818,607	$335,882	$7,813,392	$1,432,863	$51,400,744
Total for New and Existing Requirements	**$507,543,530**	**$4,500,332**	**$191,386,533**	**$46,544,201**	**$749,974,596**

Source: U.S. Dept. of Labor, OSHA, Office of Regulatory Analysis, based on Shaw, 2006.

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E. Economic Impacts

To determine whether the final rule's projected costs of compliance would raise issues of economic feasibility for employers in affected industries, i.e., would adversely alter the competitive structure of the industry, OSHA first compared compliance costs to industry revenues and profits. OSHA then examined specific factors affecting individual industries where compliance costs represent a significant share of revenue, or where the record contains other evidence that the standard could have significant impact on the competitive structure of the industry.

OSHA compared the baseline financial data with total annualized incremental costs of compliance by computing compliance costs as a percentage of revenues and profits. This impact assessment for all firms is presented in Table VIII–7. This table is considered a screening analysis and is the first step in OSHA's analysis of whether the compliance costs potentially associated with the standard would lead to significant impacts on establishments in the affected industries. The actual impact of the standard on the viability of establishments in a given industry, in a static world, depends, to a significant degree, on the price elasticity of demand for the services sold by establishments in that industry.

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Table VIII-7. Economic Impacts on All Entities Affected by OSHA's Final Standard for Hexavalent Chromium (by Application Group for a PEL of 5 ug/m^3)

				Cost per Entity[BB]				Impacts on the National Economy		Impacts on Employers	
	Application Group	NAICS	Category	National Costs	Employer Costs	Revenue per Entity[CC]	Profit per Entity[CC]	Cost/Revenue Impact	Cost/Profit Impact	Cost/Revenue Impact	Cost/Profit Impact
1	Electroplating - General Industry	All General Industry[B]	All General Industry	$11,434	$11,660	$13,651,252	$784,804	0.08%	1.46%	0.09%	1.49%
		237	Heavy construction (234)	$16,379	$16,727	$12,287,063	$571,194	0.13%	2.87%	0.14%	2.93%
		238	Special trade contractors (235)	$11,519	$11,751	$2,706,583	$105,463	0.43%	10.92%	0.43%	11.14%
		313	Textile mills	$14,643	$14,950	$6,155,761	$176,122	0.24%	8.31%	0.24%	8.49%
		314	Textile product mills	$10,304	$10,506	$5,433,321	$151,258	0.19%	6.81%	0.19%	6.95%
		315	Apparel mfg	$16,379	$16,727	$10,989,677	$563,536	0.15%	2.91%	0.15%	2.97%
		316	Leather & allied product mfg	$18,427	$18,818	$15,620,859	$915,694	0.12%	2.01%	0.12%	2.06%
		321	Wood product mfg	$11,691	$11,923	$5,987,225	$162,789	0.20%	7.18%	0.20%	7.32%
		322	Paper mfg	$23,025	$23,513	$40,006,374	$1,113,192	0.06%	2.07%	0.06%	2.11%
		323	Printing & related support activities	$9,703	$9,889	$3,184,551	$120,430	0.30%	8.06%	0.31%	8.21%
		324	Petroleum & coal products mfg	$15,852	$16,174	$257,242,485	$10,929,407	0.01%	0.15%	0.01%	0.15%
		325	Chemical mfg	$16,185	$16,517	$55,959,548	$5,015,932	0.03%	0.32%	0.03%	0.33%
		326	Plastics & rubber products mfg	$17,950	$18,326	$11,183,005	$372,419	0.16%	4.82%	0.16%	4.92%
		327	Nonmetallic mineral product mfg	$16,379	$16,727	$6,924,808	$247,877	0.24%	6.61%	0.24%	6.75%
		331[C]	Primary metal mfg	$15,448	$15,767	$25,325,125	$608,526	0.06%	2.54%	0.06%	2.59%
		332813	Electroplating, Plating, Polishing, Anodizing, and Coloring	$10,637	$10,844	$873,298	$35,972	1.22%	29.57%	1.24%	30.15%
		Other 332[D]	Fabricated Metal Product Manufacturing	$11,011	$11,228	$4,752,128	$227,923	0.23%	4.83%	0.24%	4.93%
		333[E]	Machinery Manufacturing	$12,133	$12,376	$11,810,404	$387,110	0.10%	3.13%	0.10%	3.20%
		334	Computer & electronic product mfg	$13,909	$14,194	$38,694,208	$1,695,199	0.04%	0.82%	0.04%	0.84%
		335	Electrical equipment, appliance, & component mfg	$16,101	$16,436	$48,639,174	$1,763,096	0.03%	0.91%	0.03%	0.93%
		336 (except 33661)[F]	Transportation Equipment Manufacturing	$18,315	$18,700	$108,816,386	$2,728,488	0.02%	0.67%	0.02%	0.69%
		339	Miscellaneous Manufacturing	$8,541	$8,700	$6,545,082	$246,281	0.13%	3.47%	0.13%	3.53%
		423	Wholesale trade, durable goods (421)	$21,142	$21,428	$7,789,912	$194,538	0.27%	10.87%	0.28%	11.01%
		441	Motor vehicle & parts dealers	$4,228	$4,286	$1,826,119	$26,333	0.23%	16.06%	0.23%	16.27%
		442	Furniture & home furnishings stores	$4,228	$4,286	$647,301	$24,357	0.65%	17.36%	0.66%	17.59%
		443	Electronics & appliance stores	$4,228	$4,286	$857,482	$29,158	0.49%	14.50%	0.50%	14.70%
		444	Building material & garden equipment & supplies dealers	$4,228	$4,286	$773,774	$38,341	0.55%	11.03%	0.55%	11.18%
		446	Health & personal care stores	$4,228	$4,286	$973,952	$24,550	0.43%	17.22%	0.44%	17.46%
		453	Miscellaneous store retailers	$4,228	$4,286	$600,302	$18,855	0.70%	22.43%	0.71%	22.73%
		454	Nonstore retailers	$4,228	$4,286	$706,333	$26,766	0.60%	15.80%	0.61%	16.01%
		511	Publishing industries	$21,179	$21,623	$14,166,015	$1,503,303	0.15%	1.41%	0.15%	1.44%
		512	Motion picture & sound recording industries	$11,592	$11,820	$5,799,209	$281,365	0.20%	4.12%	0.20%	4.20%
		519	Information services & data processing services (514)	$4,228	$4,286	$137,552	$12,240	3.07%	34.55%	3.12%	35.01%
		522	Credit intermediation & related activities	$8,785	$8,951	$2,612,075	$305,304	0.34%	2.88%	0.34%	2.93%
		532	Rental & leasing services	$10,304	$10,506	$1,224,506	$30,725	0.84%	33.54%	0.86%	34.20%
		541	Professional, scientific, & technical services	$6,260	$6,364	$751,690	$47,079	0.83%	13.30%	0.85%	13.52%
		561	Administrative & support services	$8,760	$8,922	$853,198	$32,326	1.03%	27.10%	1.05%	27.60%

Table VIII-7. Economic Impacts on All Entities Affected by OSHA's Final Standard for Hexavalent Chromium (by Application Group for a PEL of 5 ug/m^3)

				Cost per Entity[BB]				Impacts on the National Economy		Impacts on Employers	
Application Group		NAICS	Category	National Costs	Employer Costs	Revenue per Entity[CC]	Profit per Entity[CC]	Cost/Revenue Impact	Cost/Profit Impact	Cost/Revenue Impact	Cost/Profit Impact
		562	Waste management & remediation services	$13,342	$13,617	$3,941,918	$167,638	0.34%	7.96%	0.35%	8.12%
		711	Performing arts, spectator sports, & related industries	$4,228	$4,286	$82,883	$7,802	5.10%	54.19%	5.17%	54.93%
		812	Personal & laundry services	$6,254	$6,359	$246,655	$12,738	2.54%	49.10%	2.58%	49.92%
2A	Welding - General Industry (stainless steel)	All General Industry[H]	All General Industry	$3,559	$3,559	$6,504,281	$336,088	0.05%	1.06%	0.05%	1.06%
		113	Forestry and Logging	$2,165	$2,165	$1,559,464	$37,179	0.14%	5.82%	0.14%	5.82%
		221	Utilities	$3,206	$3,206	$21,336,268	$833,617	0.02%	0.38%	0.02%	0.38%
		311[C]	Food Manufacturing	$4,289	$4,289	$25,109,789	$1,014,522	0.02%	0.42%	0.02%	0.42%
		312	Beverage and Tobacco Product Manufacturing	$3,969	$3,969	$115,034,052	$12,139,154	0.00%	0.03%	0.00%	0.03%
		313	Textile mills	$5,377	$5,377	$10,278,254	$294,071	0.05%	1.83%	0.05%	1.83%
		314	Textile product mills	$2,695	$2,695	$5,720,245	$159,246	0.05%	1.69%	0.05%	1.69%
		315	Apparel mfg	$5,396	$5,396	$16,452,407	$843,658	0.03%	0.64%	0.03%	0.64%
		316	Leather & allied product mfg	$5,570	$5,570	$22,061,123	$1,293,222	0.03%	0.43%	0.03%	0.43%
		321	Wood product mfg	$2,277	$2,277	$4,152,006	$112,891	0.05%	2.02%	0.05%	2.02%
		322	Paper mfg	$5,645	$5,645	$42,164,737	$1,173,250	0.01%	0.48%	0.01%	0.48%
		323	Printing & related support activities	$4,898	$4,898	$8,397,177	$317,555	0.06%	1.54%	0.06%	1.54%
		324	Petroleum & coal products mfg	$3,215	$3,215	$205,112,689	$8,714,579	0.00%	0.04%	0.00%	0.04%
		325	Chemical mfg	$6,615	$6,615	$107,720,474	$9,655,521	0.01%	0.07%	0.01%	0.07%
		326	Plastics & rubber products mfg	$6,362	$6,362	$18,172,602	$605,188	0.04%	1.05%	0.04%	1.05%
		327	Nonmetallic mineral product mfg	$8,166	$8,166	$15,139,328	$541,920	0.05%	1.51%	0.05%	1.51%
		332	Fabricated Metal Product Manufacturing	$3,665	$3,665	$7,316,561	$350,919	0.05%	1.04%	0.05%	1.04%
		333	Machinery Manufacturing	$3,318	$3,318	$13,854,999	$454,126	0.02%	0.73%	0.02%	0.73%
		334	Computer & electronic product mfg	$3,868	$3,868	$47,206,416	$2,068,120	0.01%	0.19%	0.01%	0.19%
		335	Electrical equipment, appliance, & component mfg	$5,969	$5,969	$85,083,005	$3,084,129	0.01%	0.19%	0.01%	0.19%
		336 (except 33661)	Transportation Equipment Manufacturing	$5,810	$5,810	$152,338,437	$3,819,770	0.00%	0.15%	0.00%	0.15%
		337	Furniture & Related Product Manufacturing	$2,941	$2,941	$4,601,650	$190,106	0.06%	1.55%	0.06%	1.55%
		339	Miscellaneous Manufacturing	$3,859	$3,859	$15,944,258	$1,120,807	0.02%	0.34%	0.02%	0.34%
		423	Wholesale trade, durable goods (421)	$1,722	$1,722	$2,339,292	$58,419	0.07%	2.95%	0.07%	2.95%
		424	Merchant Wholesalers, nondurable goods (422)	$7,969	$7,969	$33,118,390	$786,510	0.02%	1.01%	0.02%	1.01%
		441	Motor vehicle & parts dealers	$3,659	$3,659	$8,044,423	$116,002	0.05%	3.15%	0.05%	3.15%
		442	Furniture & home furnishings stores	$2,573	$2,573	$1,319,697	$49,658	0.19%	5.18%	0.19%	5.18%
		443	Electronics & appliance stores	$2,638	$2,638	$1,889,646	$64,255	0.14%	4.10%	0.14%	4.10%
		444	Building material & garden equipment & supplies dealers	$3,162	$3,162	$2,363,132	$117,095	0.13%	2.70%	0.13%	2.70%
		445	Food and Beverage Stores	$2,006	$2,006	$2,192,431	$40,880	0.09%	4.91%	0.09%	4.91%
		446	Health & personal care stores	$3,912	$3,912	$2,916,212	$73,507	0.13%	5.32%	0.13%	5.32%
		447	Gasoline Stations	$2,394	$2,394	$1,103,373	$8,111	0.22%	29.52%	0.22%	29.52%

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				Cost per Entity[BB]				Impacts on the National Economy		Impacts on Employers	
Application Group		NAICS	Category	National Costs	Employer Costs	Revenue per Entity[CC]	Profit per Entity[CC]	Cost/Revenue Impact	Cost/Profit Impact	Cost/Revenue Impact	Cost/Profit Impact
		448	Clothing and Clothing Accessory Stores	$1,853	$1,853	$552,811	$23,905	0.34%	7.75%	0.34%	7.75%
		451	Sporting Good, Hobby, Book and Music Stores	$2,275	$2,275	$946,299	$24,800	0.24%	9.17%	0.24%	9.17%
		452	General Merchandise Stores	$12,104	$12,104	$36,667,851	$1,168,447	0.03%	1.04%	0.03%	1.04%
		453	Miscellaneous store retailers	$2,511	$2,511	$1,191,862	$37,435	0.21%	6.71%	0.21%	6.71%
		454	Nonstore retailers	$3,000	$3,000	$3,119,956	$118,230	0.10%	2.54%	0.10%	2.54%
		481	Air Transportation	$5,136	$5,136	$33,643,799	$247,511	0.02%	2.08%	0.02%	2.08%
		483	Water Transportation	$15,408	$15,408	$68,445,873	$2,599,985	0.02%	0.59%	0.02%	0.59%
		484	Truck Transportation	$5,820	$5,820	$6,255,490	$126,783	0.09%	4.59%	0.09%	4.59%
		485	Transit and Ground Passenger Transportation	$1,914	$1,914	$1,519,168	$34,017	0.13%	5.63%	0.13%	5.63%
		486	Pipeline Transportation	$3,289	$3,289	$870,009	$174,613	0.38%	1.88%	0.38%	1.88%
		487	Scenic and Sightseeing Transportation	$3,784	$3,784	$3,143,793	$133,120	0.12%	2.84%	0.12%	2.84%
		488	Support Activities for Transportation	$7,199	$7,199	$7,361,217	$311,702	0.10%	2.31%	0.10%	2.31%
		492	Couriers and Messengers	$11,337	$11,337	$22,920,912	$970,560	0.05%	1.17%	0.05%	1.17%
		493	Warehousing and Storage	$7,267	$7,267	$5,473,617	$228,666	0.13%	3.18%	0.13%	3.18%
		511	Publishing industries	$4,503	$4,503	$12,146,612	$1,289,003	0.04%	0.35%	0.04%	0.35%
		512	Motion picture & sound recording industries	$4,087	$4,087	$8,970,624	$435,234	0.05%	0.94%	0.05%	0.94%
		519	Information services & data processing services (514)	$4,564	$4,564	$1,381,550	$122,937	0.33%	3.71%	0.33%	3.71%
		522	Credit intermediation & related activities	$11,142	$11,142	$13,802,641	$1,613,277	0.08%	0.69%	0.08%	0.69%
		531	Real Estate	$2,984	$2,984	$908,528	$107,459	0.33%	2.78%	0.33%	2.78%
		532	Rental & leasing services	$5,832	$5,832	$2,758,990	$69,227	0.21%	8.43%	0.21%	8.43%
		541	Professional, scientific, & technical services	$4,003	$4,003	$2,895,760	$181,364	0.14%	2.21%	0.14%	2.21%
		561	Administrative & support services	$2,583	$2,583	$1,043,558	$39,538	0.25%	6.53%	0.25%	6.53%
		562	Waste management & remediation services	$3,176	$3,176	$3,561,551	$151,463	0.09%	2.10%	0.09%	2.10%
		611	Educational Services	$3,707	$3,707	$605,445	$43,766	0.61%	8.47%	0.61%	8.47%
		621	Ambulatory Health Care Services	$7,570	$7,570	$1,824,605	$93,327	0.41%	8.11%	0.41%	8.11%
		622	Hospitals	$5,188	$5,188	$10,624,362	$549,510	0.05%	0.94%	0.05%	0.94%
		623	Nursing and Residential Care Facilities	$5,764	$5,764	$370,660	$19,171	1.56%	30.07%	1.56%	30.07%
		624	Social Assistance	$6,459	$6,459	$565,406	$28,920	1.14%	22.34%	1.14%	22.34%
		711	Performing arts, spectator sports, & related industries	$3,268	$3,268	$3,913,940	$265,155	0.08%	1.23%	0.08%	1.23%
		713	Amusement, Gambling, and Recreastional Industries	$2,719	$2,719	$913,129	$46,251	0.30%	5.88%	0.30%	5.88%
		722	Food Services and Drinking Places	$4,512	$4,512	$922,426	$37,814	0.49%	11.93%	0.49%	11.93%
		811	Repair and Maintenance	$3,261	$3,261	$814,187	$31,096	0.40%	10.49%	0.40%	10.49%
		812	Personal & laundry services	$3,399	$3,399	$505,655	$26,113	0.67%	13.02%	0.67%	13.02%
		813	Religious, Grantmaking, Civil, Professional, and Similar Organizations	$2,101	$2,101	$53,703	$1,329	3.91%	158.08%	3.91%	158.08%
2B	Welding - Maritime Industry (stainless steel)	336611[I]	Ship Building and Repairing	$66,797	$66,797	$27,134,242	$1,583,890	0.25%	4.22%	0.25%	4.22%

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				Cost per Entity[BB]				Impacts on the National Economy		Impacts on Employers	
	Application Group	NAICS	Category	National Costs	Employer Costs	Revenue per Entity[CC]	Profit per Entity[CC]	Cost/Revenue Impact	Cost/Profit Impact	Cost/Revenue Impact	Cost/Profit Impact
2C	Welding - Construction Industry (stainless steel)	233[S], 234[T],235[U]	Building, Developing, and General Contracting; Heavy Construction; Special Trade Contractors	$16,320	$16,320	$1,770,330	$73,079	0.92%	22.33%	0.92%	22.33%
2D	Welding - Government (stainless steel)	999200	State	$2,540	$2,540	$12,956,109,000	N/A	0.00%	N/A	N/A	N/A
		999300	Local	$1,121	$1,121	$109,399,080	N/A	0.00%	N/A	N/A	N/A
2A1	Welding - General Industry (carbon steel)	All General Industry[H]	All General Industry	$1,057	$1,057	$8,638,561	$446,371	0.01%	0.24%	0.01%	0.24%
		113	Forestry and Logging	$551	$551	$1,627,078	$38,791	0.03%	1.42%	0.03%	1.42%
		221	Utilities	$779	$779	$21,415,156	$836,700	0.00%	0.09%	0.00%	0.09%
		311	Food Manufacturing	$951	$951	$24,833,974	$1,003,378	0.00%	0.09%	0.00%	0.09%
		312	Beverage and Tobacco Product Manufacturing	$1,055	$1,055	$140,025,200	$14,776,386	0.00%	0.01%	0.00%	0.01%
		313	Textile mills	$1,177	$1,177	$10,426,004	$298,298	0.01%	0.39%	0.01%	0.39%
		314	Textile product mills	$642	$642	$5,704,601	$158,810	0.01%	0.40%	0.01%	0.40%
		315	Apparel mfg	$1,136	$1,136	$16,385,476	$840,226	0.01%	0.14%	0.01%	0.14%
		316	Leather & allied product mfg	$1,181	$1,181	$22,378,252	$1,311,813	0.01%	0.09%	0.01%	0.09%
		321	Wood product mfg	$571	$571	$4,177,998	$113,597	0.01%	0.50%	0.01%	0.50%
		322	Paper mfg	$1,233	$1,233	$42,205,291	$1,174,378	0.00%	0.10%	0.00%	0.10%
		323	Printing & related support activities	$1,049	$1,049	$8,323,192	$314,757	0.01%	0.33%	0.01%	0.33%
		324	Petroleum & coal products mfg	$822	$822	$221,931,930	$9,429,175	0.00%	0.01%	0.00%	0.01%
		325	Chemical mfg	$1,446	$1,446	$109,075,559	$9,776,984	0.00%	0.01%	0.00%	0.01%
		326	Plastics & rubber products mfg	$1,363	$1,363	$18,264,715	$608,256	0.01%	0.22%	0.01%	0.22%
		327	Nonmetallic mineral product mfg	$1,773	$1,773	$15,356,956	$549,710	0.01%	0.32%	0.01%	0.32%
		332	Fabricated Metal Product Manufacturing	$827	$827	$7,316,102	$350,897	0.01%	0.24%	0.01%	0.24%
		333	Machinery Manufacturing	$762	$762	$13,857,522	$454,209	0.01%	0.17%	0.01%	0.17%
		334	Computer & electronic product mfg	$866	$866	$47,158,477	$2,066,020	0.00%	0.04%	0.00%	0.04%
		335	Electrical equipment, appliance, & component mfg	$1,277	$1,277	$85,264,448	$3,090,706	0.00%	0.04%	0.00%	0.04%
		336 (except 33661)	Transportation Equipment Manufacturing	$1,249	$1,249	$152,498,975	$3,823,796	0.00%	0.03%	0.00%	0.03%
		337	Furniture & Related Product Manufacturing	$689	$689	$4,599,952	$190,036	0.01%	0.36%	0.01%	0.36%
		339	Miscellaneous Manufacturing	$862	$862	$15,941,779	$1,120,633	0.01%	0.08%	0.01%	0.08%
		423	Wholesale trade, durable goods (421)	$470	$470	$2,339,904	$58,435	0.02%	0.80%	0.02%	0.80%
		424	Merchant Wholesalers, nondurable goods (422)	$1,833	$1,833	$35,834,098	$851,003	0.01%	0.22%	0.01%	0.22%
		441	Motor vehicle & parts dealers	$855	$855	$8,044,789	$116,008	0.01%	0.74%	0.01%	0.74%
		442	Furniture & home furnishings stores	$646	$646	$1,319,077	$49,635	0.05%	1.30%	0.05%	1.30%
		443	Electronics & appliance stores	$656	$656	$1,870,806	$63,615	0.04%	1.03%	0.04%	1.03%
		444	Building material & garden equipment & supplies dealers	$768	$768	$2,379,669	$117,914	0.03%	0.65%	0.03%	0.65%
		445	Food and Beverage Stores	$567	$567	$2,446,342	$45,615	0.02%	1.24%	0.02%	1.24%
		446	Health & personal care stores	$935	$935	$2,937,732	$74,049	0.03%	1.26%	0.03%	1.26%
		447	Gasoline Stations	$636	$636	$1,175,195	$8,639	0.05%	7.37%	0.05%	7.37%
		448	Clothing and Clothing Accessory Stores	$502	$502	$576,779	$24,941	0.09%	2.01%	0.09%	2.01%

Table VIII-7. Economic Impacts on All Entities Affected by OSHA's Final Standard for Hexavalent Chromium (by Application Group for a PEL of 5 ug/m^3)

				Cost per Entity[BB]				Impacts on the National Economy		Impacts on Employers	
	Application Group	NAICS	Category	National Costs	Employer Costs	Revenue per Entity[CC]	Profit per Entity[CC]	Cost/Revenue Impact	Cost/Profit Impact	Cost/Revenue Impact	Cost/Profit Impact
		451	Sporting Good, Hobby, Book and Music Stores	$575	$575	$942,449	$24,699	0.06%	2.33%	0.06%	2.33%
		452	General Merchandise Stores	$3,149	$3,149	$44,633,942	$1,422,292	0.01%	0.22%	0.01%	0.22%
		453	Miscellaneous store retailers	$635	$635	$1,192,175	$37,445	0.05%	1.69%	0.05%	1.69%
		454	Nonstore retailers	$726	$726	$3,119,594	$118,216	0.02%	0.61%	0.02%	0.61%
		481	Air Transportation	$1,307	$1,307	$40,952,914	$301,282	0.00%	0.43%	0.00%	0.43%
		483	Water Transportation	$1,961	$1,961	$41,657,870	$1,582,416	0.00%	0.12%	0.00%	0.12%
		484	Truck Transportation	$1,252	$1,252	$6,128,740	$124,214	0.02%	1.01%	0.02%	1.01%
		485	Transit and Ground Passenger Transportation	$325	$325	$1,232,805	$27,605	0.03%	1.18%	0.03%	1.18%
		486	Pipeline Transportation	$760	$760	$866,469	$173,903	0.09%	0.44%	0.09%	0.44%
		487	Scenic and Sightseeing Transportation	$990	$990	$3,826,782	$162,041	0.03%	0.61%	0.03%	0.61%
		488	Support Activities for Transportation	$1,575	$1,575	$7,373,696	$312,231	0.02%	0.50%	0.02%	0.50%
		492	Couriers and Messengers	$2,940	$2,940	$27,900,480	$1,181,414	0.01%	0.25%	0.01%	0.25%
		493	Warehousing and Storage	$1,421	$1,421	$4,997,070	$208,758	0.03%	0.68%	0.03%	0.68%
		511	Publishing industries	$1,025	$1,025	$12,176,264	$1,292,150	0.01%	0.08%	0.01%	0.08%
		512	Motion picture & sound recording industries	$943	$943	$8,969,582	$435,184	0.01%	0.22%	0.01%	0.22%
		519	Information services & data processing services (514)	$1,054	$1,054	$1,401,409	$124,704	0.08%	0.85%	0.08%	0.85%
		522	Credit intermediation & related activities	$2,515	$2,515	$14,330,490	$1,674,973	0.02%	0.15%	0.02%	0.15%
		531	Real Estate	$721	$721	$901,109	$106,582	0.08%	0.68%	0.08%	0.68%
		532	Rental & leasing services	$1,320	$1,320	$2,752,007	$69,052	0.05%	1.91%	0.05%	1.91%
		541	Professional, scientific, & technical services	$923	$923	$2,900,380	$181,653	0.03%	0.51%	0.03%	0.51%
		561	Administrative & support services	$639	$639	$1,043,437	$39,534	0.06%	1.62%	0.06%	1.62%
		562	Waste management & remediation services	$760	$760	$3,562,338	$151,496	0.02%	0.50%	0.02%	0.50%
		611	Educational Services	$851	$851	$614,148	$44,395	0.14%	1.92%	0.14%	1.92%
		621	Ambulatory Health Care Services	$1,647	$1,647	$1,838,069	$94,016	0.09%	1.75%	0.09%	1.75%
		622	Hospitals	$1,326	$1,326	$12,932,505	$668,891	0.01%	0.20%	0.01%	0.20%
		623	Nursing and Residential Care Facilities	$1,536	$1,536	$451,186	$23,336	0.34%	6.58%	0.34%	6.58%
		624	Social Assistance	$1,788	$1,788	$688,240	$35,203	0.26%	5.08%	0.26%	5.08%
		711	Performing arts, spectator sports, & related industries	$776	$776	$4,049,606	$274,346	0.02%	0.28%	0.02%	0.28%
		713	Amusement, Gambling, and Recreastional Industries	$658	$658	$919,130	$46,555	0.07%	1.41%	0.07%	1.41%
		722	Food Services and Drinking Places	$1,033	$1,033	$935,686	$38,358	0.11%	2.69%	0.11%	2.69%
		811	Repair and Maintenance	$777	$777	$814,577	$31,111	0.10%	2.50%	0.10%	2.50%
		812	Personal & laundry services	$818	$818	$508,978	$26,284	0.16%	3.11%	0.16%	3.11%
		813	Religious, Grantmaking, Civil, Professional, and Similar Organizations	$527	$527	$52,799	$1,307	1.00%	40.34%	1.00%	40.34%
2B1	Welding - Maritime Industry (carbon steel)	336611[I]	Ship Building and Repairing	$1,479	$1,479	$58,561,584	$3,418,379	0.00%	0.04%	0.00%	0.04%
2C1	Welding - Construction Industry (carbon steel)	233[S], 234[T],235[U]	Building, Developing, and General Contracting; Heavy Construction; Special Trade Contractors	$5,827	$5,827	$2,606,248	$107,586	0.22%	5.42%	0.22%	5.42%

Table VIII-7. Economic Impacts on All Entities Affected by OSHA's Final Standard for Hexavalent Chromium (by Application Group for a PEL of 5 ug/m^3)

				Cost per Entity[BB]				Impacts on the National Economy		Impacts on Employers	
Application Group		NAICS	Category	National Costs	Employer Costs	Revenue per Entity[CC]	Profit per Entity[CC]	Cost/Revenue Impact	Cost/Profit Impact	Cost/Revenue Impact	Cost/Profit Impact
2D1	Welding - Government (carbon steel)	999200	State								
		999300	Local								
3A	Painting - General Industry	All General Industry[G]	Manufacturing								
		332812	Metal Coating, Engraving (Except Jewelry and Silverware), and Allied Services to Manufacturers	$6,317	$6,320	$4,747,957	$195,572	0.13%	3.23%	0.13%	3.23%
		3361[K]	Motor vehicle mfg	$168,005	$168,036	$1,484,173,959	$37,214,531	0.01%	0.45%	0.01%	0.45%
		3362	Motor vehicle body & trailer mfg	$28,956	$28,961	$5,651,802	$141,715	0.51%	20.43%	0.51%	20.44%
		336411	Aircraft mfg	$154,909	$154,937	$629,251,120	$24,568,818	0.02%	0.63%	0.02%	0.63%
		336414	Guided missile & space vehicle mfg	$168,457	$168,488	$1,180,818,762	$46,104,522	0.01%	0.37%	0.01%	0.37%
		336415	Guided missile & space vehicle propulsion unit & parts mfg	$110,799	$110,819	$122,919,091	$4,799,319	0.09%	2.31%	0.09%	2.31%
		336419	Other guided missile & space vehicle parts & auxiliary equip mfg	$36,566	$36,572	$9,886,575	$386,017	0.37%	9.47%	0.37%	9.47%
		336992	Military armored vehicle, tank, & tank component mfg	$90,340	$90,356	$35,542,489	$891,201	0.25%	10.14%	0.25%	10.14%
		44111	New car dealers	$22,949	$25,266	$25,065,411	$307,242	0.09%	7.47%	0.10%	8.22%
		44112	Used car dealers	$5,762	$6,030	$1,461,281	$17,912	0.39%	32.17%	0.41%	33.66%
		811121	Automotive body, paint, & interior repair & maintenance	$6,346	$6,686	$447,001	$17,072	1.42%	37.17%	1.50%	39.16%
3B	Painting - Maritime Industry	336611	Ship building & repairing	$4,846	$6,301	$20,229,517	$1,180,845	0.02%	0.41%	0.03%	0.53%
		336612	Boat building	$4,878	$6,342	$10,779,558	$629,228	0.05%	0.78%	0.06%	1.01%
3C	Painting - Construction Industry	233[S], 234[T],235[U]	Heavy Construction, Special Trade Contractors	$832	$977	$3,713,774	$50,994	0.02%	1.63%	0.03%	1.92%
		234[T]	Heavy Construction	$1,535	$1,892	$8,665,059	$402,816	0.02%	0.38%	0.02%	0.47%
		235[U]	Special Trade Contractors	$711	$820	$381,689	$14,873	0.19%	4.78%	0.21%	5.51%
3D	Painting - Government	999200	State	$6,226	$7,963	$12,956,109,000	N/A	0.00%	N/A	N/A	N/A
		999300	Local	$785	$932	$86,827,088	N/A	0.00%	N/A	N/A	N/A
4	Chromate (Chromite Ore Production)	325188	All Other Basic Inorganic Chemical Mfg.	$30,537	$30,567	$114,000,000	$6,498,000	0.03%	0.47%	0.03%	0.47%
5	Chromate Pigment Producers	325131	Inorganic Dye and Pigment Mfg.	$38,240	$38,243	$47,652,570	$1,410,107	0.08%	2.71%	0.08%	2.71%
6	Chromated Copper Arsenate Producers	325320	Pesticide and Other Agricultural Chemical Mfg.	$3,031	$3,032	$115,264,777	$10,331,754	0.00%	0.03%	0.00%	0.03%
7	Chromium Catalyst Producers	325188	All Other Basic Inorganic Chemical Mfg.	$608,092	$608,106	$75,725,612	$2,240,828	0.80%	27.14%	0.80%	27.14%
8	Paint and Coatings Producers	325510	Paint and Coating Mfg.	$8,639	$8,640	$21,359,121	$1,004,400	0.04%	0.86%	0.04%	0.86%
9	Printing Ink Producers	325910	Printing Ink Mfg.	$9,327	$9,327	$11,018,705	$640,603	0.08%	1.46%	0.08%	1.46%
10	Plastic Colorant Producers and Users	325211	Plastics Material and Resin Mfg.	$11,469	$11,470	$13,943,468	$608,024	0.08%	1.89%	0.08%	1.89%
		325991	Custom Compounding of Purchased Resin								
		3261	Plastic Product Mfg.								
11	Plating mixture Producers	325998	All Other Miscellaneous Chemical Product and Preparation Mfg.	$6,655	$6,657	$22,312,086	$1,297,174	0.03%	0.51%	0.03%	0.51%

Table VIII-7. Economic Impacts on All Entities Affected by OSHA's Final Standard for Hexavalent Chromium (by Application Group for a PEL of 5 ug/m^3)

				Cost per Entity[BB]				Impacts on the National Economy		Impacts on Employers	
	Application Group	NAICS	Category	National Costs	Employer Costs	Revenue per Entity[CC]	Profit per Entity[CC]	Cost/Revenue Impact	Cost/Profit Impact	Cost/Revenue Impact	Cost/Profit Impact
12	Wood Preserving	321114	Wood Preservation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
13	Chromium Metal Producers	331112	Electrometallurgical Ferroalloy Product Mfg.	$26,979	$26,979	$37,114,939	$785,793	0.07%	3.43%	0.07%	3.43%
14	Steel Mills (stainless)	331111	Iron and Steel Mills	$51,392	$51,392	$169,158,876	$3,581,411	0.03%	1.43%	0.03%	1.43%
14A	Steel Mills (carbon)	331111	Iron and Steel Mills	$8,726	$8,726	$123,992,415	$2,625,153	0.01%	0.33%	0.01%	0.33%
14B	Reshaping (stainless)	332111	Iron and Steel Forging	$7,730	$7,730	$7,418,762	$346,170	0.10%	2.23%	0.10%	2.23%
15	Iron and Steel foundries	3315	Iron foundries	$33,530	$33,530	$7,985,721	$219,160	0.42%	15.30%	0.42%	15.30%
		331512	Steel Investment foundries								
		331513	Steel foundries (except investment)								
16	Chromium Dioxide Producers	325188	All Other Inorganic Chemicals, n.e.c.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
17	Chromium Dye Producers	3251317	Chrome Colors and Other Inorganic Pigments	$66,865	$66,866	$71,154,613	$2,105,565	0.09%	3.18%	0.09%	3.18%
18	Chromium Sulfate Producers	325188	All Other Inorganic Chemicals, n.e.c.	$6,531	$6,531	$3,919,368	$115,980	0.17%	5.63%	0.17%	5.63%
19	Chemical Distributors	42269[V]	Other Chemical and Allied Products	$3,066	$3,066	$4,856,297	$155,866	0.06%	1.97%	0.06%	1.97%
20	Textile Dyeing	313	Textile Mills	$1,467	$1,511	$4,833,805	$136,030	0.03%	1.08%	0.03%	1.11%
		314	Textile Product Mills								
21	Colored Glass Producers	3272123	Other Pressed and Blown Glass and Glassware Mfg.	$2,345	$2,345	$11,453,217	$328,390	0.02%	0.71%	0.02%	0.71%
		3272129	Other Pressed and Blown Glass and Glassware Mfg.								
21A	Fiber, Flat, and Container Glass	327993	Mineral Wool Manufacturing	$30,665	$30,665	$108,010,560	$3,595,742	0.03%	0.85%	0.03%	0.85%
		327211	Flat Glass Manufacturing								
		327212	Other Pressed and Blown Glass Mfg.								
		327213	Glass Container Manufacturing								
22	Printing	32311	Printing	$603	$611	$1,691,687	$63,974	0.04%	0.94%	0.04%	0.96%
		323113	Commercial Screen Printing								
23	Leather Tanning	3161	Leather and Hide Tanning and Finishing	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
24	Chromium Catalyst Users		Petrochemical Mfg., Including Styrene	$8,920	$8,921	$231,093,433	$6,734,694	0.00%	0.13%	0.00%	0.13%
24A	Chromium Catalyst Users - Service Companies	325110	Other Services to Buildings and Dwellings, Including Catalyst handling	$25,282	$26,076	$5,936,912	$224,938	0.43%	11.24%	0.44%	11.59%
25	Refractory Brick Producers	561790	Nonclay Refractory Mfg.	$4,691	$4,698	$10,214,017	$273,374	0.05%	1.72%	0.00%	0.00%
26A	Wood Working -General Industry	321	General Industry	$4,125	$4,125	$7,906,370	$209,534	0.05%	1.97%	0.05%	1.97%
26B	Wood Working - Maritime Industry	336611	Ship Building and Repairing	$347	$347	$25,537,085	$1,490,661	0.00%	0.02%	0.00%	0.02%
26C	Wood Working - Construction Industry	2332[W], 2333[X], 2349[Y], 23551[Z]	Construction	$1,093	$1,124	$4,211,605	$173,854	0.03%	0.63%	0.03%	0.65%
26D	Wood Working - Government	999200	State	$1,049	$1,083	$12,956,109,000	N/A	0.00%	0.00%	0.00%	0.00%
		999300	Local	$1,046	$1,080	$108,838,617	N/A	0.00%	0.00%	0.00%	0.00%
27	Solid Waste Incineration	562213	Solid Waste Combustors and Incinerators	$3,362	$4,044	$12,660,551	$538,417	0.03%	0.62%	0.03%	0.75%
27A	Solid Waste Incineration - govt	999300	Local Governments	$545	$698	$151,220,000	N/A	0.00%	0.00%	0.00%	0.00%

Table VIII-7. Economic Impacts on All Entities Affected by OSHA's Final Standard for Hexavalent Chromium (by Application Group for a PEL of 5 ug/m^3)

				Cost per Entity[BB]				Impacts on the National Economy		Impacts on Employers	
	Application Group	NAICS	Category	National Costs	Employer Costs	Revenue per Entity[CC]	Profit per Entity[CC]	Cost/Revenue Impact	Cost/Profit Impact	Cost/Revenue Impact	Cost/Profit Impact
28	Oil and Gas Well Drilling	213111	Drilling Oil and Gas Wells	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
29	Portland Cement Producers	327310	Cement Mfg.	$0	$0	$44,269,508	$1,867,204	0.00%	0.00%	0.00%	0.00%
30	Superalloy Producers	331492	Secondary Smelting, Refining and Alloying of Nonferrous Metal	$12,186	$12,186	$33,302,695	$799,265	0.04%	1.52%	0.04%	1.52%
		331528	Other Nonferrous Foundries								
31B	Construction - Refractory Brick Restoration and Maintenance	235[U]	Special Trade Contractors	$2,377	$2,537	$960,058	$36,433	0.25%	6.52%	0.26%	6.96%
31C	Construction - Hazardous Waste Site Work	2333[X]	Nonresidential Building Construction	$436	$707	$5,042,375	$212,284	0.01%	0.21%	0.01%	0.33%
31CG	Hazardous Waste Site Work - Government	999200	State	$309	$405	$12,956,109,000	N/A	0.00%	0.00%	0.00%	0.00%
		999300	Local	$338	$482	$109,435,929	N/A	0.00%	0.00%	0.00%	0.00%
31D	Construction - Industrial Rehabilitation and Maintenance	23493[AA]	Industrial Nonbuilding Structure Construction	$215	$215	$24,843,811	$981,815	0.00%	0.02%	0.00%	0.02%
31DG	Industrial Rehabilitation and Maintenance - Government	999200	State	$381	$381	$12,956,109,000	N/A	0.00%	0.00%	0.00%	0.00%
		999300	Local	$381	$381	$108,554,940	N/A	0.00%	0.00%	0.00%	0.00%
32A	Ready-Mixed Concrete	327320	Ready Mixed Concrete Manufacturing	$0	$0	$8,801,330	$371,223	0.00%	0.00%	0.00%	0.00%
32	Precast Concrete Products Producers	327331, 327332, 327390	Concrete Pipe, Brick, and Block Mfg.	$0	$0	$5,535,007	$232,470	0.00%	0.00%	0.00%	0.00%

Footnotes to Table VIII-7

[A] SBA size standards taken from 13 CFR Ch.1 § 121.201. January 1, 2003

[B] Includes industries in NAICS 31-33, NAICS 42, NAICS 51.

[C] Except 311221 "Wet Corn Milling", 311312 "Cane Sugar Refining", 311313 "Beet Sugar Manufacturing", and 311821 Cookie and Cracker Manufacturing, which have an SBA size standard of 750 employees, and also 311223 "Other Oilseed Processing", 311225 "Fats and Oils Refining and Blending", 311230 "Breakfast Cereal Manufacturing", 311422 "Special Canning", which have an SBA size standard of 1,000 employees.

[D] Except 332811 "Metal Heat Treating," 332991 "Ball and Roller Bearing Manufacturing," and 332998 "Enameled Iron and Metal Sanitary Ware Manufacturing," all of which have an SBA size standard of 750 employees; 332431 "Metal Can Manufacturing," 332992 "Small Arms Ammunition Manufacturing," and 332994 "Small Arms Manufacturing," all of which have an SBA size standard of 1,000 employees; and 332993 "Ammunition (except Small Arms) Manufacturing," the SBA size standard for which is 1,500 employees.

[E] Except 333120 "Construction Machinery Manufacturing," 333415 "Air-Conditioning and Warm Air Heating Equipment," and 333924 Industrial Truck, Tractor, Trailer," all of which have an SBA size standard of 750 employees; and except 333313 Office Machinery Manufacturing," 333611 "Turbine and Turbine Generator Set Unit Manufacturing," and 333618 "Other Engine Equipment Manufacturing," all of which have an SBA size standard of 1,000 employees.

[F] Except for 336212 "Truck Trailer Manufacturing," 336214 "Travel Trailer and Camper Manufacturing," 336311 "Carburetor, Piston, Piston Ring and Valve Manufacturing," 336321 "Vehicular Lighting Equipment Manufacturing," 336360 "Motor Vehicle Seating and Interior Trim Manufacturing," 336370 "Motor Vehicle Metal Stamping," 336991 Motorcycle, Bicycle and Parts Manufacturing," and 336999 "All Other Transportation Equipment Manufacturing," all of which have an SBA size standard of 500 employees; 336312 "Gasoline Engine and Engine Parts Manufacturing," 336322 "Other Motor Vehicle Electrical and Electronic Equipment Manufacturing," 336330 "Motor Vehicle Steering and Suspension Components Manufacturing (except Spring)," 336340 "Motor Vehicle Brake System Manufacturing," 336350 "Motor Vehicle Transmission and Power Train Parts Manufacturing," 336391 Motor Vehicle Air-Conditioning Manufacturing," 336399 "All Other Motor Vehicle Parts Manufacturing, all of which have an SBA size standard of 750 employees; and 336411 "Aircraft Manufacturing," which has an SBA size standard of 1,500 employees.

[G] Includes industries in NAICS 332, NAICS 336, NAICS 441, and NAICS 811.

[H] Includes industries in NAICS 11, NAICS 22, NAICS 31-33, NAICS 42, NAICS 44-45, NAICS 48-49, NAICS 51, NAICS 52, NAICS 53, NAICS 54, NAICS 56, NAICS 61, NAICS 62, NAICS 71, NAICS 72, and NAICS 81.

[I] Except 336612 "Boat Building," which has an SBA size standard of 500 employees.

[J] Except 2331 "Land Subdivision and Land Development," which has an SBA size standard of $6.0 million.

[K] Except 336411 "Aircraft Manufacturing"

[L] Except 336612 "Boat Building," which has an SBA size standard of 500 employees.

[M] All of NAICS CODE 3261 have an SBA size standard of 500 employees except 326192 "Resilient Floor Covering Mfg.", the size standard for which is 750 employees.

[N] All of NAICS CODE 313 have an SBA size standard of 500 employees except 313210 "Broad Woven Fabric Mills", 313320 "Broad Woven Finishing Mills", and 313320 "Fabric Coating Mills" all of which have a size standard of 1,000 employees.

[O] All of NAICS CODE 314 have an SBA size standard of 500 employees except 314992 "Tire Cord and Tire Fabric Mill", the size standard for which is 1,000 employees.

[P] All of NAICS CODE 3161 have an SBA size standard of 500 employees except 316211 "Rubber and Plastics Footwear Mfg.", the size standard for which is 1,000 employees.

[Q] Except 336612 "Boat Building," which has an SBA size standard of 500 employees.

[R] Except 23551 which has an SBA size standard of $12 million.

[S] 1997 NAICS Code is 233, Building, Developing, and General Contracting. 2002 NAICS Code is 236, Construction of Buildings.

[T] 1997 NAICS Code is 234, Heavy Construction. 2002 NAICS Code is 236, Heavy and Civil Engineering Construction.

[U] 1997 NAICS Code is 235, Special Trades Contractors. 2002 NAICS Code is 236, Special Trades Contractors.

[V] 1997 NAICS Code is 42269, Other Chemical and Allied Products. 2002 NAICS Code is 424690, Other Chemical and Allied Products Merchant Wholesalers.

[W] 1997 NAICS Code is 2332, Residential Building Construction. 2002 NAICS Code is 23611, Residential Building Construction.

[X] 1997 NAICS Code is 2333, Nonresidential Building Construction. 2002 NAICS Code is 2362, Nonresidential Building Construction.

[Y] 1997 NAICS Code is 2349, Other Heavy Construction. 2002 NAICS Code is 237, Heavy and Civil Engineering Construction.

[Z] 1997 NAICS Code is 23551, Carpentry. 2002 NAICS Codes are 23835, Finish Carpentry Contractors, and 23813, Framing Contractors.

[AA] 1997 NAICS Code is 23493, Industrial Non-Building Structure Construction. 2002 NAICS Code is 23621, Industrial Building Construction.

[BB] "Entities" refer to business firms or governmental bodies; "establishments" refer to industrial plants. Data on affected entities, establishments, and employees are from multiple sources; see the industry profiles in Chapter II for the complete list of references.

[CC] Industry revenues were estimated from data reported in I.R.S., ***Corporation Source Book of Statistics of Income, 2002*** (IRS, 2005). Data on revenues for State and Local Governments were taken from U.S. Census Bureau, ***Government Finances: 1999-2000***, January 2003.

Source: U.S. Dept. of Labor, OSHA, Office of Regulatory Analysis, based on Shaw, 2006.

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Price elasticity refers to the relationship between the price charged for a service and the demand for that service; that is, the more elastic the relationship, the less able is an establishment to pass the costs of compliance through to its customers in the form of a price increase and the more it will have to absorb the costs of compliance from its profits. When demand is inelastic, establishments can

recover most of the costs of compliance by raising the prices they charge for that service; under this scenario, profit rates are largely unchanged and the industry remains largely unaffected. Any impacts are primarily on those using the relevant services. On the other hand, when demand is elastic, establishments cannot recover all the costs simply by passing the cost increase through in the form of a price increase; instead, they must absorb some of the increase from their profits. Commonly, this will mean both reductions in the quantity of goods and services produced and in total profits, though the profit rate may remain unchanged. In general, ''when an industry is subject to a higher cost, it does not simply swallow it, it raises its price and reduces its output, and in this way shifts a part of the cost to its consumers and a part to its suppliers,'' in the words of the court in *American Dental Association* v. *Secretary of Labor* (984 F.2d 823, 829 (7th Cir. 1993)).

The Court's summary is in accordance with micro-economic theory. In the long run, firms can only remain in business if their profits are adequate to provide a return on investment that assures that investment in the industry will continue. Over time, because of rising real incomes and productivity, firms in most industries are able to assure an adequate profit. As technology and costs change, however, the long run demand for some products naturally increases and the long run demand for other products naturally decreases. In the face of rising external costs, firms that otherwise have a profitable line of business may have to increase prices to stay viable. Commonly, increases in prices result in reduced demand, but rarely eliminate all demand for the product. Whether this decrease in the total production of the product results in smaller production for each establishment within the industry, or the closure of some plants within the industry, or a combination of the two, is dependent on the cost and profit structure of individual firms within the industry.

If demand is completely inelastic (*i.e.*, price elasticity is 0), then the impact of compliance costs that are 1 percent of revenues for each firm in the industry would result in a 1 percent increase in the price of the product or service, with no decline in quantity demanded. Such a situation represents an extreme case, but might be correct in situations in which there are few if any substitutes for the product or service in question, or if the products or services of the affected sector account for only a very small portion of the income of its consumers.

If the demand is perfectly elastic (*i.e.*, the price elasticity is infinitely large), then no increase in price is possible and before-tax profits would be reduced by an amount equal to the costs of compliance (minus any savings resulting from improved employee health and/or reduced insurance costs) if the industry attempted to keep producing the same amount of goods and services as previously. Under this scenario, if the costs of compliance are such a large percentage of profits that some or all plants in the industry can no longer invest in the industry with hope of an adequate return on investment, then some or all of the firms in the industry will close. This scenario is highly unlikely to occur, however, because it can only arise when there are other goods and services that are, in the eyes of the consumer, perfect substitutes for the goods and services the affected establishments produce.

A common intermediate case would be a price elasticity of one. In this situation, if the costs of compliance amount to 1 percent of revenues, then production would decline by 1 percent and prices would rise by 1 percent. In this case, the industry revenues would stay the same, with somewhat lower production, but similar profit rates (in most situations where the marginal costs of production net of regulatory costs would fall as well). Consumers would, however, get less of the product or the service for their expenditures, and producers would collect lower total profits; this, as the court described in *ADA* v. *Secretary of Labor*, is the more typical case.

If there is a price elasticity of one, the question of economic feasibility is complicated. On the one hand, the industry will certainly not be ''eliminated'' with the level of costs found in this rulemaking, since under these assumptions the change in total profits is somewhat less than the costs imposed by the regulation. But there is still the question of whether the industry's competitive structure will be significantly altered. For example, given a 20 percent increase in costs, and an elasticity of one, the industry will not be eliminated. However, if the increase in costs is such that all small firms in an industry will have to close, this could reasonably be concluded to have altered its competitive structure. For this reason, when costs are a significant percentage of revenues, OSHA examines the differential costs by size of firm, and other classifications that may be important.

Some commenters (Ex. 38–265; Ex. 38–202; Ex. 40–12) questioned the screening analysis approach for several reasons: (1) It fails to provide for a facility-by-facility analysis; (2) it fails to consider that, in some plants, there may be product lines that do not involve hexavalent chromium; and (3) the concept of cost pass-through is largely negated by foreign competition. It should be noted that almost all commenters arguing for the inadequacy of screening analysis also argued for much higher costs than those estimated by OSHA (criticisms of costs were examined in Chapter 4). No one in the record presented an argument as to why costs representing less than one percent of revenues would be economically infeasible.

First, some commenters (Ex. 38–265; Ex. 40–12; Ex. 47–5) argued that industry ratios of costs to profits or costs to revenues cannot adequately determine economic feasibility—instead the analysis must be conducted on a facility-by-facility basis. OSHA rejects this argument for two reasons. First, the judicial definition of economic feasibility notes that a regulation may be economically feasible and yet cause some marginal facilities to close. (*American Textile Mfrs. Institute, Inc.* v. *Donovan* 452 U.S. 490, 530–532 (1981))

OSHA's obligation is not to determine whether any plants will close, or whether some marginal plants may close earlier than they otherwise might have, but whether the regulation will eliminate or alter the competitive structure of an industry. OSHA has an obligation to examine industries, and to consider its industry definitions carefully, so that they compare like with like. However, OSHA does not have an obligation to conduct facility-by-facility analysis of the thousands of facilities in the dozens of industries covered by a major standard. OSHA criteria can be examined through examination of industry ratios, particularly when the costs represent a very small percentage of revenues. Again, it must be noted that almost all commenters arguing for the inadequacy of screening analysis also argued for much higher costs than those estimated by OSHA, and while not agreeing with the need for facility-by-facility analysis, OSHA agrees that as costs become high as a percentage of revenues, something more than industry ratio analysis may be needed.

Second, some commenters argued that some facilities and industries have some lines of production involving hexavalent chromium, and some that do not, and, in such cases, OSHA should analyze only the revenues and profits associated with the lines using hexavalent chromium. Even if this were desirable, the data for such an analysis is simply not publicly available. No

government data source collects data in a way that could be used for this purpose, and there is little privately collected data that could be used for this purpose. Even if such data were available, there are reasons to produce a product line even if it has profits lower than other product lines, and the data to examine this issue is even more unavailable. Further, OSHA's mandates, as interpreted by the courts, focus on the effect of a standard on industries, not on product lines within those industries. (*American Iron & Steel Institute* v. *OSHA*, 939 F.2d 975, 986 (D.C. Cir, 1991))

Finally, some commenters (SFIC, Ex. 38–265; SSINA, Ex. 40–12, Ex. 47–5; Engelhard, Ex. 38–202) questioned the above analysis by bringing up the issue of foreign competition, and some presented the argument that foreign competition made price increases impossible.

While foreign competition is an important issue to consider in analyzing economic feasibility, the presence of foreign competition does not mean that price increases are impossible. In economic terms, the case that foreign competition makes price increases impossible would be an argument that foreign competition puts all firms into the situation of having infinite elasticity of domestic demand, because foreign firms are not subject to the regulation, and, as a result can underprice American firms and drive them out of business.

Is this the case? Both theory and history suggest that it is not. From a theoretical viewpoint, the ability to sell to a consumer is determined by the price at the site, plus the cost of transportation, plus or minus intangible factors (such as quality or timeliness). Under these circumstances, a specific establishment can be competitive even if its cost of production is greater than that of foreign competitors—if the U.S. producer has other advantages.

From a practical viewpoint, econometric studies typically talk about the elasticity of domestic production with respect to foreign prices. No one assumes that a lower foreign price simply and totally assures that the domestic industry will be eliminated. Foreign competition has been a fact for decades—this does not mean that any domestic regulation assures that the domestic industry will be eliminated.

However, foreign competition does mean the elasticity of demand for domestic production will be greater than the total elasticity of demand for the product in question. Thus foreign competition is a factor that can result in greater elasticity of demand for domestic firms, and that needs to be considered in the context of the overall feasibility analysis, just as other factors such as the presence or absence of good substitutes need to be considered in the analysis.

A different problem with the formulation in terms of demand elasticity given above is that it ignores other things besides the regulatory costs that may act to shift either the costs of the production or demand for a product or service. In the normal course of events, neither demand nor supply is static. Costs of inputs needed commonly increase (at least in nominal terms). Productivity may increase or decrease as technology changes. Increases in income or GDP normally serve to increase demand for a good or service from year to year (for the majority of goods with positive income elasticity). In a typical year for most manufacturing industries, some costs will rise, productivity will also improve, and increases in GDP will increase demand. Adjusting to cost increases is thus a part of the normal economic scene. Even a real cost increase brought about by a regulation may be partially offset by productivity improvement. Finally, even real price increases may not decrease the quantities sold (and thus force employers to close) if the price increases are offset by income-driven increased demand for the good or service. A real price increase caused by the costs of a regulation will mean that the quantity sold will be lower than it otherwise would have been, but does not imply that actual quantity sold for the product will decline as compared to past years.

Table VIII–7 provides costs as percentage of revenues and profits for all affected establishments. OSHA believes that this is the best starting point for fulfilling its statutory responsibility to determine whether the standard affects the viability of an industry as a whole.

Table VIII–8 shows costs as a percentage of profits and revenues for firms classified as small by the Small Business Administration and Table VIII–9 shows costs as a percentage of revenues and profits for establishments with fewer than 20 employees. (These tables use costs with a discount rate of 7 percent.) These small-business tables show greater potential impacts, especially for small electroplating establishments. Based on these results, OSHA has prepared a Final Regulatory Flexibility Analysis (see Chapter VII of the FEA) to examine the impacts on small businesses and how they can be alleviated. (Tables V–5, V–6, and V–7 in the FEA show the same information using a discount rate of 3 percent.)

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Table VIII-8. Economic Impacts on Small Business Entities Affected by OSHA's Final Standard for Hexavalent Chromium (by Application Group for a PEL of 5 ug/m^3)

				Cost per Entity[BB]				Impacts on the National Economy		Impacts on Employers	
	Application Group	NAICS	Category	National Costs	Employer Costs	Revenue per Entity[CC]	Profit per Entity[CC]	Cost/Revenue Impact	Cost/Profit Impact	Cost/Revenue Impact	Cost/Profit Impact
1	Electroplating - General Industry	All General Industry[B]	All General Industry	$10,758	$10,969	$12,780,874	$734,766	0.08%	1.46%	0.09%	1.49%
		237	Heavy construction (234)	$16,379	$16,727	$12,287,063	$571,194	0.13%	2.87%	0.14%	2.93%
		238	Special trade contractors (235)	$11,519	$11,716	$2,706,583	$105,463	0.43%	10.92%	0.43%	11.11%
		313	Textile mills	$13,342	$13,617	$5,435,028	$155,501	0.25%	8.58%	0.25%	8.76%
		314	Textile product mills	$9,436	$9,618	$4,766,604	$132,697	0.20%	7.11%	0.20%	7.25%
		315	Apparel mfg	$16,379	$16,727	$10,989,677	$563,536	0.15%	2.91%	0.15%	2.97%
		316	Leather & allied product mfg	$18,427	$18,818	$15,620,859	$915,694	0.12%	2.01%	0.12%	2.06%
		321	Wood product mfg	$11,292	$11,515	$5,712,009	$155,306	0.20%	7.27%	0.20%	7.41%
		322	Paper mfg	$16,115	$16,451	$26,996,207	$751,180	0.06%	2.15%	0.06%	2.19%
		323	Printing & related support activities	$9,214	$9,389	$2,970,148	$112,322	0.31%	8.20%	0.32%	8.36%
		324	Petroleum & coal products mfg	$11,009	$11,221	$165,937,873	$7,050,167	0.01%	0.16%	0.01%	0.16%
		325	Chemical mfg	$11,380	$11,605	$36,534,897	$3,274,804	0.03%	0.35%	0.03%	0.35%
		326	Plastics & rubber products mfg	$15,127	$15,440	$9,219,560	$307,032	0.16%	4.93%	0.17%	5.03%
		327	Nonmetallic mineral product mfg	$13,342	$13,617	$5,488,363	$196,459	0.24%	6.79%	0.25%	6.93%
		331[C]	Primary metal mfg	$12,564	$12,818	$19,721,884	$473,888	0.06%	2.65%	0.06%	2.70%
		332813	Electroplating, Plating, Polishing, Anodizing, and Coloring	$10,677	$10,885	$878,682	$36,194	1.22%	29.50%	1.24%	30.07%
		Other 332[D]	Fabricated Metal Product Manufacturing	$10,429	$10,632	$4,443,842	$213,137	0.23%	4.89%	0.24%	4.99%
		333[E]	Machinery Manufacturing	$11,070	$11,289	$10,521,786	$344,873	0.11%	3.21%	0.11%	3.27%
		334	Computer & electronic product mfg	$12,131	$12,375	$32,552,081	$1,426,112	0.04%	0.85%	0.04%	0.87%
		335	Electrical equipment, appliance, & component mfg	$13,455	$13,730	$39,292,512	$1,424,293	0.03%	0.94%	0.03%	0.96%
		336 (except 33661)[F]	Transportation Equipment Manufacturing	$14,306	$14,602	$81,763,538	$2,050,158	0.02%	0.70%	0.02%	0.71%
		339	Miscellaneous Manufacturing	$8,106	$8,254	$6,037,788	$227,192	0.13%	3.57%	0.14%	3.63%
		423	Wholesale trade, durable goods (421)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		441	Motor vehicle & parts dealers	$4,228	$4,286	$1,826,119	$26,333	0.23%	16.06%	0.23%	16.27%
		442	Furniture & home furnishings stores	$4,228	$4,286	$647,301	$24,357	0.65%	17.36%	0.66%	17.59%
		443	Electronics & appliance stores	$4,228	$4,286	$857,482	$29,158	0.49%	14.50%	0.50%	14.70%
		444	Building material & garden equipment & supplies dealers	$4,228	$4,286	$773,774	$38,341	0.55%	11.03%	0.55%	11.18%
		446	Health & personal care stores	$4,228	$4,286	$973,952	$24,550	0.43%	17.22%	0.44%	17.46%
		453	Miscellaneous store retailers	$4,228	$4,286	$600,302	$18,855	0.70%	22.43%	0.71%	22.73%
		454	Nonstore retailers	$4,228	$4,286	$706,333	$26,766	0.60%	15.80%	0.61%	16.01%
		511	Publishing industries	$14,939	$15,244	$9,517,777	$1,010,030	0.16%	1.48%	0.16%	1.51%
		512	Motion picture & sound recording industries	$10,040	$10,230	$4,669,612	$226,559	0.22%	4.43%	0.22%	4.52%
		519	Information services & data processing services (514)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		522	Credit intermediation & related activities	$6,832	$6,952	$2,062,875	$241,112	0.33%	2.83%	0.34%	2.88%
		532	Rental & leasing services	$4,228	$4,286	$649,662	$16,301	0.65%	25.94%	0.66%	26.29%
		541	Professional, scientific, & technical services	$5,681	$5,772	$619,297	$38,787	0.92%	14.65%	0.93%	14.88%
		561	Administrative & support services	$7,618	$7,753	$657,196	$24,900	1.16%	30.60%	1.18%	31.14%

Table VIII-8. Economic Impacts on Small Business Entities Affected by OSHA's Final Standard for Hexavalent Chromium (by Application Group for a PEL of 5 ug/m^3)

				Cost per Entity[BB]				Impacts on the National Economy		Impacts on Employers	
	Application Group	NAICS	Category	National Costs	Employer Costs	Revenue per Entity[CC]	Profit per Entity[CC]	Cost/Revenue Impact	Cost/Profit Impact	Cost/Revenue Impact	Cost/Profit Impact
		562	Waste management & remediation services	$10,304	$10,506	$2,873,552	$122,204	0.36%	8.43%	0.37%	8.60%
		711	Performing arts, spectator sports, & related industries	$4,228	$4,286	$82,883	$7,802	5.10%	54.19%	5.17%	54.93%
		812	Personal & laundry services	$6,254	$6,359	$246,655	$12,738	2.54%	49.10%	2.58%	49.92%
2A	Welding - General Industry (stainless steel)	All General Industry[H]	All General Industry	$3,269	$3,269	$6,007,957	$310,442	0.05%	1.05%	0.05%	1.05%
		113	Forestry and Logging	$2,033	$2,033	$1,377,305	$32,836	0.15%	6.19%	0.15%	6.19%
		221	Utilities	$1,709	$1,709	$7,823,104	$305,652	0.02%	0.56%	0.02%	0.56%
		311[C]	Food Manufacturing	$3,301	$3,301	$18,313,298	$739,920	0.02%	0.45%	0.02%	0.45%
		312	Beverage and Tobacco Product Manufacturing	$3,196	$3,196	$84,688,514	$8,936,892	0.00%	0.04%	0.00%	0.04%
		313	Textile mills	$4,414	$4,414	$8,281,201	$236,933	0.05%	1.86%	0.05%	1.86%
		314	Textile product mills	$2,510	$2,510	$5,177,567	$144,138	0.05%	1.74%	0.05%	1.74%
		315	Apparel mfg	$5,276	$5,276	$16,079,356	$824,528	0.03%	0.64%	0.03%	0.64%
		316	Leather & allied product mfg	$5,136	$5,136	$20,341,006	$1,192,389	0.03%	0.43%	0.03%	0.43%
		321	Wood product mfg	$2,125	$2,125	$3,724,284	$101,261	0.06%	2.10%	0.06%	2.10%
		322	Paper mfg	$3,990	$3,990	$28,522,480	$793,649	0.01%	0.50%	0.01%	0.50%
		323	Printing & related support activities	$4,600	$4,600	$7,848,404	$296,802	0.06%	1.55%	0.06%	1.55%
		324	Petroleum & coal products mfg	$2,545	$2,545	$147,676,951	$6,274,319	0.00%	0.04%	0.00%	0.04%
		325	Chemical mfg	$4,340	$4,340	$68,053,975	$6,100,016	0.01%	0.07%	0.01%	0.07%
		326	Plastics & rubber products mfg	$5,144	$5,144	$14,557,959	$484,813	0.04%	1.06%	0.04%	1.06%
		327	Nonmetallic mineral product mfg	$5,821	$5,821	$10,648,072	$381,153	0.05%	1.53%	0.05%	1.53%
		332	Fabricated Metal Product Manufacturing	$3,428	$3,428	$6,767,606	$324,589	0.05%	1.06%	0.05%	1.06%
		333	Machinery Manufacturing	$3,024	$3,024	$12,305,294	$403,331	0.02%	0.75%	0.02%	0.75%
		334	Computer & electronic product mfg	$3,320	$3,320	$39,081,515	$1,712,167	0.01%	0.19%	0.01%	0.19%
		335	Electrical equipment, appliance, & component mfg	$4,745	$4,745	$66,815,847	$2,421,972	0.01%	0.20%	0.01%	0.20%
		336 (except 33661)	Transportation Equipment Manufacturing	$4,327	$4,327	$110,841,183	$2,779,258	0.00%	0.16%	0.00%	0.16%
		337	Furniture & Related Product Manufacturing	$2,777	$2,777	$4,266,182	$176,247	0.07%	1.58%	0.07%	1.58%
		339	Miscellaneous Manufacturing	$3,557	$3,557	$14,501,511	$1,019,389	0.02%	0.35%	0.02%	0.35%
		423	Wholesale trade, durable goods (421)	$1,625	$1,625	$2,143,754	$53,536	0.08%	3.04%	0.08%	3.04%
		424	Merchant Wholesalers, nondurable goods (422)	$6,229	$6,229	$25,602,778	$608,026	0.02%	1.02%	0.02%	1.02%
		441	Motor vehicle & parts dealers	$3,323	$3,323	$7,223,413	$104,163	0.05%	3.19%	0.05%	3.19%
		442	Furniture & home furnishings stores	$2,054	$2,054	$1,054,738	$39,688	0.19%	5.18%	0.19%	5.18%
		443	Electronics & appliance stores	$1,814	$1,814	$1,276,222	$43,397	0.14%	4.18%	0.14%	4.18%
		444	Building material & garden equipment & supplies dealers	$2,359	$2,359	$1,707,859	$84,625	0.14%	2.79%	0.14%	2.79%
		445	Food and Beverage Stores	$1,645	$1,645	$1,427,294	$26,613	0.12%	6.18%	0.12%	6.18%
		446	Health & personal care stores	$1,884	$1,884	$1,430,291	$36,052	0.13%	5.23%	0.13%	5.23%
		447	Gasoline Stations	$2,113	$2,113	$1,065,024	$7,829	0.20%	26.99%	0.20%	26.99%
		448	Clothing and Clothing Accessory Stores	$1,257	$1,257	$393,323	$17,008	0.32%	7.39%	0.32%	7.39%

Table VIII-8. Economic Impacts on Small Business Entities Affected by OSHA's Final Standard for Hexavalent Chromium (by Application Group for a PEL of 5 ug/m^3)

				Cost per Entity[BB]				Impacts on the National Economy		Impacts on Employers	
Application Group		NAICS	Category	National Costs	Employer Costs	Revenue per Entity[CC]	Profit per Entity[CC]	Cost/Revenue Impact	Cost/Profit Impact	Cost/Revenue Impact	Cost/Profit Impact
		451	Sporting Good, Hobby, Book and Music Stores	$1,899	$1,899	$771,125	$20,209	0.25%	9.40%	0.25%	9.40%
		452	General Merchandise Stores	$1,257	$1,257	$811,413	$25,856	0.15%	4.86%	0.15%	4.86%
		453	Miscellaneous store retailers	$1,989	$1,989	$945,311	$29,691	0.21%	6.70%	0.21%	6.70%
		454	Nonstore retailers	$2,299	$2,299	$2,200,168	$83,375	0.10%	2.76%	0.10%	2.76%
		481	Air Transportation	NA	NA	NA	NA	NA	NA	NA	NA
		483	Water Transportation	$10,272	$10,272	$45,630,582	$1,733,323	0.02%	0.59%	0.02%	0.59%
		484	Truck Transportation	$4,398	$4,398	$4,571,979	$92,662	0.10%	4.75%	0.10%	4.75%
		485	Transit and Ground Passenger Transportation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		486	Pipeline Transportation	$1,257	$1,257	$317,275	$63,678	0.40%	1.97%	0.40%	1.97%
		487	Scenic and Sightseeing Transportation	$3,843	$3,843	$3,084,792	$130,622	0.12%	2.94%	0.12%	2.94%
		488	Support Activities for Transportation	$4,626	$4,626	$4,570,396	$193,528	0.10%	2.39%	0.10%	2.39%
		492	Couriers and Messengers	$4,480	$4,480	$8,289,959	$351,029	0.05%	1.28%	0.05%	1.28%
		493	Warehousing and Storage	$5,764	$5,764	$4,241,432	$177,190	0.14%	3.25%	0.14%	3.25%
		511	Publishing industries	$3,023	$3,023	$7,364,933	$781,570	0.04%	0.39%	0.04%	0.39%
		512	Motion picture & sound recording industries	$2,662	$2,662	$5,080,375	$246,488	0.05%	1.08%	0.05%	1.08%
		519	Information services & data processing services (514)	$2,884	$2,884	$776,569	$69,103	0.37%	4.17%	0.37%	4.17%
		522	Credit intermediation & related activities	$4,517	$4,517	$5,474,177	$639,831	0.08%	0.71%	0.08%	0.71%
		531	Real Estate	$2,693	$2,693	$801,972	$94,856	0.34%	2.84%	0.34%	2.84%
		532	Rental & leasing services	$2,898	$2,898	$1,401,144	$35,157	0.21%	8.24%	0.21%	8.24%
		541	Professional, scientific, & technical services	$3,124	$3,124	$2,134,390	$133,679	0.15%	2.34%	0.15%	2.34%
		561	Administrative & support services	$2,012	$2,012	$683,585	$25,900	0.29%	7.77%	0.29%	7.77%
		562	Waste management & remediation services	$2,386	$2,386	$2,462,347	$104,717	0.10%	2.28%	0.10%	2.28%
		611	Educational Services	$3,301	$3,301	$523,248	$37,824	0.63%	8.73%	0.63%	8.73%
		621	Ambulatory Health Care Services	$5,960	$5,960	$1,420,465	$72,656	0.42%	8.20%	0.42%	8.20%
		622	Hospitals	$5,136	$5,136	$10,622,191	$549,397	0.05%	0.93%	0.05%	0.93%
		623	Nursing and Residential Care Facilities	$5,764	$5,764	$370,660	$19,171	1.56%	30.07%	1.56%	30.07%
		624	Social Assistance	$6,393	$6,393	$560,708	$28,680	1.14%	22.29%	1.14%	22.29%
		711	Performing arts, spectator sports, & related industries	$3,156	$3,156	$3,746,443	$253,808	0.08%	1.24%	0.08%	1.24%
		713	Amusement, Gambling, and Recreastional Industries	$2,472	$2,472	$798,440	$40,442	0.31%	6.11%	0.31%	6.11%
		722	Food Services and Drinking Places	$3,833	$3,833	$769,405	$31,541	0.50%	12.15%	0.50%	12.15%
		811	Repair and Maintenance	$2,814	$2,814	$691,995	$26,429	0.41%	10.65%	0.41%	10.65%
		812	Personal & laundry services	$2,709	$2,709	$401,265	$20,722	0.68%	13.08%	0.68%	13.08%
		813	Religious, Grantmaking, Civil, Professional, and Similar Organizations	$2,055	$2,055	$52,037	$1,288	3.95%	159.61%	3.95%	159.61%
2B	Welding - Maritime Industry (stainless steel)	336611[I]	Ship Building and Repairing	$61,051	$61,051	$24,764,671	$1,445,573	0.25%	4.22%	0.25%	4.22%
2C	Welding - Construction Industry (stainless steel)	233[S], 234[T],235[U]	Building, Developing, and General Contracting; Heavy Construction; Special Trade Contractors	$14,970	$14,970	$1,602,444	$66,149	0.93%	22.63%	0.93%	22.63%

Table VIII-8. Economic Impacts on Small Business Entities Affected by OSHA's Final Standard for Hexavalent Chromium (by Application Group for a PEL of 5 ug/m^3)

				Cost per Entity[BB]				Impacts on the National Economy		Impacts on Employers	
	Application Group	NAICS	Category	National Costs	Employer Costs	Revenue per Entity[CC]	Profit per Entity[CC]	Cost/Revenue Impact	Cost/Profit Impact	Cost/Revenue Impact	Cost/Profit Impact
2D	Welding - Government (stainless steel)	999200	State	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		999300	Local	$1,121	$1,121	$3,670,000	N/A	0.03%	0.00%	0.03%	0.00%
2A1	Welding - General Industry (carbon steel)	All General Industry[H]	All General Industry	$745	$745	$6,007,957	$310,442	0.01%	0.24%	0.01%	0.24%
		113	Forestry and Logging	$671	$671	$1,995,586	$47,577	0.03%	1.41%	0.03%	1.41%
		221	Utilities	$465	$465	$7,828,442	$305,861	0.01%	0.15%	0.01%	0.15%
		311	Food Manufacturing	$727	$727	$17,170,341	$693,741	0.00%	0.10%	0.00%	0.10%
		312	Beverage and Tobacco Product Manufacturing	$725	$725	$84,688,514	$8,936,892	0.00%	0.01%	0.00%	0.01%
		313	Textile mills	$1,015	$1,015	$8,716,457	$249,386	0.01%	0.41%	0.01%	0.41%
		314	Textile product mills	$611	$611	$5,233,697	$145,701	0.01%	0.42%	0.01%	0.42%
		315	Apparel mfg	$1,108	$1,108	$16,058,309	$823,449	0.01%	0.13%	0.01%	0.13%
		316	Leather & allied product mfg	$1,074	$1,074	$20,341,006	$1,192,389	0.01%	0.09%	0.01%	0.09%
		321	Wood product mfg	$542	$542	$3,770,807	$102,526	0.01%	0.53%	0.01%	0.53%
		322	Paper mfg	$889	$889	$28,471,015	$792,217	0.00%	0.11%	0.00%	0.11%
		323	Printing & related support activities	$986	$986	$7,757,351	$293,359	0.01%	0.34%	0.01%	0.34%
		324	Petroleum & coal products mfg	$597	$597	$133,981,259	$5,692,433	0.00%	0.01%	0.00%	0.01%
		325	Chemical mfg	$953	$953	$67,944,104	$6,090,167	0.00%	0.02%	0.00%	0.02%
		326	Plastics & rubber products mfg	$1,095	$1,095	$14,431,734	$480,609	0.01%	0.23%	0.01%	0.23%
		327	Nonmetallic mineral product mfg	$1,253	$1,253	$10,582,768	$378,816	0.01%	0.33%	0.01%	0.33%
		332	Fabricated Metal Product Manufacturing	$778	$778	$6,766,007	$324,513	0.01%	0.24%	0.01%	0.24%
		333	Machinery Manufacturing	$702	$702	$12,312,089	$403,554	0.01%	0.17%	0.01%	0.17%
		334	Computer & electronic product mfg	$754	$754	$39,038,241	$1,710,271	0.00%	0.04%	0.00%	0.04%
		335	Electrical equipment, appliance, & component mfg	$1,020	$1,020	$66,927,291	$2,426,012	0.00%	0.04%	0.00%	0.04%
		336 (except 33661)	Transportation Equipment Manufacturing	$939	$939	$110,867,403	$2,779,916	0.00%	0.03%	0.00%	0.03%
		337	Furniture & Related Product Manufacturing	$654	$654	$4,261,140	$176,039	0.02%	0.37%	0.02%	0.37%
		339	Miscellaneous Manufacturing	$800	$800	$14,529,688	$1,021,369	0.01%	0.08%	0.01%	0.08%
		423	Wholesale trade, durable goods (421)	$450	$450	$2,155,310	$53,825	0.02%	0.84%	0.02%	0.84%
		424	Merchant Wholesalers, nondurable goods (422)	$1,436	$1,436	$27,865,631	$661,765	0.01%	0.22%	0.01%	0.22%
		441	Motor vehicle & parts dealers	$781	$781	$7,186,276	$103,628	0.01%	0.75%	0.01%	0.75%
		442	Furniture & home furnishings stores	$539	$539	$1,062,031	$39,962	0.05%	1.35%	0.05%	1.35%
		443	Electronics & appliance stores	$477	$477	$1,237,227	$42,071	0.04%	1.13%	0.04%	1.13%
		444	Building material & garden equipment & supplies dealers	$593	$593	$1,704,734	$84,471	0.03%	0.70%	0.03%	0.70%
		445	Food and Beverage Stores	$537	$537	$2,129,440	$39,706	0.03%	1.35%	0.03%	1.35%
		446	Health & personal care stores	$499	$499	$1,422,620	$35,859	0.04%	1.39%	0.04%	1.39%
		447	Gasoline Stations	$529	$529	$1,025,108	$7,535	0.05%	7.02%	0.05%	7.02%
		448	Clothing and Clothing Accessory Stores	$376	$376	$393,323	$17,008	0.10%	2.21%	0.10%	2.21%
		451	Sporting Good, Hobby, Book and Music Stores	$483	$483	$713,957	$18,711	0.07%	2.58%	0.07%	2.58%
		452	General Merchandise Stores	$376	$376	$811,413	$25,856	0.05%	1.45%	0.05%	1.45%

Table VIII-8. Economic Impacts on Small Business Entities Affected by OSHA's Final Standard for Hexavalent Chromium (by Application Group for a PEL of 5 ug/m^3)

				Cost per Entity[BB]				Impacts on the National Economy		Impacts on Employers	
Application Group		NAICS	Category	National Costs	Employer Costs	Revenue per Entity[CC]	Profit per Entity[CC]	Cost/Revenue Impact	Cost/Profit Impact	Cost/Revenue Impact	Cost/Profit Impact
		453	Miscellaneous store retailers	$522	$522	$941,781	$29,581	0.06%	1.76%	0.06%	1.76%
		454	Nonstore retailers	$585	$585	$2,238,291	$84,819	0.03%	0.69%	0.03%	0.69%
		481	Air Transportation	NA	NA	NA	NA	NA	NA	NA	NA
		483	Water Transportation	$1,611	$1,611	$34,222,937	$1,299,992	0.00%	0.12%	0.00%	0.12%
		484	Truck Transportation	$958	$958	$4,453,657	$90,264	0.02%	1.06%	0.02%	1.06%
		485	Transit and Ground Passenger Transportation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		486	Pipeline Transportation	$376	$376	$317,275	$63,678	0.12%	0.59%	0.12%	0.59%
		487	Scenic and Sightseeing Transportation	$841	$841	$3,084,792	$130,622	0.03%	0.64%	0.03%	0.64%
		488	Support Activities for Transportation	$1,035	$1,035	$4,578,518	$193,872	0.02%	0.53%	0.02%	0.53%
		492	Couriers and Messengers	$993	$993	$8,289,959	$351,029	0.01%	0.28%	0.01%	0.28%
		493	Warehousing and Storage	$1,199	$1,199	$4,150,619	$173,397	0.03%	0.69%	0.03%	0.69%
		511	Publishing industries	$729	$729	$7,626,762	$809,355	0.01%	0.09%	0.01%	0.09%
		512	Motion picture & sound recording industries	$664	$664	$5,285,087	$256,421	0.01%	0.26%	0.01%	0.26%
		519	Information services & data processing services (514)	$668	$668	$738,285	$65,696	0.09%	1.02%	0.09%	1.02%
		522	Credit intermediation & related activities	$1,088	$1,088	$5,784,296	$676,079	0.02%	0.16%	0.02%	0.16%
		531	Real Estate	$644	$644	$765,229	$90,510	0.08%	0.71%	0.08%	0.71%
		532	Rental & leasing services	$702	$702	$1,388,156	$34,831	0.05%	2.01%	0.05%	2.01%
		541	Professional, scientific, & technical services	$736	$736	$2,130,910	$133,461	0.03%	0.55%	0.03%	0.55%
		561	Administrative & support services	$520	$520	$683,388	$25,892	0.08%	2.01%	0.08%	2.01%
		562	Waste management & remediation services	$597	$597	$2,470,039	$105,044	0.02%	0.57%	0.02%	0.57%
		611	Educational Services	$776	$776	$540,546	$39,074	0.14%	1.99%	0.14%	1.99%
		621	Ambulatory Health Care Services	$1,325	$1,325	$1,453,809	$74,361	0.09%	1.78%	0.09%	1.78%
		622	Hospitals	$1,074	$1,074	$10,622,191	$549,397	0.01%	0.20%	0.01%	0.20%
		623	Nursing and Residential Care Facilities	$1,262	$1,262	$370,660	$19,171	0.34%	6.58%	0.34%	6.58%
		624	Social Assistance	$1,450	$1,450	$560,708	$28,680	0.26%	5.05%	0.26%	5.05%
		711	Performing arts, spectator sports, & related industries	$762	$762	$3,975,325	$269,314	0.02%	0.28%	0.02%	0.28%
		713	Amusement, Gambling, and Recreastional Industries	$611	$611	$814,582	$41,259	0.08%	1.48%	0.08%	1.48%
		722	Food Services and Drinking Places	$897	$897	$786,761	$32,253	0.11%	2.78%	0.11%	2.78%
		811	Repair and Maintenance	$684	$684	$693,181	$26,475	0.10%	2.58%	0.10%	2.58%
		812	Personal & laundry services	$673	$673	$404,462	$20,887	0.17%	3.22%	0.17%	3.22%
		813	Religious, Grantmaking, Civil, Professional, and Similar Organizations	$524	$524	$52,176	$1,291	1.01%	40.62%	1.01%	40.62%
2B1	Welding - Maritime Industry (carbon steel)	336611[I]	Ship Building and Repairing	$644	$644	$24,764,671	$1,445,573	0.00%	0.04%	0.00%	0.04%
2C1	Welding - Construction Industry (carbon steel)	233[S], 234[T],235[U]	Building, Developing, and General Contracting; Heavy Construction; Special Trade Contractors	$3,699	$3,699	$1,602,444	$66,149	0.23%	5.59%	0.23%	5.59%
2D1	Welding - Government (carbon steel)	999200	State								
		999300	Local								

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				Cost per Entity[BB]				Impacts on the National Economy		Impacts on Employers	
	Application Group	NAICS	Category	National Costs	Employer Costs	Revenue per Entity[CC]	Profit per Entity[CC]	Cost/Revenue Impact	Cost/Profit Impact	Cost/Revenue Impact	Cost/Profit Impact
3A	Painting - General Industry	All General Industry[S]	Manufacturing								
		332812	Metal Coating, Engraving (Except Jewelry and Silverware), and Allied Services to Manufacturers	$6,040	$6,044	$4,495,592	$185,177	0.13%	3.26%	0.13%	3.26%
		3361[K]	Motor vehicle mfg	$114,572	$114,593	$1,004,986,355	$25,199,267	0.01%	0.45%	0.01%	0.45%
		3362	Motor vehicle body & trailer mfg	$26,733	$26,737	$5,331,013	$133,671	0.50%	20.00%	0.50%	20.00%
		336411	Aircraft mfg	$123,940	$123,963	$500,994,405	$19,561,094	0.02%	0.63%	0.02%	0.63%
		336414	Guided missile & space vehicle mfg	$319,405	$319,464	$2,242,883,343	$87,572,341	0.01%	0.36%	0.01%	0.36%
		336415	Guided missile & space vehicle propulsion unit & parts mfg	$109,108	$109,128	$120,406,840	$4,701,229	0.09%	2.32%	0.09%	2.32%
		336419	Other guided missile & space vehicle parts & auxiliary equip mfg	$5,279	$5,279	$2,203,954	$86,052	0.24%	6.13%	0.24%	6.13%
		336992	Military armored vehicle, tank, & tank component mfg	$5,279	$5,279	$2,757,538	$69,143	0.19%	7.63%	0.19%	7.63%
		44111	New car dealers	$22,617	$24,899	$24,692,592	$302,672	0.09%	7.47%	0.10%	8.23%
		44112	Used car dealers	$5,719	$5,985	$1,490,024	$18,264	0.38%	31.31%	0.40%	32.77%
		811121	Automotive body, paint, & interior repair & maintenance	$6,339	$6,679	$448,283	$17,121	1.41%	37.03%	1.49%	39.01%
3B	Painting - Maritime Industry	336611	Ship building & repairing	$4,429	$5,755	$17,321,275	$1,011,084	0.03%	0.44%	0.03%	0.57%
		336612	Boat building	$4,678	$6,081	$10,106,010	$589,912	0.05%	0.79%	0.06%	1.03%
3C	Painting - Construction Industry	233[S], 234[T],235[U]	Heavy Construction, Special Trade Contractors	$819	$960	$3,503,386	$47,763	0.02%	1.71%	0.03%	2.01%
		234[T]	Heavy Construction	$1,530	$1,885	$8,608,997	$400,210	0.02%	0.38%	0.02%	0.47%
		235[U]	Special Trade Contractors	$700	$805	$351,026	$13,678	0.20%	5.12%	0.23%	5.88%
3D	Painting - Government	999200	State	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		999300	Local	$785	$932	$3,670,000	N/A	0.02%	0.03%	N/A	N/A
4	Chromate (Chromite Ore Production)	325188	All Other Basic Inorganic Chemical Mfg.	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA
5	Chromate Pigment Producers	325131	Inorganic Dye and Pigment Mfg.	$54,728	$54,733	$70,484,649	$2,085,740	0.08%	2.62%	0.08%	2.62%
6	Chromated Copper Arsenate Producers	325320	Pesticide and Other Agricultural Chemical Mfg.	$3,031	$3,032	$115,264,777	$10,331,754	0.00%	0.03%	0.00%	0.03%
7	Chromium Catalyst Producers	325188	All Other Basic Inorganic Chemical Mfg.	$608,092	$608,106	$75,725,612	$2,240,828	0.80%	27.14%	0.80%	27.14%
8	Paint and Coatings Producers	325510	Paint and Coating Mfg.	$8,043	$8,044	$16,147,253	$759,315	0.05%	1.06%	0.05%	1.06%
9	Printing Ink Producers	325910	Printing Ink Mfg.	$9,623	$9,623	$11,223,090	$652,485	0.09%	1.47%	0.09%	1.47%
10	Plastic Colorant Producers and Users	325211	Plastics Material and Resin Mfg.	$8,559	$8,560	$9,535,725	$415,819	0.09%	2.06%	0.09%	2.06%
		325991	Custom Compounding of Purchased Resin								
		3261	Plastic Product Mfg.								
11	Plating mixture Producers	325998	All Other Miscellaneous Chemical Product and Preparation Mfg.	$6,655	$6,657	$22,312,086	$4,675,601	0.03%	0.14%	0.03%	0.14%
12	Wood Preserving	321114	Wood Preservation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
13	Chromium Metal Producers	331112	Electrometallurgical Ferroalloy Product Mfg.	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA

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	Application Group	NAICS	Category	National Costs	Employer Costs	Revenue per Entity[CC]	Profit per Entity[CC]	Cost/Revenue Impact	Cost/Profit Impact	Cost/Revenue Impact	Cost/Profit Impact
14	Steel Mills (stainless)	331111	Iron and Steel Mills	$35,783	$35,783	$115,098,842	$2,436,859	0.03%	1.47%	0.03%	1.47%
14A	Steel Mills (carbon)	331111	Iron and Steel Mills	$9,255	$9,255	$131,154,307	$2,776,783	0.01%	0.33%	0.01%	0.33%
14B	Reshaping (stainless)	332111	Iron and Steel Forging	$7,301	$7,301	$6,337,536	$295,718	0.12%	2.47%	0.12%	2.47%
15	Iron and Steel foundries	3315	Iron foundries	$29,282	$29,282	$6,698,033	$183,821	0.44%	15.93%	0.44%	15.93%
		331512	Steel Investment foundries								
		331513	Steel foundries (except investment)								
16	Chromium Dioxide Producers	325188	All Other Inorganic Chemicals, n.e.c.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
17	Chromium Dye Producers	3251317	Chrome Colors and Other Inorganic Pigments	$66,865	$66,866	$71,154,613	$2,105,565	0.09%	3.18%	0.09%	3.18%
18	Chromium Sulfate Producers	325188	All Other Inorganic Chemicals, n.e.c.	$3,919	$3,919	$2,351,621	$69,588	0.17%	5.63%	0.17%	5.63%
19	Chemical Distributors	42269[V]	Other Chemical and Allied Products	$2,740	$2,740	$4,072,739	$130,718	0.07%	2.10%	0.07%	2.10%
20	Textile Dyeing	313	Textile Mills	$1,325	$1,360	$3,918,743	$110,279	0.03%	1.20%	0.03%	1.23%
		314	Textile Product Mills								
21	Colored Glass Producers	3272123	Other Pressed and Blown Glass and Glassware Mfg.	$1,712	$1,713	$6,271,390	$179,815	0.03%	0.95%	0.03%	0.95%
		3272129	Other Pressed and Blown Glass and Glassware Mfg.								
21A	Fiber, Flat, and Container	327993	Mineral Wool Manufacturing	$14,094	$14,094	$42,052,552	$1,399,957	0.03%	1.01%	0.03%	1.01%
	Glass	327211	Flat Glass Manufacturing								
		327212	Other Pressed and Blown Glass Mfg.								
		327213	Glass Container Manufacturing								
22	Printing	32311	Printing	$593	$601	$1,630,512	$61,661	0.04%	0.96%	0.04%	0.97%
		323113	Commercial Screen Printing								
23	Leather Tanning	3161	Leather and Hide Tanning and Finishing	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
24	Chromium Catalyst Users		Petrochemical Mfg., Including Styrene	$5,181	$5,181	$134,213,773	$3,911,356	0.00%	0.13%	0.00%	0.13%
24A	Chromium Catalyst Users - Service Companies	325110	Other Services to Buildings and Dwellings, Including Catalyst handling	$10,926	$11,230	$2,256,834	$85,507	0.48%	12.78%	0.50%	13.13%
25	Refractory Brick Producers	561790	Nonclay Refractory Mfg.	$4,691	$4,698	$10,214,017	$273,374	0.05%	1.72%	0.00%	0.00%
26A	Wood Working -General Industry	321	General Industry	$3,659	$3,659	$6,800,418	$180,224	0.05%	2.03%	0.05%	2.03%
26B	Wood Working - Maritime Industry	336611	Ship Building and Repairing	$307	$307	$28,884,637	$1,686,065	0.00%	0.02%	0.00%	0.02%
26C	Wood Working - Construction Industry	2332[W], 2333[X], 2349[Y], 23551[Z]	Construction	$1,080	$1,111	$3,942,758	$162,756	0.03%	0.66%	0.03%	0.68%
26D	Wood Working - Government	999200	State	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA
		999300	Local	$1,046	$1,080	$3,670,000	N/A	0.03%	0.04%	0.03%	0.00%
27	Solid Waste Incineration	562213	Solid Waste Combustors and Incinerators	$1,081	$1,331	$3,655,700	$155,466	0.03%	0.70%	0.04%	0.86%
27A	Solid Waste Incineration - govt	999300	Local Governments	N/A	N/A	$3,670,000	N/A	N/A	0.09%	#VALUE!	0.00%
28	Oil and Gas Well Drilling	213111	Drilling Oil and Gas Wells	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
29	Portland Cement Producers	327310	Cement Mfg.	$0	$0	$22,048,830	$929,978	0.00%	0.00%	0.00%	0.00%

Table VIII-8. Economic Impacts on Small Business Entities Affected by OSHA's Final Standard for Hexavalent Chromium (by Application Group for a PEL of 5 ug/m^3)

				Cost per Entity[BB]				Impacts on the National Economy		Impacts on Employers	
Application Group		NAICS	Category	National Costs	Employer Costs	Revenue per Entity[CC]	Profit per Entity[CC]	Cost/Revenue Impact	Cost/Profit Impact	Cost/Revenue Impact	Cost/Profit Impact
30	Superalloy Producers	331492	Secondary Smelting, Refining and Alloying of Nonferrous Metal	$7,447	$7,447	$20,351,647	$488,440	0.04%	1.52%	0.04%	1.52%
		331528	Other Nonferrous Foundries								
31B	Construction - Refractory Brick Restoration and Maintenance	235[U]	Special Trade Contractors	$2,297	$2,442	$898,618	$34,102	0.26%	6.74%	0.27%	7.16%
31C	Construction - Hazardous Waste Site Work	2333[X]	Nonresidential Building Construction	$417	$671	$4,621,489	$194,565	0.01%	0.21%	0.01%	0.35%
31CG	Hazardous Waste Site Work - Government	999200	State	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA
		999300	Local	$338	$482	$3,670,000	N/A	0.01%	0.02%	0.01%	0.00%
31D	Construction - Industrial Rehabilitation and Maintenance	23493[AA]	Industrial Nonbuilding Structure Construction	$183	$183	$16,804,508	$664,106	0.00%	0.03%	0.00%	0.03%
31DG	Industrial Rehabilitation and Maintenance - Government	999200	State	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		999300	Local	$381	$381	$3,670,000	N/A	0.01%	0.01%	0.01%	0.00%
32A	Ready-Mixed Concrete	327320	Ready Mixed Concrete Manufacturing	$0	$0	$8,332,111	$351,433	0.00%	0.00%	0.00%	0.00%
32	Precast Concrete Products Producers	327331, 327332, 327390	Concrete Pipe, Brick, and Block Mfg.	$0	$0	$4,861,559	$204,185	0.00%	0.00%	0.00%	0.00%

Table VIII-9. Economic Impacts on Small (<20 Employees) Establishments Affected by OSHA's Final Standard for Hexavalent Chromium (by Application Group for a PEL of 5 ug/m^3)

				Cost per Establishment[BB]				Impacts on the National Economy		Impacts on Employers	
	Application Group	NAICS	Category	National Costs	Employer Costs	Revenue per Establishment[CC]	Profit per Establishment[CC]	Cost/Revenue Impact	Cost/Profit Impact	Cost/Revenue Impact	Cost/Profit Impact
1	Electroplating - General Industry	All General Industry[B]	All General Industry	$4,228	$4,286	$4,012,512	$230,677	0.11%	1.83%	0.11%	1.86%
		237	Heavy construction (234)	$4,228	$4,286	$1,105,508	$51,392	0.38%	8.23%	0.39%	8.34%
		238	Special trade contractors (235)	$4,228	$4,286	$438,154	$17,073	0.97%	24.77%	0.98%	25.10%
		313	Textile mills	$4,228	$4,286	$389,896	$11,155	1.08%	37.90%	1.10%	38.42%
		314	Textile product mills	$4,228	$4,286	$766,302	$21,333	0.55%	19.82%	0.56%	20.09%
		315	Apparel mfg	$4,228	$4,286	$1,041,838	$53,424	0.41%	7.91%	0.41%	8.02%
		316	Leather & allied product mfg	$4,228	$4,286	$973,613	$57,073	0.43%	7.41%	0.44%	7.51%
		321	Wood product mfg	$4,228	$4,286	$1,054,932	$28,683	0.40%	14.74%	0.41%	14.94%
		322	Paper mfg	$4,228	$4,286	$2,312,079	$64,334	0.18%	6.57%	0.19%	6.66%
		323	Printing & related support activities	$4,228	$4,286	$659,756	$24,950	0.64%	16.95%	0.65%	17.18%
		324	Petroleum & coal products mfg	$4,228	$4,286	$38,111,417	$1,619,232	0.01%	0.26%	0.01%	0.26%
		325	Chemical mfg	$4,228	$4,286	$4,572,791	$409,882	0.09%	1.03%	0.09%	1.05%
		326	Plastics & rubber products mfg	$4,228	$4,286	$1,003,297	$33,412	0.42%	12.66%	0.43%	12.83%
		327	Nonmetallic mineral product mfg	$4,228	$4,286	$1,179,027	$42,204	0.36%	10.02%	0.36%	10.15%
		331[C]	Primary metal mfg	$4,228	$4,286	$1,682,243	$40,422	0.25%	10.46%	0.25%	10.60%
		332813	Electroplating, Plating, Polishing, Anodizing, and Coloring	$4,228	$4,286	$249,240	$10,266	1.70%	41.19%	1.72%	41.74%
		Other 332[D]	Fabricated Metal Product Manufacturing	$4,228	$4,286	$958,974	$45,995	0.44%	9.19%	0.45%	9.32%
		333[E]	Machinery Manufacturing	$4,228	$4,286	$1,612,607	$52,857	0.26%	8.00%	0.27%	8.11%
		334	Computer & electronic product mfg	$4,228	$4,286	$2,410,222	$105,592	0.18%	4.00%	0.18%	4.06%
		335	Electrical equipment, appliance, & component mfg	$4,228	$4,286	$2,985,596	$108,223	0.14%	3.91%	0.14%	3.96%
		336 (except 33661)[F]	Transportation Equipment Manufacturing	$4,228	$4,286	$3,248,984	$81,466	0.13%	5.19%	0.13%	5.26%
		339	Miscellaneous Manufacturing	$4,228	$4,286	$1,226,872	$46,165	0.34%	9.16%	0.35%	9.28%
		423	Wholesale trade, durable goods (421)	$4,228	$4,286	$1,557,982	$38,908	0.27%	10.87%	0.28%	11.01%
		441	Motor vehicle & parts dealers	$4,228	$4,286	$1,826,119	$26,333	0.23%	16.06%	0.23%	16.27%
		442	Furniture & home furnishings stores	$4,228	$4,286	$647,301	$24,357	0.65%	17.36%	0.66%	17.59%
		443	Electronics & appliance stores	$4,228	$4,286	$857,482	$29,158	0.49%	14.50%	0.50%	14.70%
		444	Building material & garden equipment & supplies dealers	$4,228	$4,286	$773,774	$38,341	0.55%	11.03%	0.55%	11.18%
		446	Health & personal care stores	$4,228	$4,286	$973,952	$24,550	0.43%	17.22%	0.44%	17.46%
		453	Miscellaneous store retailers	$4,228	$4,286	$600,302	$18,855	0.70%	22.43%	0.71%	22.73%
		454	Nonstore retailers	$4,228	$4,286	$706,333	$26,766	0.60%	15.80%	0.61%	16.01%
		511	Publishing industries	$4,228	$4,286	$964,373	$102,340	0.44%	4.13%	0.44%	4.19%
		512	Motion picture & sound recording industries	$4,228	$4,286	$879,086	$42,651	0.48%	9.91%	0.49%	10.05%
		519	Information services & data processing services (514)	$4,228	$4,286	$137,552	$12,240	3.07%	34.55%	3.12%	35.01%
		522	Credit intermediation & related activities	$4,228	$4,286	$1,330,610	$155,524	0.32%	2.72%	0.32%	2.76%
		532	Rental & leasing services	$4,228	$4,286	$649,662	$16,301	0.65%	25.94%	0.66%	26.29%
		541	Professional, scientific, & technical services	$4,228	$4,286	$311,962	$19,538	1.36%	21.64%	1.37%	21.93%
		561	Administrative & support services	$4,228	$4,286	$134,173	$5,084	3.15%	83.18%	3.19%	84.30%

Table VIII-9. Economic Impacts on Small (<20 Employees) Establishments Affected by OSHA's Final Standard for Hexavalent Chromium (by Application Group for a PEL of 5 ug/m^3)

				Cost per Establishment[BB]				Impacts on the National Economy		Impacts on Employers	
Application Group		NAICS	Category	National Costs	Employer Costs	Revenue per Establishment[CC]	Profit per Establishment[CC]	Cost/Revenue Impact	Cost/Profit Impact	Cost/Revenue Impact	Cost/Profit Impact
		562	Waste management & remediation services	$4,228	$4,286	$736,821	$31,335	0.57%	13.49%	0.58%	13.68%
		711	Performing arts, spectator sports, & related industries	$4,228	$4,286	$82,883	$7,802	5.10%	54.19%	5.17%	54.93%
		812	Personal & laundry services	$4,228	$4,286	$180,227	$9,307	2.35%	45.43%	2.38%	46.05%
2A	Welding - General Industry (stainless steel)	All General Industry[H]	All General Industry	$1,257	$1,257	$739,228	$38,197	0.17%	3.29%	0.17%	3.29%
		113	Forestry and Logging	$1,257	$1,257	$599,844	$14,301	0.21%	8.79%	0.21%	8.79%
		221	Utilities	$1,257	$1,257	$3,437,806	$134,317	0.04%	0.94%	0.04%	0.94%
		311[C]	Food Manufacturing	$1,257	$1,257	$1,402,737	$56,675	0.09%	2.22%	0.09%	2.22%
		312	Beverage and Tobacco Product Manufacturing	$1,257	$1,257	$6,093,071	$642,981	0.02%	0.20%	0.02%	0.20%
		313	Textile mills	$1,257	$1,257	$389,896	$11,155	0.32%	11.26%	0.32%	11.26%
		314	Textile product mills	$1,257	$1,257	$766,302	$21,333	0.16%	5.89%	0.16%	5.89%
		315	Apparel mfg	$1,257	$1,257	$1,041,838	$53,424	0.12%	2.35%	0.12%	2.35%
		316	Leather & allied product mfg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		321	Wood product mfg	$1,257	$1,257	$1,054,932	$28,683	0.12%	4.38%	0.12%	4.38%
		322	Paper mfg	$1,257	$1,257	$2,312,079	$64,334	0.05%	1.95%	0.05%	1.95%
		323	Printing & related support activities	$1,257	$1,257	$659,756	$24,950	0.19%	5.04%	0.19%	5.04%
		324	Petroleum & coal products mfg	$1,257	$1,257	$38,111,417	$1,619,232	0.00%	0.08%	0.00%	0.08%
		325	Chemical mfg	$1,257	$1,257	$4,572,791	$409,882	0.03%	0.31%	0.03%	0.31%
		326	Plastics & rubber products mfg	$1,257	$1,257	$1,003,297	$33,412	0.13%	3.76%	0.13%	3.76%
		327	Nonmetallic mineral product mfg	$1,257	$1,257	$1,179,027	$42,204	0.11%	2.98%	0.11%	2.98%
		332	Fabricated Metal Product Manufacturing	$1,257	$1,257	$980,705	$47,037	0.13%	2.67%	0.13%	2.67%
		333	Machinery Manufacturing	$1,257	$1,257	$1,612,607	$52,857	0.08%	2.38%	0.08%	2.38%
		334	Computer & electronic product mfg	$1,257	$1,257	$2,410,222	$105,592	0.05%	1.19%	0.05%	1.19%
		335	Electrical equipment, appliance, & component mfg	$1,257	$1,257	$2,985,596	$108,223	0.04%	1.16%	0.04%	1.16%
		336 (except 33661)	Transportation Equipment Manufacturing	$1,257	$1,257	$3,140,751	$78,752	0.04%	1.60%	0.04%	1.60%
		337	Furniture & Related Product Manufacturing	$1,257	$1,257	$521,576	$21,548	0.24%	5.83%	0.24%	5.83%
		339	Miscellaneous Manufacturing	$1,257	$1,257	$1,226,872	$86,243	0.10%	1.46%	0.10%	1.46%
		423	Wholesale trade, durable goods (421)	$1,257	$1,257	$1,311,756	$32,759	0.10%	3.84%	0.10%	3.84%
		424	Merchant Wholesalers, nondurable goods (422)	$1,257	$1,257	$2,198,505	$52,211	0.06%	2.41%	0.06%	2.41%
		441	Motor vehicle & parts dealers	$1,257	$1,257	$1,826,119	$26,333	0.07%	4.77%	0.07%	4.77%
		442	Furniture & home furnishings stores	$1,257	$1,257	$647,301	$24,357	0.19%	5.16%	0.19%	5.16%
		443	Electronics & appliance stores	$1,257	$1,257	$857,482	$29,158	0.15%	4.31%	0.15%	4.31%
		444	Building material & garden equipment & supplies dealers	$1,257	$1,257	$773,774	$38,341	0.16%	3.28%	0.16%	3.28%
		445	Food and Beverage Stores	$1,257	$1,257	$640,255	$11,938	0.20%	10.53%	0.20%	10.53%
		446	Health & personal care stores	$1,257	$1,257	$973,952	$24,550	0.13%	5.12%	0.13%	5.12%
		447	Gasoline Stations	$1,257	$1,257	$785,609	$5,775	0.16%	21.76%	0.16%	21.76%
		448	Clothing and Clothing Accessory Stores	$1,257	$1,257	$393,323	$17,008	0.32%	7.39%	0.32%	7.39%

Table VIII-9. Economic Impacts on Small (<20 Employees) Establishments Affected by OSHA's Final Standard for Hexavalent Chromium (by Application Group for a PEL of 5 ug/m^3)

				Cost per Establishment[BB]				Impacts on the National Economy		Impacts on Employers	
Application Group		NAICS	Category	National Costs	Employer Costs	Revenue per Establishment[CC]	Profit per Establishment[CC]	Cost/Revenue Impact	Cost/Profit Impact	Cost/Revenue Impact	Cost/Profit Impact
		451	Sporting Good, Hobby, Book and Music Stores	$1,257	$1,257	$485,283	$12,718	0.26%	9.88%	0.26%	9.88%
		452	General Merchandise Stores	$1,257	$1,257	$811,413	$25,856	0.15%	4.86%	0.15%	4.86%
		453	Miscellaneous store retailers	$1,257	$1,257	$600,302	$18,855	0.21%	6.66%	0.21%	6.66%
		454	Nonstore retailers	$1,257	$1,257	$706,333	$26,766	0.18%	4.69%	0.18%	4.69%
		481	Air Transportation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		483	Water Transportation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		484	Truck Transportation	$1,257	$1,257	$435,716	$8,831	0.29%	14.23%	0.29%	14.23%
		485	Transit and Ground Passenger Transportation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		486	Pipeline Transportation	$1,257	$1,257	$317,275	$63,678	0.40%	1.97%	0.40%	1.97%
		487	Scenic and Sightseeing Transportation	$1,257	$1,257	$268,756	$11,380	0.47%	11.04%	0.47%	11.04%
		488	Support Activities for Transportation	$1,257	$1,257	$594,413	$25,170	0.21%	4.99%	0.21%	4.99%
		492	Couriers and Messengers	$1,257	$1,257	$391,942	$16,596	0.32%	7.57%	0.32%	7.57%
		493	Warehousing and Storage	$1,257	$1,257	$544,880	$22,763	0.23%	5.52%	0.23%	5.52%
		511	Publishing industries	$1,257	$1,257	$964,373	$102,340	0.13%	1.23%	0.13%	1.23%
		512	Motion picture & sound recording industries	$1,257	$1,257	$879,086	$42,651	0.14%	2.95%	0.14%	2.95%
		519	Information services & data processing services (514)	$1,257	$1,257	$137,552	$12,240	0.91%	10.27%	0.91%	10.27%
		522	Credit intermediation & related activities	$1,257	$1,257	$1,330,610	$155,524	0.09%	0.81%	0.09%	0.81%
		531	Real Estate	$1,257	$1,257	$255,664	$30,239	0.49%	4.16%	0.49%	4.16%
		532	Rental & leasing services	$1,257	$1,257	$649,662	$16,301	0.19%	7.71%	0.19%	7.71%
		541	Professional, scientific, & technical services	$1,257	$1,257	$311,962	$19,538	0.40%	6.43%	0.40%	6.43%
		561	Administrative & support services	$1,257	$1,257	$134,173	$5,084	0.94%	24.72%	0.94%	24.72%
		562	Waste management & remediation services	$1,257	$1,257	$736,821	$31,335	0.17%	4.01%	0.17%	4.01%
		611	Educational Services	$1,257	$1,257	$43,194	$3,122	2.91%	40.25%	2.91%	40.25%
		621	Ambulatory Health Care Services	$1,257	$1,257	$175,607	$8,982	0.72%	13.99%	0.72%	13.99%
		622	Hospitals	$1,257	$1,257	$52,347	$2,707	2.40%	46.41%	2.40%	46.41%
		623	Nursing and Residential Care Facilities	$1,257	$1,257	$35,341	$1,828	3.56%	68.75%	3.56%	68.75%
		624	Social Assistance	$1,257	$1,257	$86,175	$4,408	1.46%	28.51%	1.46%	28.51%
		711	Performing arts, spectator sports, & related industries	$1,257	$1,257	$210,822	$14,282	0.60%	8.80%	0.60%	8.80%
		713	Amusement, Gambling, and Recreastional Industries	$1,257	$1,257	$158,513	$8,029	0.79%	15.65%	0.79%	15.65%
		722	Food Services and Drinking Places	$1,257	$1,257	$179,284	$7,350	0.70%	17.10%	0.70%	17.10%
		811	Repair and Maintenance	$1,257	$1,257	$249,849	$9,543	0.50%	13.17%	0.50%	13.17%
		812	Personal & laundry services	$1,257	$1,257	$180,227	$9,307	0.70%	13.50%	0.70%	13.50%
		813	Religious, Grantmaking, Civil, Professional, and Similar Organizations	$1,257	$1,257	$18,820	$466	6.68%	269.82%	6.68%	269.82%
2B	Welding - Maritime Industry (stainless steel)	336611[I]	Ship Building and Repairing	$3,826	$3,826	$918,207	$53,598	0.42%	7.14%	0.42%	7.14%

Table VIII-9. Economic Impacts on Small (<20 Employees) Establishments Affected by OSHA's Final Standard for Hexavalent Chromium (by Application Group for a PEL of 5 ug/m^3)

				Cost per Establishment[BB]				Impacts on the National Economy		Impacts on Employers	
Application Group		NAICS	Category	National Costs	Employer Costs	Revenue per Establishment[CC]	Profit per Establishment[CC]	Cost/Revenue Impact	Cost/Profit Impact	Cost/Revenue Impact	Cost/Profit Impact
2C	Welding - Construction Industry (stainless steel)	233[S], 234[T],235[U]	Building, Developing, and General Contracting; Heavy Construction; Special Trade Contractors	$7,792	$7,792	$664,150	$27,416	1.17%	28.42%	1.17%	28.42%
2D	Welding - Government (stainless steel)	999200	State	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		999300	Local	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2A1	Welding - General Industry (carbon steel)	All General Industry[H]	All General Industry	$376	$376	$739,228	$38,197	0.05%	0.98%	0.05%	0.98%
		113	Forestry and Logging	$376	$376	$599,844	$14,301	0.06%	2.63%	0.06%	2.63%
		221	Utilities	$376	$376	$3,437,806	$134,317	0.01%	0.28%	0.01%	0.28%
		311	Food Manufacturing	$376	$376	$1,402,737	$56,675	0.03%	0.66%	0.03%	0.66%
		312	Beverage and Tobacco Product Manufacturing	$376	$376	$6,093,071	$642,981	0.01%	0.06%	0.01%	0.06%
		313	Textile mills	$376	$376	$389,896	$11,155	0.10%	3.37%	0.10%	3.37%
		314	Textile product mills	$376	$376	$766,302	$21,333	0.05%	1.76%	0.05%	1.76%
		315	Apparel mfg	$376	$376	$1,041,838	$53,424	0.04%	0.70%	0.04%	0.70%
		316	Leather & allied product mfg	NA	NA	NA	NA	NA	NA	N/A	N/A
		321	Wood product mfg	$376	$376	$1,054,932	$28,683	0.04%	1.31%	0.04%	1.31%
		322	Paper mfg	$376	$376	$2,312,079	$64,334	0.02%	0.58%	0.02%	0.58%
		323	Printing & related support activities	$376	$376	$659,756	$24,950	0.06%	1.51%	0.06%	1.51%
		324	Petroleum & coal products mfg	$376	$376	$38,111,417	$1,619,232	0.00%	0.02%	0.00%	0.02%
		325	Chemical mfg	$376	$376	$4,572,791	$409,882	0.01%	0.09%	0.01%	0.09%
		326	Plastics & rubber products mfg	$376	$376	$1,003,297	$33,412	0.04%	1.12%	0.04%	1.12%
		327	Nonmetallic mineral product mfg	$376	$376	$1,179,027	$42,204	0.03%	0.89%	0.03%	0.89%
		332	Fabricated Metal Product Manufacturing	$376	$376	$980,705	$47,037	0.04%	0.80%	0.04%	0.80%
		333	Machinery Manufacturing	$376	$376	$1,612,607	$52,857	0.02%	0.71%	0.02%	0.71%
		334	Computer & electronic product mfg	$376	$376	$2,410,222	$105,592	0.02%	0.36%	0.02%	0.36%
		335	Electrical equipment, appliance, & component mfg	$376	$376	$2,985,596	$108,223	0.01%	0.35%	0.01%	0.35%
		336 (except 33661)	Transportation Equipment Manufacturing	$376	$376	$3,140,751	$78,752	0.01%	0.48%	0.01%	0.48%
		337	Furniture & Related Product Manufacturing	$376	$376	$521,576	$21,548	0.07%	1.74%	0.07%	1.74%
		339	Miscellaneous Manufacturing	$376	$376	$1,226,872	$86,243	0.03%	0.44%	0.03%	0.44%
		423	Wholesale trade, durable goods (421)	$376	$376	$1,311,756	$32,759	0.03%	1.15%	0.03%	1.15%
		424	Merchant Wholesalers, nondurable goods (422)	$376	$376	$2,198,505	$52,211	0.02%	0.72%	0.02%	0.72%
		441	Motor vehicle & parts dealers	$376	$376	$1,826,119	$26,333	0.02%	1.43%	0.02%	1.43%
		442	Furniture & home furnishings stores	$376	$376	$647,301	$24,357	0.06%	1.54%	0.06%	1.54%
		443	Electronics & appliance stores	$376	$376	$857,482	$29,158	0.04%	1.29%	0.04%	1.29%
		444	Building material & garden equipment & supplies dealers	$376	$376	$773,774	$38,341	0.05%	0.98%	0.05%	0.98%
		445	Food and Beverage Stores	$376	$376	$640,255	$11,938	0.06%	3.15%	0.06%	3.15%
		446	Health & personal care stores	$376	$376	$973,952	$24,550	0.04%	1.53%	0.04%	1.53%
		447	Gasoline Stations	$376	$376	$785,609	$5,775	0.05%	6.51%	0.05%	6.51%

Table VIII-9. Economic Impacts on Small (<20 Employees) Establishments Affected by OSHA's Final Standard for Hexavalent Chromium (by Application Group for a PEL of 5 ug/m^3)

				Cost per Establishment[BB]				Impacts on the National Economy		Impacts on Employers	
Application Group		NAICS	Category	National Costs	Employer Costs	Revenue per Establishment[CC]	Profit per Establishment[CC]	Cost/Revenue Impact	Cost/Profit Impact	Cost/Revenue Impact	Cost/Profit Impact
		448	Clothing and Clothing Accessory Stores	$376	$376	$393,323	$17,008	0.10%	2.21%	0.10%	2.21%
		451	Sporting Good, Hobby, Book and Music Stores	$376	$376	$485,283	$12,718	0.08%	2.95%	0.08%	2.95%
		452	General Merchandise Stores	$376	$376	$811,413	$25,856	0.05%	1.45%	0.05%	1.45%
		453	Miscellaneous store retailers	$376	$376	$600,302	$18,855	0.06%	1.99%	0.06%	1.99%
		454	Nonstore retailers	$376	$376	$706,333	$26,766	0.05%	1.40%	0.05%	1.40%
		481	Air Transportation	NA	NA	NA	NA	NA	NA	N/A	N/A
		483	Water Transportation	NA	NA	NA	NA	NA	NA	N/A	N/A
		484	Truck Transportation	$376	$376	$435,716	$8,831	0.09%	4.26%	0.09%	4.26%
		485	Transit and Ground Passenger Transportation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		486	Pipeline Transportation	$376	$376	$317,275	$63,678	0.12%	0.59%	0.12%	0.59%
		487	Scenic and Sightseeing Transportation	$376	$376	$268,756	$11,380	0.14%	3.30%	0.14%	3.30%
		488	Support Activities for Transportation	$376	$376	$594,413	$25,170	0.06%	1.49%	0.06%	1.49%
		492	Couriers and Messengers	$376	$376	$391,942	$16,596	0.10%	2.26%	0.10%	2.26%
		493	Warehousing and Storage	$376	$376	$544,880	$22,763	0.07%	1.65%	0.07%	1.65%
		511	Publishing industries	$376	$376	$964,373	$102,340	0.04%	0.37%	0.04%	0.37%
		512	Motion picture & sound recording industries	$376	$376	$879,086	$42,651	0.04%	0.88%	0.04%	0.88%
		519	Information services & data processing services (514)	$376	$376	$137,552	$12,240	0.27%	3.07%	0.27%	3.07%
		522	Credit intermediation & related activities	$376	$376	$1,330,610	$155,524	0.03%	0.24%	0.03%	0.24%
		531	Real Estate	$376	$376	$255,664	$30,239	0.15%	1.24%	0.15%	1.24%
		532	Rental & leasing services	$376	$376	$649,662	$16,301	0.06%	2.31%	0.06%	2.31%
		541	Professional, scientific, & technical services	$376	$376	$311,962	$19,538	0.12%	1.92%	0.12%	1.92%
		561	Administrative & support services	$376	$376	$134,173	$5,084	0.28%	7.39%	0.28%	7.39%
		562	Waste management & remediation services	$376	$376	$736,821	$31,335	0.05%	1.20%	0.05%	1.20%
		611	Educational Services	$376	$376	$43,194	$3,122	0.87%	12.04%	0.87%	12.04%
		621	Ambulatory Health Care Services	$376	$376	$175,607	$8,982	0.21%	4.18%	0.21%	4.18%
		622	Hospitals	$376	$376	$52,347	$2,707	0.72%	13.88%	0.72%	13.88%
		623	Nursing and Residential Care Facilities	$376	$376	$35,341	$1,828	1.06%	20.56%	1.06%	20.56%
		624	Social Assistance	$376	$376	$86,175	$4,408	0.44%	8.53%	0.44%	8.53%
		711	Performing arts, spectator sports, & related industries	$376	$376	$210,822	$14,282	0.18%	2.63%	0.18%	2.63%
		713	Amusement, Gambling, and Recreastional Industries	$376	$376	$158,513	$8,029	0.24%	4.68%	0.24%	4.68%
		722	Food Services and Drinking Places	$376	$376	$179,284	$7,350	0.21%	5.11%	0.21%	5.11%
		811	Repair and Maintenance	$376	$376	$249,849	$9,543	0.15%	3.94%	0.15%	3.94%
		812	Personal & laundry services	$376	$376	$180,227	$9,307	0.21%	4.04%	0.21%	4.04%
		813	Religious, Grantmaking, Civil, Professional, and Similar Organizations	$376	$376	$18,820	$466	2.00%	80.68%	2.00%	80.68%
2B1	Welding - Maritime Industry (carbon steel)	336611[I]	Ship Building and Repairing	$362	$376	$918,207	$53,598	0.04%	0.67%	0.04%	0.70%

Table VIII-9. Economic Impacts on Small (<20 Employees) Establishments Affected by OSHA's Final Standard for Hexavalent Chromium (by Application Group for a PEL of 5 ug/m^3)

				Cost per Establishment[BB]				Impacts on the National Economy		Impacts on Employers	
Application Group		NAICS	Category	National Costs	Employer Costs	Revenue per Establishment[CC]	Profit per Establishment[CC]	Cost/Revenue Impact	Cost/Profit Impact	Cost/Revenue Impact	Cost/Profit Impact
2C1	Welding - Construction Industry (carbon steel)	233[S], 234[T],235[U]	Building, Developing, and General Contracting; Heavy Construction; Special Trade Contractors	$2,195	$2,195	$664,150	$27,416	0.33%	8.00%	0.33%	8.00%
2D1	Welding - Government (carbon steel)	999200	State								
		999300	Local								
3A	Painting - General Industry	All General Industry[G]	Manufacturing								
		332812	Metal Coating, Engraving (Except Jewelry and Silverware), and Allied Services to Manufacturers	$4,078	$4,079	$560,978	$23,107	0.73%	17.65%	0.73%	17.65%
		3361[K]	Motor vehicle mfg	$5,279	$5,279	$7,565,616	$189,702	0.07%	2.78%	0.07%	2.78%
		3362	Motor vehicle body & trailer mfg	$5,279	$5,279	$1,956,533	$49,059	0.27%	10.76%	0.27%	10.76%
		336411	Aircraft mfg	$5,279	$5,279	$2,608,704	$101,856	0.20%	5.18%	0.20%	5.18%
		336414	Guided missile & space vehicle mfg	$5,279	$5,279	$4,302,791	$168,000	0.12%	3.14%	0.12%	3.14%
		336415	Guided missile & space vehicle propulsion unit & parts mfg	$5,279	$5,279	$2,811,191	$109,762	0.19%	4.81%	0.19%	4.81%
		336419	Other guided missile & space vehicle parts & auxiliary equip mfg	$5,279	$5,279	$2,203,954	$86,052	0.24%	6.13%	0.24%	6.13%
		336992	Military armored vehicle, tank, & tank component mfg	$5,279	$5,279	$2,757,538	$69,143	0.19%	7.63%	0.19%	7.63%
		44111	New car dealers	$4,932	$5,107	$3,632,387	$44,524	0.14%	11.08%	0.14%	11.47%
		44112	Used car dealers	$4,932	$5,107	$1,199,947	$14,708	0.41%	33.53%	0.43%	34.72%
		811121	Automotive body, paint, & interior repair & maintenance	$4,932	$5,107	$359,394	$13,726	1.37%	35.93%	1.42%	37.21%
3B	Painting - Maritime Industry	336611	Ship building & repairing	$2,357	$3,045	$878,951	$51,306	0.27%	4.59%	0.35%	5.93%
		336612	Boat building	$2,357	$3,045	$1,065,669	$62,206	0.22%	3.79%	0.29%	4.89%
3C	Painting - Construction Industry	233[S], 234[T],235[U]	Heavy Construction, Special Trade Contractors	$644	$734	$926,295	$8,339	0.07%	7.73%	0.08%	8.80%
		234[T]	Heavy Construction	$644	$734	$583,757	$27,137	0.11%	2.37%	0.13%	2.70%
		235[U]	Special Trade Contractors	$644	$734	$230,007	$8,962	0.28%	7.19%	0.32%	8.19%
3D	Painting - Government	999200	State	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		999300	Local	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	Chromate (Chromite Ore Production)	325188	All Other Basic Inorganic Chemical Mfg.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	Chromate Pigment Producers	325131	Inorganic Dye and Pigment Mfg.	$5,263	$5,264	$1,988,410	$58,840	0.26%	8.95%	0.26%	8.95%
6	Chromated Copper Arsenate Producers	325320	Pesticide and Other Agricultural Chemical Mfg.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	Chromium Catalyst Producers	325188	All Other Basic Inorganic Chemical Mfg.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	Paint and Coatings Producers	325510	Paint and Coating Mfg.	$9,375	$9,375	$3,180,817	$149,576	0.29%	6.27%	0.29%	6.27%
9	Printing Ink Producers	325910	Printing Ink Mfg.	$5,320	$5,321	$3,678,924	$213,884	0.14%	2.49%	0.14%	2.49%
10	Plastic Colorant Producers and Users	325211	Plastics Material and Resin Mfg.	$5,468	$5,468	$1,123,400	$48,987	0.49%	11.16%	0.49%	11.16%
		325991	Custom Compounding of Purchased Resin								
		3261	Plastic Product Mfg.								

Table VIII-9. Economic Impacts on Small (<20 Employees) Establishments Affected by OSHA's Final Standard for Hexavalent Chromium (by Application Group for a PEL of 5 ug/m^3)

				Cost per Establishment[BB]				Impacts on the National Economy		Impacts on Employers	
	Application Group	NAICS	Category	National Costs	Employer Costs	Revenue per Establishment[CC]	Profit per Establishment[CC]	Cost/Revenue Impact	Cost/Profit Impact	Cost/Revenue Impact	Cost/Profit Impact
11	Plating mixture Producers	325998	All Other Miscellaneous Chemical Product and Preparation Mfg.	$5,641	$5,641	$3,133,805	$182,192	0.18%	3.10%	0.18%	3.10%
12	Wood Preserving	321114	Wood Preservation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
13	Chromium Metal Producers	331112	Electrometallurgical Ferroalloy Product Mfg.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14	Steel Mills (stainless)	331111	Iron and Steel Mills	$6,239	$6,239	$1,414,331	$29,944	0.44%	20.84%	0.44%	20.84%
14A	Steel Mills (carbon)	331111	Iron and Steel Mills	$5,370	$5,370	$1,414,331	$29,944	0.38%	17.93%	0.38%	17.93%
14B	Reshaping (stainless)	332111	Iron and Steel Forging	$5,314	$5,314	$837,023	$39,057	0.63%	13.61%	0.63%	13.61%
15	Iron and Steel foundries	3315	Iron foundries	$12,285	$12,285	$361,695	$9,926	3.40%	123.76%	3.40%	123.76%
		331512	Steel Investment foundries								
		331513	Steel foundries (except investment)								
16	Chromium Dioxide Producers	325188	All Other Inorganic Chemicals, n.e.c.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
17	Chromium Dye Producers	3251317	Chrome Colors and Other Inorganic Pigments	$17,876	$17,876	$1,959,383	$57,981	0.91%	30.83%	0.91%	30.83%
18	Chromium Sulfate Producers	325188	All Other Inorganic Chemicals, n.e.c.	$3,919	$3,919	$2,351,621	$69,588	0.17%	5.63%	0.17%	5.63%
19	Chemical Distributors	42269[V]	Other Chemical and Allied Products	$2,045	$2,045	$1,448,223	$46,482	0.14%	4.40%	0.14%	4.40%
20	Textile Dyeing	313	Textile Mills	$982	$985	$433,726	$12,206	0.23%	8.05%	0.23%	8.07%
		314	Textile Product Mills								
21	Colored Glass Producers	3272123	Other Pressed and Blown Glass and Glassware Mfg.	$1,127	$1,127	$658,799	$18,889	0.17%	5.97%	0.17%	5.97%
		3272129	Other Pressed and Blown Glass and Glassware Mfg.								
21A	Fiber, Flat, and Container	327993	Mineral Wool Manufacturing	$10,307	$10,307	$1,853,380	$61,700	0.56%	16.70%	0.56%	16.70%
	Glass	327211	Flat Glass Manufacturing								
		327212	Other Pressed and Blown Glass Mfg.								
		327213	Glass Container Manufacturing								
22	Printing	32311	Printing	$428	$429	$513,430	$19,416	0.08%	2.20%	0.08%	2.21%
		323113	Commercial Screen Printing								
23	Leather Tanning	3161	Leather and Hide Tanning and Finishing	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
24	Chromium Catalyst Users		Petrochemical Mfg., Including Styrene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
24A	Chromium Catalyst Users - Service Companies	325110	Other Services to Buildings and Dwellings, Including Catalyst handling	$7,776	$7,966	$1,399,415	$53,021	0.56%	14.67%	0.57%	15.02%
25	Refractory Brick Producers	561790	Nonclay Refractory Mfg.	$0	$0	NA	NA	0.00%	0.00%	0.00%	0.00%
26A	Wood Working -General Industry	321	General Industry	$3,131	$3,131	$1,140,938	$30,237	0.27%	10.36%	0.27%	10.36%
26B	Wood Working - Maritime Industry	336611	Ship Building and Repairing	$271	$271	$918,207	$53,598	0.03%	0.51%	0.03%	0.51%
26C	Wood Working - Construction Industry	2332[W], 2333[X], 2349[Y], 23551[Z]	Construction	$1,045	$1,067	$926,140	$38,231	0.11%	2.73%	0.12%	2.79%
26D	Wood Working - Government	999200	State	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		999300	Local	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table VIII-9. Economic Impacts on Small (<20 Employees) Establishments Affected by OSHA's Final Standard for Hexavalent Chromium (by Application Group for a PEL of 5 ug/m^3)

				Cost per Establishment[BB]				Impacts on the National Economy		Impacts on Employers	
Application Group		NAICS	Category	National Costs	Employer Costs	Revenue per Establishment[CC]	Profit per Establishment[CC]	Cost/Revenue Impact	Cost/Profit Impact	Cost/Revenue Impact	Cost/Profit Impact
27	Solid Waste Incineration	562213	Solid Waste Combustors and Incinerators	$566	$719	$1,623,290	$69,034	0.03%	0.82%	0.04%	1.04%
27A	Solid Waste Incineration govt	999300	Local Governments	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
28	Oil and Gas Well Drilling	213111	Drilling Oil and Gas Wells	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
29	Portland Cement Producers	327310	Cement Mfg.	$0	$0	$3,453,886	$145,678	0.00%	0.00%	0.00%	0.00%
30	Superalloy Producers	331492	Secondary Smelting, Refining and Alloying of Nonferrous Metal	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		331528	Other Nonferrous Foundries								
31B	Construction - Refractory Brick Restoration and Maintenance	235[U]	Special Trade Contractors	$1,781	$1,803	$441,435	$16,752	0.40%	10.63%	0.41%	10.76%
31C	Construction - Hazardous Waste Site Work	2333[X]	Nonresidential Building Construction	$338	$473	$1,219,945	$51,360	0.03%	0.66%	0.04%	0.92%
31CG	Hazardous Waste Site Work - Government	999200	State	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		999300	Local	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
31D	Construction - Industrial Rehabilitation and Maintenance	23493[AA]	Industrial Nonbuilding Structure Construction	$56	$56	$3,122,851	$123,414	0.00%	0.05%	0.00%	0.05%
31DG	Industrial Rehabilitation and Maintenance - Government	999200	State	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		999300	Local	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
32A	Ready-Mixed Concrete	327320	Ready Mixed Concrete Manufacturing	$0	$0	$525,584	$22,168	0.00%	0.00%	0.00%	0.00%
32	Precast Concrete Products Producers	327331, 327332, 327390	Concrete Pipe, Brick, and Block Mfg.	$0	$0	$1,436,042	$60,314	0.00%	0.00%	0.00%	0.00%

Footnotes to Tables VIII-8 and VIII-9

[A] SBA size standards taken from 13 CFR Ch.1 § 121.201. January 1, 2003

[B] Includes industries in NAICS 31-33, NAICS 42, NAICS 51.

[C] Except 311221 "Wet Corn Milling", 311312 "Cane Sugar Refining", 311313 "Beet Sugar Manufacturing", and 311821 Cookie and Cracker Manufacturing, which have an SBA size standard of 750 employees, and also 311223 "Other Oilseed Processing", 311225 "Fats and Oils Refining and Blending", 311230 "Breakfast Cereal Manufacturing", 311422 "Special Canning", which have an SBA size standard of 1,000 employees.

[D] Except 332811 "Metal Heat Treating," 332991 "Ball and Roller Bearing Manufacturing," and 332998 "Enameled Iron and Metal Sanitary Ware Manufacturing," all of which have an SBA size standard of 750 employees; 332431 "Metal Can Manufacturing," 332992 "Small Arms Ammunition Manufacturing," and 332994 "Small Arms Manufacturing," all of which have an SBA size standard of 1,000 employees; and 332993 "Ammunition (except Small Arms) Manufacturing," the SBA size standard for which is 1,500 employees.

[E] Except 333120 "Construction Machinery Manufacturing," 333415 "Air-Conditioning and Warm Air Heating Equipment," and 333924 Industrial Truck, Tractor, Trailer," all of which have an SBA size standard of 750 employees; and except 333313 Office Machinery Manufacturing," 333611 "Turbine and Turbine Generator Set Unit Manufacturing," and 333618 "Other Engine Equipment Manufacturing," all of which have an SBA size standard of 1,000 employees.

[F] Except for 336212 "Truck Trailer Manufacturing," 336214 "Travel Trailer and Camper Manufacturing," 336311 "Carburetor, Piston, Piston Ring and Valve Manufacturing," 336321 "Vehicular Lighting Equipment Manufacturing," 336360 "Motor Vehicle Seating and Interior Trim Manufacturing," 336370 "Motor Vehicle Metal Stamping," 336991 Motorcycle, Bicycle and Parts Manufacturing," and 336999 "All Other Transportation Equipment Manufacturing," all of which have an SBA size standard of 500 employees; 336312 "Gasoline Engine and Engine Parts Manufacturing," 336322 "Other Motor Vehicle Electrical and Electronic Equipment Manufacturing," 336330 "Motor Vehicle Steering and Suspension Components Manufacturing (except Spring)," 336340 "Motor Vehicle Brake System Manufacturing," 336350 "Motor Vehicle Transmission and Power Train Parts Manufacturing," 336391 Motor Vehicle Air-Conditioning Manufacturing," 336399 "All Other Motor Vehicle Parts Manufacturing, all of which have an SBA size standard of 750 employees; and 336411 "Aircraft Manufacturing," which has an SBA size standard of 1,500 employees.

[G] Includes industries in NAICS 332, NAICS 336, NAICS 441, and NAICS 811.

[H] Includes industries in NAICS 11, NAICS 22, NAICS 31-33, NAICS 42, NAICS 44-45, NAICS 48-49, NAICS 51, NAICS 52, NAICS 53, NAICS 54, NAICS 56, NAICS 61, NAICS 62, NAICS 71, NAICS 72, and NAICS 81.

[I] Except 336612 "Boat Building," which has an SBA size standard of 500 employees.

[J] Except 2331 "Land Subdivision and Land Development," which has an SBA size standard of $6.0 million.

[K] Except 336411 "Aircraft Manufacturing"

[L] Except 336612 "Boat Building," which has an SBA size standard of 500 employees.

[M] All of NAICS CODE 3261 have an SBA size standard of 500 employees except 326192 "Resilient Floor Covering Mfg.", the size standard for which is 750 employees.

[N] All of NAICS CODE 313 have an SBA size standard of 500 employees except 313210 "Broad Woven Fabric Mills", 313320 "Broad Woven Finishing Mills", and 313320 "Fabric Coating Mills" all of which have a size standard of 1,000 employees.

[O] All of NAICS CODE 314 have an SBA size standard of 500 employees except 314992 "Tire Cord and Tire Fabric Mill", the size standard for which is 1,000 employees.

[P] All of NAICS CODE 3161 have an SBA size standard of 500 employees except 316211 "Rubber and Plastics Footwear Mfg.", the size standard for which is 1,000 employees.

[Q] Except 336612 "Boat Building," which has an SBA size standard of 500 employees.

[R] Except 23551 which has an SBA size standard of $12 million.

[S] 1997 NAICS Code is 233, Building, Developing, and General Contracting. 2002 NAICS Code is 236, Construction of Buildings.

[T] 1997 NAICS Code is 234, Heavy Construction. 2002 NAICS Code is 236, Heavy and Civil Engineering Construction.

[U] 1997 NAICS Code is 235, Special Trades Contractors. 2002 NAICS Code is 236, Special Trades Contractors.

[V] 1997 NAICS Code is 42269, Other Chemical and Allied Products. 2002 NAICS Code is 424690, Other Chemical and Allied Products Merchant Wholesalers.

[W] 1997 NAICS Code is 2332, Residential Building Construction. 2002 NAICS Code is 23611, Residential Building Construction.

[X] 1997 NAICS Code is 2333, Nonresidential Building Construction. 2002 NAICS Code is 2362, Nonresidential Building Construction.

[Y] 1997 NAICS Code is 2349, Other Heavy Construction. 2002 NAICS Code is 237, Heavy and Civil Engineering Construction.

[Z] 1997 NAICS Code is 23551, Carpentry. 2002 NAICS Codes are 23835, Finish Carpentry Contractors, and 23813, Framing Contractors.

[AA] 1997 NAICS Code is 23493, Industrial Non-Building Structure Construction. 2002 NAICS Code is 23621, Industrial Building Construction.

[BB] "Entities" refer to business firms or governmental bodies; "establishments" refer to industrial plants. Data on affected entities, establishments, and employees are from multiple sources; see the industry profiles in Chapter II for the complete list of references.

[CC] Industry revenues were estimated from data reported in I.R.S., ***Corporation Source Book of Statistics of Income, 2002*** (IRS, 2005). Data on revenues for State and Local Governments were taken from U.S. Census Bureau, ***Government Finances: 1999-2000***, January 2003.

Source: U.S. Dept. of Labor, OSHA, Office of Regulatory Analysis, based on Shaw, 2006.

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Economic Feasibility for Many Industries With Low Potential Impacts

To determine whether a rule is economically feasible, OSHA evaluates evidence from a number of sources. And while there is no hard and fast rule, in the absence of evidence to the contrary OSHA generally considers a standard

economically feasible when the costs of compliance are less than one percent of revenues. Common-sense considerations indicate that potential impacts of such a small magnitude are unlikely to eliminate an industry or significantly alter its competitive structure particularly since most industries have at least some ability to raise prices to reflect increased costs. Of course, OSHA recognizes that even when costs are within this range, there could be unusual circumstances requiring further analysis. In addition, as a second check, OSHA also looks to see whether even such low costs may represent more than ten percent of the profit in a particular industry. If either of these factors is present, or if there is other evidence of industry demise or potential disruption in an industry's competitive structure because of the standard, OSHA examines the effect of the rule on that industry more closely. Finally, OSHA reviews the record for any other unusual circumstances, such as excellent substitutes of equal cost that might make an industry particularly sensitive to price change. In this case, the only argument of this kind that OSHA noted was an argument by one commenter that trivalent chromium plating might be substituted in some applications for hexavalent chromium. However, even if this is the case (some in the record did not agree), a plating operation could switch to trivalent plating with minimal capital investment and thus remain in business.

OSHA believes that a potential one percent revenue effect is an appropriate way to begin the analysis in light of the fact that the United States has a dynamic and constantly changing economy. There is an enormous variety of year-to-year events that could cause a one percent increase in a business's costs, *e.g.*, increasing fuel costs, an unusual one-time expense, changes in costs of materials, increased rents, increased taxes, etc. Table V–8, which shows year to year changes in prices for a number of industries affected by the standard, reflects this phenomenon.

Changes in profits are also subject to the dynamics of the economy. A recession, or a downturn in a particular industry, will typically cause profit declines in excess of ten percent for several years in succession. Table V–9, which shows annual profits for several years in succession, illustrates this phenomenon. While a permanent loss of profits presents a greater problem than a temporary loss, these year-to-year variations do serve to show that small changes in profits are quite normal without affecting the viability of industries.

The potential impacts of this regulation on the affected employers, for the most part, are within the range of normal year-to-year variation that firms and industries expect and survive. Table V–8 in the FEA shows year-to-year price variations for selected industries with hexavalent chromium exposure, and Table V–9 (in the FEA) shows year-to-year profit variations for selected industries with hexavalent chromium exposures. Table V–8 serves the purpose of showing that, for many industries, annual price changes of one percent or more are commonplace without affecting the viability of the industry. Table V–9 serves to show that temporary profit swings of significantly more than ten percent are also well within the boundaries of normal year-to-year change.

Because a permanent decrease in profits is much more significant than a temporary swing of the same magnitude, OSHA has also used the fact that a very large short term decline can be compared in effect to a smaller long-term decrease in profits to calculate the extent to which the temporary changes shown in Table V–9 may demonstrate an industry's ability to withstand a long-term change. For example, using a 7 percent discount rate, and the assumption that profits return to the long term average following a temporary decline, the following short term declines are approximately equivalent to a 10 percent long-term decline:

50 percent decline for one year;
30 percent decline for two years;
20 percent decline for three years.

Looking at profits of the average corporation for the period of 1990 to 2002, events of one of the above magnitudes have occurred twice in that 12-year period without threatening industrial viability. (Based on corporate profit rate data from IRS, Statistics of Income: Corporate Income Tax Returns, as Reported in U.S. Department of Commerce, U.S. Statistical Abstract 2006). And since, as discussed below, demand is not perfectly elastic in any of the affected industries, it is unlikely that the actual effect on profits will be as high as indicated in Table VIII–7.

The record does not contain evidence that any of the affected industries for which OSHA found that the costs of complying with the standard will be less than both one percent of prior revenue and ten percent of prior profits will in fact be threatened by the standard. Although some industry representatives asserted that compliance would threaten their existence, these assertions (with one exception, discussed below) were not supported by empirical evidence that even the proposed PEL of 1 would be economically infeasible. As noted above, cost changes of less than one percent are routinely passed on and impacts that are less than 10 percent of profits have not been shown to be likely to affect the viability or competitive structure of any of the industries affected by this standard.

Economic Feasibility for Industries With Higher Potential Impacts

In Table VIII–7, OSHA found that there were 9 industries in three application groups in which costs were greater than 1 percent of revenues, and an additional 22 industries in six application groups in which costs were greater than 10 percent of profits.

However, this number of industries is somewhat misleading. Seven of the industries in which costs exceed one percent of revenues, and an additional twelve of those in which costs exceeded 10 percent of profits (without exceeding 1 percent of revenues) are industries in the plating and welding application groups in which plating or welding are exceedingly rare, such as electroplating in the performing arts, spectator sports and related industries (NAICS 711) and welding in religious, governmental, civil, and professional organizations (NAICS 813). In both cases, only one establishment in the entire industry reported engaging in either welding or plating. It is difficult to determine whether reports of welding or plating in such industries represent an extremely unusual situation or, perhaps, simply someone inadvertently checking the wrong box on a survey. In either case, OSHA concludes that if such establishments do indeed engage in welding or plating, they could maintain their primary line of business, as almost everyone else in their industries does, by dropping welding or plating operations if such operations represented any threat whatsoever to the viability of their businesses.

The same is true of the other industries that are in the general category of extremely rare and unusual users of plating operations: Specialty trade contractors (NAICS 238); wholesale trade and durable goods (NAICS 423); motor vehicle and parts dealers (NAICS 441); furniture and home furnishing stores (NAICS 442); electronics and appliance stores (NAICS 443); building materials and garden equipment dealers (NAICS 444); health and personal care stores (NAICS 446); miscellaneous store retailers (NAICS 453); nonstore retailers (NAICS 454); information services and data processing service (NAICS 519); rental

and leasing services (NAICS 532); professional, scientific and technical services (NAICS 541); performing arts, spectator sports and related industries (NAICS 711); and personal and laundry services (NAICS 812). In the welding application groups, the industries in this category are: gasoline stations (NAICS 447); nursing and residential care (NAICS 623); social assistance (NAICS 624); food services and drinking places (NAICS 722); and religious, governmental, civil, and professional organizations (NAICS 813).

The remainder of this section examines those industries with higher potential impacts where their businesses may be dependent on Cr (VI) applications.

Electroplating Job Shops: Electroplating job shops (NAICS 332813: electroplating, plating, polishing anodizing and coloring services) are a service industry for the manufacturing sector, and, to a lesser extent, to those maintaining, restoring, or customizing objects with metal parts. At a PEL of 5, job shops have costs as a percentage of profits of 30 percent and costs as a percentage of revenues of 1.24 percent. These firms sell a service rather than a product. (Firms that directly sell the products they plate end up in other NAICS codes.) As a result, plating firms are primarily affected by foreign competition through the loss of other manufacturing in the United States, rather than through their customers sending products or their component parts abroad for electroplating. However, some commenters noted that there may be cases of sending products abroad for the sole purpose of electroplating. This seems unlikely to be commonplace however, because of the shipping times and costs for a process that normally represents a very small part of the value added for the ultimate product. In addition, because electroplating is essential to the manufacture of most plated products, the ultimate demand for plating services is unlikely to decrease significantly.

Finally, independent electroplating shops have been subject to annual profit changes larger in magnitude than those associated with this standard. Table V–9 in the FEA shows that, over the past ten years, profits in this industry have risen and fallen as much as 49 percent in one year without affecting the viability of the industry. Although these kinds of temporary changes would not have the effect of permanent decline of profits by 30 percent, OSHA believes that all of the factors discussed above indicate that there is sufficient price elasticity and other flexibility in this industry to absorb these costs.

The price increase of 1.24 percent required to fully restore profits at a PEL of five is significantly less than the average annual increase in price of electroplating services, as shown by Table V–8 in the FEA. Further, during the period shown in Table V–8, the industry successfully survived, without any real price increase, the regulatory costs imposed by EPA's Chrome MACT standard. The costs of that standard are somewhat uncertain. Some commenters argued that that standard could be quite expensive. One commenter suggested that one facility had incurred costs of $80,000 per year to meet that standard, and that such high costs were not atypical. (Tr. 2003) Another commenter noted, however, that ''the effect of the MACT Standard was minimized when people realized that the combination of a mist suppressant and the development of a mist suppressant that would work in a hard chrome installation along with the use of mesh pads puts you below the MACT standard.'' (Tr. 2203) The commenter apparently felt that, in the latter case, the costs would not have been significant. Nevertheless, in either event, probably due to productivity improvement in other aspects of the industry, there was no real price increase or massive dislocation in the industry.

SFIC (Ex. 38–265) also argued that it was difficult to pass on costs in electroplating based on an EPA study that estimated a cost pass through elasticity of 0.58. This study was based on pre-1996 data, and found a statistical relationship between nominal price increases and increases in a nominal cost index. Whatever the difficulties in passing increased costs to its customers the industry might have had before 1996, since that time nominal prices have increased in ways that did not have the effects on profit predicted by the EPA study.

Even in the event of a real price increase, we believe that demand for electroplating services is relatively inelastic. For most products that are plated, plating is basically essential to the function of the product. The EPA study for the MACT standard found that products incorporating electroplating had relatively inelastic demand, on the order of less than 0.5, and the cost of plating represented a very small percentage of the total costs of the products in question. In this situation, the chief danger associated with a real cost increase of less than 1 percent is that there would be some increased foreign penetration of U.S. markets. However, the small size of the change, and the difficulty of sending products abroad solely for plating services, assures that the price change in question would not eliminate the industry, and is unlikely to alter the competitive structure of the industry.

However, OSHA is concerned about the economic feasibility of the standard for electroplating at a PEL of 1. At this lower PEL, costs of the standard represent 2.7 percent of revenues and 65 percent of profits. In almost all OSHA health standards in which this figure was developed, the costs for the most affected industry have been less than 2 percent of revenues. (The major exception was brass and bronze foundries, where the lead standard PEL was found economically infeasible with the use of engineering controls.) Further, in standards where the costs might have been in excess of 2 percent of revenues, OSHA has sought ways to lower the cost through long term phase-ins of engineering controls. OSHA examined this possibility for job-shop electroplaters, and found that even allowing the use of respirators rather than engineering controls would not significantly lower the costs as percentage of revenues. OSHA also examined the issue of whether there were particular types of platers that might have unusually high or low costs, and found that even quite different plating shop configurations with respect to the type of plating done would have approximately equal average costs.

Given the high level of costs as a percentage of revenues and profits, and the inability to alleviate those impacts without a higher PEL, OSHA further examined the economic feasibility of the standard at a PEL of 1. It seems unlikely that a price increase of 2.7 percent, although significantly larger than the average nominal price increases in recent years, would eliminate the industry entirely. OSHA has concluded, however, that the costs associated with such a PEL could alter the competitive structure of the industry. OSHA has concluded this because these costs substantially exceed the average nominal price increases in the industry, and the reasons for these nominal price increases—increases in the cost of labor and energy, for example—will continue. Thus a price increase that would assure continued profitability for the entire industry would require almost tripling the annual nominal price increase. (The long term average price increase for plating, as shown in Table V–9, is 1.6 percent per year. Assuming this continues to be needed, an increase that would leave profits unchanged would require a cost increase of 4.2 percent (1.6 plus 2.6), almost three times as much.) That would represent a significant real price increase that might

not be passed forward, particularly by older and less profitable segments of the industry.

Welding (Stainless Steel) in Construction: OSHA calculated that the costs of the standard could equal 22.3 percent of profits in this industry, but only 0.92 percent of revenues. The maximum price increases required to fully restore profits (0.92 percent) is unlikely to significantly alter the demand for construction welding services which are essential for many projects and not subject to foreign competition. Further, costs of using stainless steel (the chief source of welding exposure) already vary significantly from year to year, and often from month to month. Table V–10 shows the producer price index for steel prices. Prices of steel have changed by more than 10 percent within a single year a number of times in the past ten years without affecting the viability of the use of stainless steel in construction.

Welding in General Industry: There are a significant number of establishments engaged in welding in repair and maintenance (NAICS 811) and in personal and laundry services (NAICS 812). For repair and maintenance services, the costs as a percentage of revenues are 0.40 percent and the costs as a percentage of profits are 10.5 percent. For personal and laundry services the costs as a percentage of revenues are 0.67 percent and costs as a percentage of profits are 13 percent. (All costs include the costs of any respirators welders will need to use.) These two sectors conduct maintenance and repair welding. Even if costs cannot be passed on, the resulting declines in profits are unlikely to affect the viability of an otherwise viable employer. Further, businesses of this kind are more likely to be able to increase costs because of the absence of foreign competition. While some loss of revenue is possible with a price increase, it is unlikely that the quantity of routine repairs would be significantly affected by price increases of this magnitude.

Painting and Corrosion Protection: Four sectors in the painting application groups have costs as a percentage of revenues in excess of one percent or costs as a percentage of profits in excess of 10 percent. These are motor vehicle body and trailer manufacturing (NAICS 3362) with costs of 0.51 percent and 20 percent; military armored vehicle and tank manufacturers (NAICS 336992) with costs of 0.25 percent and 10 percent; used car dealers (NAICS 44112) with costs of 0.41 percent and 34 percent; and automotive body, paint and interior repair (NAICS 81121) with costs of 1.5 percent and 39 percent. These costs are incurred in part for the use of hexavalent chromium pigments, but largely for using hexavalent chromium coating (applied like paint) as undercoats for corrosion protection. In the case of the first two NAICS codes, these are part of manufacturing processes. For both of these manufacturing industries, while the costs of hexavalent chromium coatings may be significant in the establishments where they are applied, the costs of Hexavalent chromium coatings represent an insignificant percentage of the costs of a car or a tank. While manufacturers may seek substitutes for hexavalent chromium coatings, additional expenses for such coatings are unlikely to affect the ultimate demand for cars or tanks. The latter two affected industries involve repair and refurbishing of existing automobiles. The cost analysis assumes all firms who currently use hexavalent chromium in these industries will continue to do so. In each case, there are choices that would avoid the costs in question. One choice would be to use non-hexavalent chromium pigments or non-hexavalent chromium corrosion protection. A variety of substitutes have been developed, and the use of hexavalent chromium based coatings for these purposes is already banned in California. (Tr. 1913) Although these substitutes have not yet been subject to long term use and their protectiveness is currently less certain than that of hexavalent chromium, it is likely that products that are equivalent to hexavalent chromium will be developed, particularly if demand for such products increases as a result of the standard. In addition, applying hexavalent chromium coatings represents a very small portion of the business of either auto body repair shops or used car dealers. A firm whose viability was seriously threatened as a result of this standard could retain most of its core businesses without continuing to use hexavalent chromium.

In addition, it is also reasonable to suppose that both used cars and auto body repair do not have highly elastic demand, such that a small change in prices would result in a very large drop in the number of cars repaired. As a result, the required increases in price can be accommodated without such significant losses as to alter the competitive structure of the industries.

Chromium Catalyst Producers (0.8 percent; 27 percent) and Service Companies (0.44 percent; 12 percent): Chromium catalyst production and service companies are also unlikely to be affected by costs of the relative magnitude found here. Most companies are locked into the use of specific catalysts without major new investments. As a result, while there may be some small long-term shift away from the use of chromium catalysts, a price change of one percent is unlikely to immediately prompt such a change. This also means that the market for chrome catalyst services is likely to be maintained. Further, faced with a new regulation, companies are more rather than less likely to turn to a service company to handle chromium products. Based on these considerations, OSHA determined that the standard is economically feasible in these sectors.

Iron and Steel Foundries: Iron and steel foundries (NAICS 3315) have costs that are 0.42 percent of revenues and 15 percent of profits. An oddity of the estimated costs for this industry is that 44 percent of the costs are associated with monitoring costs. In this cost estimate, OSHA assumes that iron and steel foundries will use scheduled periodic monitoring rather than adopting the option of performance-based monitoring. Adopting a performance-based monitoring approach rather than scheduled monitoring might well reduce costs as a percentage of profits to less than 10 percent of profits. As noted above, cost changes of less than one percent are routinely passed on and impacts that are less than 10 percent of profits have not been shown to be likely to affect the viability or competitive structure of any of the industries affected by this standard.

Even if costs are not reduced, the industry has demonstrated its ability to survive real cost increases by remaining viable in the face of a 32 percent increase in the price of its basic input, steel, over the last two years. Based on these considerations, OSHA concludes the standard is feasible for this sector.

F. Benefits and Net Benefits

OSHA estimated the benefits associated with alternative PELs for Cr(VI) by applying the dose-response relationship developed in the risk assessment to current exposure levels. OSHA determined current exposure levels by first developing an exposure profile for industries with Cr(VI) exposures using OSHA inspection and site visit data, and then applying this profile to the total current worker population. The industry-by-industry exposure profile was given in Table VIII–2 above.

By applying the dose-response relationship to estimates of current exposure levels across industries, it is possible to project the number of lung cancers expected to occur in the worker

population given current exposures (the ''baseline''), and the number of these cases that would be avoided under alternative, lower PELs. OSHA assumed that exposures below the limit of detection (LOD) are equivalent to no exposure to Cr(VI), thus assigning no baseline or avoided lung cancers (and hence, no benefits) to these exposures. For exposures above the current PEL and for purposes of determining the benefit of reducing the PEL, OSHA assumed exposure at exactly the PEL.

Consequently, the benefits computed below are attributable only to a change in the PEL. No benefits are assigned to the effect of a new standard increasing compliance with the current PEL. OSHA estimates that between 3,167 and 12,514 lung cancers attributable to Cr(VI) exposure will occur during the working lifetime of the current worker population. Table VIII–10 shows the number of avoided lung cancers by PEL. At the final PEL of 5 $\mu g/m^3$, an estimated 1,782 to 6,546 lung cancers would be prevented over the working lifetime of the current worker population.

Note that the Agency based these estimates on a worker who is employed in a Cr(VI)-exposed occupation for his entire working life, from age 20 to 65. The calculation also does not allow workers to enter or exit Cr(VI) jobs, nor switch to other exposure groups during their working lives. While the assumptions of 45 years of exposure and no mobility among exposure groups may seem restrictive, these assumptions actually are likely to yield somewhat conservative (lower) estimates of the number of avoided cancers, given the nature of the risk assessment model.

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Table VIII-10. Estimated Avoided Lung Cancers, by PEL, Resulting from a Reduction in Exposure to Hexavalent Chromium

PEL (μg/m^3)	0.25	0.5	1	5	10	20
Total Avoided Lung Cancer Deaths	2,958 - 11,597	2,806 - 10,935	2,614 - 10,098	1,782 - 6,546	1,222 - 4,258	658 - 2,096
Annual Avoided Lung Cancer Deaths	66 - 258	62 - 243	58 - 224	40 - 145	27 - 95	15 - 47
Annual Avoided Non-Fatal Cancers	9 - 35	8 - 33	8 - 31	5 - 20	4 - 13	2 - 6

Source: U.S. Dept. of Labor, OSHA, Office of Regulatory Analysis, 2006.

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For example, consider the case of job covered by five workers, each working nine years rather than one worker for 45 years. The former situation will likely yield a slightly higher rate of lung cancers, since more workers are exposed to the carcinogen (albeit for a shorter period of time) and the average age of the workers exposed is likely to decrease. This is due to: (1) The linearity of the estimated dose-response

relationship, and (2) once an individual accumulates a dose, the increase in relative risk persists for the remainder of his lifetime. For example, a worker exposed from age 20 to 30 will have a constant increased relative risk for about 50 or so years (from age 30 on, assuming no lag between exposure and increased risk and death at age 80), whereas a person exposed from age 40 to 50 will have only about 30 years of increased risk (again assuming no lag and death at age 80). The persistence of the increased relative risk for a lifetime follows directly from the risk assessment and is typical of life table analysis.

For informational purposes only, OSHA has estimated the monetary value of the benefits associated with the final rule. These estimates are informational because OSHA cannot use benefit-cost analysis as a basis for determining the PEL for a health standard. In order to estimate monetary values for the benefits associated with the final rule, OSHA reviewed the approaches taken by other regulatory agencies for similar regulatory actions. OSHA found that occupational illnesses are analogous to the types of illnesses targeted by EPA regulations and has thus used them in this analysis.

OSHA is adopting EPA's approach, applying a value of $6.8 million to each premature fatality avoided. The $6.8 million value represents individuals' willingness-to-pay (WTP) to reduce the risk of premature death.

Nonfatal cases of lung cancer can be valued using a cost of illness (COI) approach, using data on associated medical costs. The EPA Cost of Illness Handbook (Ex.35–333) reports that the medical costs for a nonfatal case of lung cancer are, on average, $136,460. Updating the EPA figure to 2003 dollars yields the value of $160,030. Including values for lost productivity, the total COI which is applied to the OSHA estimate of nonfatal cases of lung cancer is $188,502.

An important limitation of the COI approach is that it does not measure individuals' WTP to avoid the risk of contracting nonfatal cancers or illnesses. As an alternative approach, nonfatal cancer benefits may be estimated by adjusting the value of lives saved estimates. In its Stage 2 Disinfection and Disinfection Byproducts water rule, EPA used studies on the WTP to avoid nonfatal lymphoma and chronic bronchitis as a basis for valuing nonfatal cancers. In sum, EPA valued nonfatal cancers at 58.3 percent of the value of a fatal cancer. Using WTP information would yield a higher estimate of the benefits associated with the reduction in nonfatal lung cancers, as the nonfatal cancers would be valued at $4 million rather than $188,502 per case. These values represent the upper and lower bound values for nonfatal cases of lung cancer avoided.

Using these assumptions, latency periods of 15, 20, 25, and 30 years—and adjustments to the value of statistical life to today—OSHA estimated the total annual benefits of the standard at various PELS in Table VIII–11, considering the benefits from preventing both fatal and non-fatal cases of lung cancer.

Occupational exposure to Cr(VI) has also been linked to a multitude of other health effects, including irritated and perforated nasal septum, skin ulceration, asthma, and dermatitis. Current data on Cr(VI) exposure and health effects are insufficient to quantify the precise extent to which many of these ailments occur. However, it is possible to provide an upper bound estimate of the number of cases of dermatitis that occur annually and an upper estimate of the number that will be prevented by a standard. This estimate is an upper bound because it uses data on incidence of dermatitis among cement workers, where dermatitis is more common than it would be for other exposures to Cr(VI). It is important to note that if OSHA were able to quantify all Cr(VI)-related health effects, the quantified benefits would be somewhat higher than the benefits presented in this analysis.

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Table VIII-11. Total Annual Monetized Benefits Associated with a Reduction in Exposure to Hexavalent Chromium (millions of 2003 dollars)

PEL (ug/m^3)	0.25	0.5	1	5	10	20
Undiscounted	$455 - $1,921	$432 - $1,811	$403 - $1,672	$275 - $1,085	$188 - $706	$102 - $348
Discounted at 3%	$189 - $1,587	$176 - $1,496	$164 - $1,382	$112 - $896	$77 - $584	$41 - $288
Discounted at 7%	$60 - $891	$57 - $841	$53 - $776	$36 - $504	$25 - $328	$13 - $162

Source: U.S. Dept. of Labor, OSHA, Office of Regulatory Analysis, 2006.

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Using National Institute for Occupational Safety and Health (NIOSH) data, Ruttenberg and Associates (Ex. 35–332) estimate that the incidence of dermatitis among concrete workers is between 0.2 and 1 percent. Applying the 0.2 percent-1 percent incidence rate indicates that there are presently 418–2,089 cases of dermatitis occurring annually. This approach represents an overestimate for cases of dermatitis in other application groups, since some dermatitis among cement workers is caused by other known factors, such as the high alkalinity of cement. If the measures in this final standard are 50 percent effective in preventing dermatitis, then there would be an estimated 209–1,045 cases of Cr(VI) dermatitis avoided annually.

To assign values to the cases of avoided dermatitis OSHA applied the COI approach. Ruttenberg and Associates computed that, on average, the medical costs associated with a case of dermatitis are $119 (in 2003 dollars) and the indirect and lost productivity costs are $1,239 (Ex. 35–332). These estimates were based on an analysis of BLS data on lost time associated with cases of dermatitis, updated to current dollars. Based on the Ruttenberg values, OSHA estimates that a Cr(VI) standard will yield $0.3 million to $1.4 million in annual benefits due to reduced incidence of dermatitis.

Occupational exposure to Cr(VI) can lead to nasal septum ulcerations and nasal septum perforations. As with cases of dermatitis, the data were insufficient to conduct a formal quantitative risk assessment to relate exposures and incidence. However, previous studies provide a basis for developing an approximate estimate of the number of nasal perforations expected under the current PEL as well as PELs of 0.25 μg/m^3, 0.5 μg/m^3, 1.0 μg/m^3, 5.0 μg/m^3, 10.0 μg/m^3 and 20.0 μg/m^3. Cases of nasal perforations were computed only for workers in electroplating and chrome production. The percentage of workers with nasal tissue damage is expected to be over 50 percent for those regularly exposed above approximately 20 μg/m^3. Less than 25 percent of workers could reasonably be expected to experience nasal tissue damage if Cr(VI) exposure was kept below an 8-hour TWA of 5 μg/m^3 and regular short-term exposures (*e.g.* an hour or so) were below 10 μg/m^3. Less than 10 percent of workers could reasonably be expected to experience nasal tissue damage at a TWA Cr(VI) below 2 μg/m^3 [and short-term exposures below 10 μg/m^3]. It appears likely that nasal damage might be avoided completely if all Cr(VI) exposures were kept below 1 μg/m^3.

OSHA estimates that 1,728 nasal perforations/ulcerations occur annually under current exposure levels. OSHA estimates that 1,140 of these would be prevented under the final PEL of 5 μg/m^3. Due to insufficient data, it was not possible to monetize the benefits. Thus, the benefits associated with a reduction in nasal perforations/ulcerations are excluded from the net benefits analysis presented below.

Finally, for informational purposes, OSHA examined the net benefits of the standard, based on the benefits and costs presented above, and the costs per case of cancer avoided, as shown in Table VIII–12.

As noted above, the OSH Act requires OSHA to set standards based on eliminating significant risk to the extent feasible. That criterion or a criterion of maximizing net (monetary) benefits may result in very different regulatory outcomes. Thus, these analyses of net benefits cannot be used as the basis for a decision concerning the choice of a PEL for a Cr(VI) standard.

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Table VIII-12. Annual Monetized Net Benefits and Costs per Cancer Avoided from a Reduction in Exposure to Hexavalent Chromium

(millions of 2003 dollars)

PEL (ug/m^3)	0.25	0.5	1	5	10	20
Discount Rate = 3 Percent						
Costs at 3 percent discount rate						
	$1,762	$996	$552	$273	$165	$109
Net Benefits at 3 Percent						
Minimum	-$1,573	-$820	-$388	-$161	-$88	-$68
Maximum	-$175	$500	$830	$623	$418	$179
Midpoint	-$874	-$160	$221	$231	$165	$56
Cost per Cancer Avoided						
Minimum	$6.0	$3.6	$2.2	$1.7	$1.5	$2.1
Maximum	$23.6	$14.1	$8.4	$6.1	$5.3	$6.6
Average	$14.8	$8.8	$5.3	$3.9	$3.4	$4.3
Discount Rate = 7 Percent						
Costs at 7 percent discount rate						
	$1,815	$1,033	$570	$282	$170	$112
Net Benefits at 7 percent						
Minimum	-$1,755	-$976	-$517	-$246	-$145	-$99
Maximum	-$924	-$192	$206	$222	$158	$50
Midpoint	-$1,340	-$584	-$156	-$12	$6	-$24
Cost per Cancer Avoided						
Minimum	$6.2	$3.7	$2.2	$1.7	$1.6	$2.1
Maximum	$24.3	$14.6	$8.6	$6.3	$5.5	$6.7
Average	$15.3	$9.2	$5.4	$4.0	$3.5	$4.4

Source: U.S. Dept. of Labor, OSHA, Office of Regulatory Analysis, 2006.

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Nevertheless, the Agency agrees that additional information concerning the circumstances in which monetary benefits exceed costs would be a useful addition to the above table. OSHA found the following conditions key to determining whether benefits exceed costs:

- If the risk is at the lowest end of the range considered, then benefits do not exceed costs no matter what other variables are used.
- If the risk is at the high end of the range, and a discount rate of 7 percent is used, then benefits exceed costs for PELs of 1 and 20 if the latency period is less than 20 years, and for PELs of 5 and 10 if the latency period is less than 25 years.
- If the risk is at the high end of the range, and a discount rate of 3 percent is used, then benefits exceed costs for a PEL of 0.5 if the latency period is twenty years or less, and benefits exceed costs for all latency periods for all higher PELs.

Incremental costs and benefits are those that are associated with increasing stringency of the standard. Comparison of incremental benefits and costs provides an indication of the relative efficiency of the various PELs. OSHA cannot use this information in selecting a PEL, but it has conducted these calculations for informational purposes. Incremental costs, benefits, net benefits and cost per cancer avoided are presented in Table VIII–13.

In addition to examining alternative PELs, OSHA also examined alternatives to other provisions of the standard. These alternatives are discussed in the summary of the Final Regulatory Flexibility Analysis in the next section.

Table VIII-13. Incremental Benefits: Benefits, Costs, Net Benefits, and Cost/Cancer Avoided from a Reduction in Exposure to Hexavalent Chromium

Change in PEL:	20 to 10	10 to 5	5 to 1	1 to 0.5	0.5 to 0.25
3% Discount Rate:					
Change in Benefits	$165.4	$173.9	$268.7	$63.2	$52.0
Change in Costs	$56.0	$108.0	$279.0	$444.0	$766.0
Change in Net Benefits (ΔBenefits - ΔCosts)	$109.4	$65.9	-$10.3	-$380.8	-$714.0
Difference in Avg. Cancers Avoided	36	34	55	13	11
Change in Costs/Additional Cancers Avoided	$1.6	$3.2	$5.1	$34.2	$69.6
7% Discount Rate:					
Change in Benefits	$88.6	$93.4	$144.6	$34.1	$26.9
Change in Costs	$58.0	$112.0	$288.0	$463.0	$782.0
Change in Net Benefits (ΔBenefits - ΔCosts)	$30.6	-$18.6	-$143.4	-$428.9	-$755.1
Difference in Avg. Cancers Avoided	36	34	55	13	11
Change in Costs/Additional Cancers Avoided	$1.6	$3.3	$5.2	$35.6	$71.1

Source: U.S. Dept. of Labor, OSHA, Office of Regulatory Analysis, 2006.

G. Summary of the Final Regulatory Flexibility Analysis

The full final regulatory flexibility analysis is presented in Chapter VII of the FEA. Many of the topics discussed there, such as the legal authority for the rule; the reasons OSHA is going forward with the rule; and economic impacts on small business have been presented in detail elsewhere in the Preamble. As a result, this section focuses on two issues: duplicative, overlapping, or conflicting rules; and alternatives OSHA considered.

Federal Rules That May Duplicate, Overlap, or Conflict With the Final Rules

OSHA's SBREFA panel for this rule suggested that OSHA address a number of possible overlapping or conflicting rules: EPA's Maximum Achievable Control Technology (MACT) standard for chromium electroplaters; EPA's standards under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) for Chromium Copper Arsenate (CCA) applicators; and state use of OSHA PELs for setting fence line air quality standards. The Panel was also concerned that, in some cases, other OSHA standards might overlap and be sufficient to assure that a new final standard would not be needed, or that some of the final standard's provisions might not be needed.

OSHA has thoroughly studied the provisions of EPA's MACT standard and has also consulted with EPA. The standards are neither duplicative nor conflicting. The rules are not duplicative because they have different goals—environmental protection and protection against occupation exposure. It is quite possible, as many electroplaters are now doing, to achieve environmental protection goals without achieving occupational protection goals. The regulations are not conflicting because there exist controls that can achieve both goals without interfering with one another. However, it is possible that meeting the final OSHA standard would cause someone to incur additional costs for the MACT standard. If an employer has to make major changes to install LEV, this could result in significant expenses to meet EPA requirements not accounted for in OSHA's cost analysis. In its final cost estimates, OSHA has included costs for additional MACT testing in cases where it may be needed. OSHA has also allowed all facilities four years to install engineering controls, with the result that electroplaters can better coordinate their EPA and OSHA requirements and avoid the need for extra testing.

OSHA examined the potential problem of overlapping jurisdiction for CCA applicators, and found that there would indeed be overlapping jurisdiction. As a result, OSHA had excluded CCA applicators from the scope of the coverage of the rule. OSHA has been unable to find a case where a state, as a matter of law, bases fence line standards on OSHA PELs. OSHA notes that the OSHA PEL is designed to address the risks associated with life long occupational exposure only.

OSHA has also examined other OSHA standards, and where standards are overlapping, referred to them by reference in the final standard in order to eliminate the possibility of

overlapping, duplicative or conflicting standards. Existing OSHA standards that may duplicate the final provisions in some respect include the standards addressing respiratory protection (29 CFR 1910.134); hazard communication (29 CFR 1910.1200); access to medical and exposure records (29 CFR 1910.1020); general requirements for personal protective equipment in general industry (29 CFR 1910.132), construction (29 CFR 1926.95), and shipyards (29 CFR 1915.152); and sanitation in general industry (29 CFR 1910.141), construction (29 CFR 1926.51), and shipyards (29 CFR 1915.97).

Regulatory Alternatives

This section discusses various alternatives to the final standard that OSHA considered, with an emphasis on those suggested by the SBREFA Panel as potentially alleviating impacts on small firms. (A discussion on the costs of some of these alternatives to OSHA's final regulatory requirements for the hexavalent chromium standard can be found in Section III.3 Costs of Regulatory Alternatives in the final report by OSHA's contractor, Shaw (Shaw, 2006). In the Shaw report, costs are analyzed by regulatory alternative and major industry sector at discount rates of 7 percent and 3 percent.)

Scope: The proposed standard covered exposure to all types of Cr(VI) compounds in general industry, construction, and shipyard. Cement work in construction was excluded.

OSHA considered the Panel recommendation that sectors where there is little or no known exposure to Cr(VI) be excluded from the scope of the standard. OSHA decided against this option. The costs for such sectors are relatively small—probably even smaller than OSHA has estimated because OSHA did not assume that any industry would use objective data to demonstrate that initial assessment was not needed. However, it is possible that changes in technology and production processes could change the exposure of employees in what are currently low exposure industries. If this happens, OSHA would need to issue a new standard to address the situation. As a result, OSHA is reluctant to exempt industries from the scope of the standard.

However, OSHA has rewritten the scope of the standard for the final rule so that it exempts from the scope of the standard any employer who can demonstrate that a material containing Cr(VI) or a specific process, operation, or activity involving Cr(VI) will not result in concentrations at or above 0.5 $\mu g/m^3$ under any condition of use. As a result, industries are exempted from all provisions of the standard and all costs if the industry can demonstrate that exposure is always at relatively low levels. This approach seems the best way to minimize the costs for the standard for industries where exposure is currently minimal, but could change in the future.

As stated above, the final standard does not cover exposures to hexavalent chromium resulting solely from exposure to portland cement. OSHA's assessment of the data indicates that the primary exposure to cement workers is dermal contact that can lead to irritant or contact allergic dermatitis. Current information indicates that the exposures in cement work are well below 0.25 $\mu g/m^3$. Moreover, unlike other exposures in construction, general industry or shipyards, exposures from cement are most likely to be solely from dermal contact. There is little potential for airborne exposures and unlikely to be any in the future, as Cr(VI) appears in cement in only minute quantities naturally. Given these factors, the final standard excludes cement from the scope of the standard. OSHA has determined that addressing the dermal hazards from these exposures to Cr(VI) through guidance materials and enforcement of existing personal protective equipment and hygiene standards may be a more effective approach. Such guidance materials would include recommendations for specific work practices and personal protective equipment for cement work in construction.

OSHA's analysis suggests that there are 2,093 to 10,463 cases of dermatitis among cement workers annually. Using a cost of illness (COI) approach, avoiding 95 percent of these dermatoses would be valued at $2.5 million to $12.6 million annually, and avoiding 50 percent of these dermatoses would be valued $1.3 million to $6.6 million annually.

The costs of including cement would depend on what requirements were applied to wet cement workers. OSHA estimates that the costs associated with existing standards (e.g., requirements for PPE and hygiene practices) could range from $80 million to $300 million per year. Placing wet cement within the scope of the standard would cost an additional $33 million per year for compliance with such provisions as initial monitoring; those costs would be incurred even if the employer has no airborne exposures.

PELS: Section F of this preamble summary presented data on the costs and benefits of alternative PELS for all industries. The full FEA contains detailed data on the impacts on small firms at each PEL.

The SBREFA Panel also suggested alternatives to a uniform PEL across all industries and exposures. The Panel recommended that OSHA consider alternative approaches to industries that are intermittent users of Cr(VI). OSHA has adopted the concept of permitting employers with intermittent exposures to meet the requirements of the standard using respirators rather than engineering controls. This approach has been used in other standards and does not require workers to routinely wear respirators.

The SBREFA Panel also recommended considering Separate Engineering Control Airborne Limits (SECALs). OSHA has adopted this approach for applications in the aerospace industry. OSHA considered a SECAL for electroplating when the Agency was considering setting PELs lower than 5, but found a SECAL would not significantly lower costs because respirator use would be almost as expensive as using engineering controls. The expense of respirator use would also be a problem with SECALs for this sector at any PEL. OSHA's reasons for not using the SECAL approach in other sectors are provided in the Summary and Explanation. The SBREFA Panel also suggested that OSHA consider different PELs for different Cr(VI) compounds leading to exposure to Cr(VI). This issue is fully discussed in VI. Quantitative Risk Assessment. Here, it will only be noted that this would result in lower PELs than OSHA is setting in at least some industries, and thus potentially increase impacts on some small businesses.

Special Approaches to the Shipyard and Construction Industries: The SBREFA Panel was concerned that changing work conditions in the shipyard and construction industry would make it difficult to apply some of the provisions that OSHA suggested at the time of the Panel. OSHA has decided to change its approach in these sectors. OSHA is proposing three separate standards, one for general industry, one for construction, and one for shipyards. OSHA initially proposed that, in shipyards and construction, medical surveillance would be required only for persons with signs and symptoms, and regulated areas would not be required. In the final standard, OSHA has provided for the same medical surveillance standard in all sectors. The reasons for doing this are discussed in the Summary and Explanation section of the Preamble. However, employers must still meet the PEL with engineering controls and work practices where feasible. OSHA's

proposed rule did not require exposure monitoring in the construction and maritime sectors. In light of comments, OSHA has shifted from this approach to requiring all sectors to conduct exposure monitoring, but allowing a performance-oriented option to exposure monitoring.

Timing of the Standard: The SBREFA Panel also recommended considering a multi-year phase-in of the standard. OSHA has solicited comment and examined the comments on this issue. OSHA has decided to allow employers four years (rather than two years) to comply with the engineering control provisions of the standard. This expanded phase-in of engineering controls has several advantages from a viewpoint of impacts on small businesses. First, it reduces the one-time initial costs of the standard by spreading them out over time. This would be particularly useful for small businesses that have trouble borrowing large amounts of capital in a single year. A phase-in is also useful in the electroplating sector by allowing employers to coordinate their environmental and occupational safety and health control strategies to minimize potential costs. See the Summary and Explanation section of this Preamble for further discussion of this issue.

SBREFA Panel

Table VIII–14 lists all of the SBREFA Panel recommendations and notes OSHA responses to these recommendations.

Table VIII-14. SBREFA Panel Recommendations and OSHA Responses

SBREFA Panel Recommendation	OSHA Response
The Panel recommends that, as time permits, OSHA revise its economic and regulatory flexibility analyses as appropriate to reflect the Small Entity Representative (SER) comments on underestimation of costs and that the Agency compare the OSHA revised estimates to alternative estimates provided and methodologies suggested by the SERs. For those SER estimates and methodological suggestions that OSHA does not adopt, the Panel recommends that OSHA explain its reasons for preferring an alternative estimate and solicit comment on the issue.	OSHA extensively reviewed its cost estimates, and changed many of them in response to SER comments and solicited comments on these revised cost estimates. A few examples of OSHA's cost changes are given in the responses to specific issues, below (e.g., medical exams, training and familiarization). As a result of comments on the proposed rule, OSHA has further increased its costs to reflect a variety of issues.

Table VIII-14, contd. SBREFA Panel Recommendations and OSHA Responses

SBREFA Panel Recommendation	OSHA Response
The Panel recommends that, to the extent time permits, OSHA should carefully consider the ability of each potentially affected industry to meet any proposed PEL for Cr(VI) and solicit comment on the costs and technological feasibility of the PEL.	The FEA reflects OSHA's judgment on technological feasibility and includes responses to specific issues raised by the Panel and SERs. OSHA solicited comment on the accuracy and reasonableness of these judgments, and has significantly altered both its cost and technological feasibility assessments in light of these comments.
The Panel recommends that OSHA carefully review the basis for its estimated medical surveillance compliance costs, consider these concerns raised by the SERs, and ensure that its estimates are revised, as appropriate and time permits, to fully reflect the costs likely to be incurred by potentially affected establishments.	OSHA has increased the estimated time for a limited medical exam from 1.5 hours to 3 hours and solicited comment on all other cost projections for medical surveillance. See **Chapter IV OF THE FEA; COSTS OF COMPLIANCE, COSTS BY PROVISION** - Medical Surveillance, for details of OSHA's unit costs for medical surveillance.
The Panel recommends that, as time permits, OSHA consider alternatives that would alleviate the need for extensive monitoring on construction sites, and solicit comment on this issue. If OSHA does not adopt such alternatives, then OSHA should consider increasing the estimated costs of such monitoring in construction, and solicit comment on the costs of monitoring.	OSHA revised the standard to allow all sectors to develop performance oriented approaches to exposure assessment; for all sectors, OSHA believes that its unit cost estimates are realistic in light of the comments OSHA received. See **Chapter IV OF THE FEA: COSTS OF COMPLIANCE, COSTS BY PROVISION** - Exposure Monitoring (Initial and Periodic), for details of OSHA's unit costs for exposure monitoring in general industry.

Table VIII-14, contd. SBREFA Panel Recommendations and OSHA Responses

SBREFA Panel Recommendation	OSHA Response
The Panel recommends that OSHA carefully review the basis for its estimated hygiene compliance costs, consider the concerns raised by the SERs, and, to the extent time permits, ensure that its estimates are revised, as appropriate, to fully reflect the costs likely to be incurred by potentially affected establishments.	OSHA's proposed standard allowed hand washing as a hygiene option; OSHA has eliminated the requirement for special wording for labels of contaminated clothing, thus reducing any cost premium related to handling contaminated waste water or laundry.
The Panel recommends that OSHA examine and solicit comment on possible underestimates of the costs of regulated areas.	In the proposed rule, OSHA recognized costs for training and familiarization to cover a better understanding of the costs of regulated areas, and solicited comment on the issue. See **Chapter IV OF THE FEA; COSTS OF COMPLIANCE, COSTS BY PROVISION** - Communication of Hazards to Employees - Training and Familiarization, for details of OSHA's unit costs for this provision, public comments and responses to these comments.
The Panel recommends that OSHA examine and solicit comment on the costs of laundering PPE.	See above—OSHA has eliminated the labeling requirement for contaminated PPE, and thus reduced any premium of costs for labeled PPE. See **Chapter IV OF THE FEA; COSTS OF COMPLIANCE, COSTS BY PROVISIONS** - Housekeeping, Protective Work Clothing and Equipments, and Table IV-8 for details of OSHA's unit costs for laundering PPE and other related costs.

Table VIII-14, contd. SBREFA Panel Recommendations and OSHA Responses

SBREFA Panel Recommendation	OSHA Response
The Panel recommends that OSHA examine whether its cost estimates reflect the full costs of complying with the hazard communication standard.	OSHA's analysis assumes that employers will need time for familiarization with the standard, training on the standard, and increased initial supervision.
The Panel recommends that OSHA thoroughly review the economic impacts of compliance with a proposed Cr(VI) standard and develop more detailed feasibility analyses where appropriate. The Panel also recommends that OSHA, to the extent permitted by time and the availability of economic data, reexamine its estimates of profits and revenues in light of SER comments, and update economic data to better reflect recent changes in the economic status of the affected industries, consistent with its statutory mandate. The Panel also recommends that OSHA examine, to the extent feasible with the time available, the possibility that users will substitute non-Cr(VI) products for Cr(VI) products. The Panel recommends that OSHA solicit comment on the extent to which foreign competition may or may not impact what is feasible for the industries affected by this rule.	OSHA reviewed and revised many of its revenue and profit estimates in the light of specific SER comments. Examples of application groups with revised revenue and profit estimates include Group 4, Chromate Production; Group 5, Chromate Pigment Producers; and Group 17, Chromium Dye Producers. For the final rule, OSHA has updated revenue and profit impacts across the board To the most recent year fully available – 2002.

Table VIII-14, contd. SBREFA Panel Recommendations and OSHA Responses

SBREFA Panel Recommendation	OSHA Response
The Panel recommends that OSHA consider and solicit comments on selective exemption of some industries from the proposed standard, especially those industries whose inclusion is not supported by the industry-specific data or in which inhalation exposure to Cr(VI) is minimal.	OSHA is reluctant to exempt industries where exposures are minimal because changes in technology could change exposures in the future. However, OSHA has allowed industries to exempt themselves from the rule based on data demonstrating that exposure levels can be expected to be less than 0.5 as an 8-hour TWA.
The Panel recommends that OSHA exempt applicators of CCA given that they are already regulated by EPA as pesticide applicators under FIFRA. In addition, OSHA should clarify and seek comment as to why users of CCA-treated wood should be covered under the Cr(VI) proposal given that the use of CCA-treated wood was previously excluded by OSHA in its standard for inorganic arsenic.	OSHA has decided to exempt applicators of CCA in this rule.
The Panel recommends that OSHA clearly explain the way that Cr(VI) exposure and risk for the worker cohort studies used in the quantitative risk assessment were calculated, and should consider and seek comment as to whether the major assumptions used in these calculations are reasonable.	The Quantitative Risk Assessment section of the Preamble addresses this issue, and the comments OSHA received on it.

Table VIII-14, contd. SBREFA Panel Recommendations and OSHA Responses

SBREFA Panel Recommendation	OSHA Response
The Panel recommends that OSHA consider the available information on reduction of inhaled Cr(VI) to Cr(III) in the body, to determine whether exposures below a threshold concentration can be shown not to cause the genetic alterations that are believed to cause cancer. In addition, OSHA should review epidemiological analyses relevant to the question of threshold dose, to determine whether such a dose is identifiable from the available human data. OSHA should further consider and seek comment on these findings in relation to the risk assessment and the proposed PEL, allowing for a higher PEL than those presented in the draft standard if the risk assessment so indicates.	The Quantitative Risk Assessment of this Preamble addresses the issue of possible threshold effects and comments OSHA received on this issue.
The Panel recommends that OSHA should clarify the meaning of the projected lung cancer risk estimates used to support the proposed standard. In particular, OSHA should explain these estimates, which are based on a working lifetime of 45 years' exposure at the highest allowable Cr(VI) concentration, and, where appropriate, note projected excess cancers that may result from shorter periods of occupational Cr(VI) exposure.	OSHA is required by law to set health standards so that they avoid significant risk over a working lifetime. Both in the QRA and in the Benefits Chapter of the FEA, OSHA has examined alternative exposure scenarios. See **VI. Quantitative Risk Assessment** in the Preamble and **Chapter VI of the FEA; BENEFITS and NET BENEFITS**, Lung Cancers Avoided in this FEA.

Table VIII-14, contd. SBREFA Panel Recommendations and OSHA Responses

SBREFA Panel Recommendation	OSHA Response
The Panel recommends that OSHA solicit information to better characterize the exposure patterns and Cr(VI) compounds encountered in the maritime environment, and should encourage input from marine chemists at appropriate points in the rulemaking.	OSHA has added information provided by firms in the shipyard industry since the Panel meeting. (See **Chapter II** of the FEA; **PROFILE OF AFFECTED INDUSTRIES, PROCESSES, AND APPLICATIONS GROUPS, AFFECTED INDUSTRIES - Welding** and **Painting** and **Chapter III: Technological Feasibility, Welding** and **Painting**). OSHA solicited comment on shipyard issues and from maritime chemists, and has modified its estimates in light of the data received.
The Panel recommends that OSHA consider the appropriateness of separate PELs for specific Cr(VI) compounds, with attention to the weight and extent of the best available scientific evidence regarding their relative carcinogenic potency.	OSHA considered this possibility and decided against it, in part, because it would require lower PELs and result in many persons in respirators. OSHA solicited comment on this issue, and responded to these comments in the technological feasibility section and in Summary and Explanation for the Rule.
The Panel recommends that OSHA solicit information to better define construction activities likely to be above and below the PEL (for initial exposure monitoring purposes) to minimize the amount of respiratory protection that would need to be used for compliance.	OSHA has set forth a rule that allows a performance-oriented approach to monitoring in all sectors. OSHA considered a control banding approach to construction, but lacked the data to fully implement this approach, even after soliciting comment on the issue.

Table VIII-14, contd. SBREFA Panel Recommendations and OSHA Responses

SBREFA Panel Recommendation	OSHA Response
The Panel recommends that OSHA provide a better explanation of how to implement an exposure assessment program for construction activities. Also, OSHA should provide further explanation on monitoring-related topics like the selection of sampling and analytical methods, the selection of plus-or-minus 25 percent as a confidence interval, and the use of objective data in lieu of monitoring.	OSHA has decided to allow a performance-oriented approach to exposure monitoring in all sectors. The monitoring-related topics are further discussed in the Preamble, XVII. **Summary and Explanation of the Standard.**
The Panel recommends that OSHA consider less frequent monitoring for exposures above the PEL, especially in situations where the employer has already engineered down to the lowest feasible level and is not able to maintain levels below the PEL.	OSHA has left the monitoring frequency unchanged, but has developed a performance-oriented alternative to scheduled monitoring.
The Panel recommends that OSHA review the technologies used to reduce Cr(VI) exposure to ensure that they are available or reasonably anticipated to be available in the future.	OSHA reviewed its technological feasibility analysis and solicited comment on it. In light of these comments, OSHA has changed the PEL based on technological feasibility considerations.

Table VIII-14, contd. SBREFA Panel Recommendations and OSHA Responses

SBREFA Panel Recommendation	OSHA Response
The Panel recommends that OSHA clarify the purpose of the prohibition on the use of employee rotation to meet the PEL and take into account the needs expressed by the SERs on the issue. The Panel recommends that OSHA clarify the methods of compliance section.	The Summary and Explanation of the Preamble explains further the prohibition on employee rotation and the methods of compliance.
The Panel recommends that OSHA clarify how to implement the use of regulated areas particularly for construction activities. OSHA should better explain how employers would delineate boundaries for regulated areas and should better clarify the use of respiratory protection, personal protective clothing and equipment, and hygiene facilities and practices in regulated areas.	OSHA has eliminated the requirement for regulated areas in construction and shipyards. The Summary and Explanation section of the Preamble explains the regulated area requirements in General Industry.
The Panel recommends that OSHA provide a clearer explanation of why it is necessary to remove Cr(VI)-contaminated protective clothing and wash hands prior to entering non-Cr(VI) work areas and eating, drinking or smoking and take into account lost time and costs associated with conducting such activities. The Panel recommends that OSHA clarify its definition of contaminated clothing or waste, provide evidence supporting the view that "contaminated" clothing presents a hazard, and better	These issues are addressed in the Summary and Explanation section of the Preamble.

Table VIII-14, contd. SBREFA Panel Recommendations and OSHA Responses

SBREFA Panel Recommendation	OSHA Response
explain the special treatment of such items and why the treatment is necessary.	
The Panel recommends that OSHA clarify its definition of reasonably anticipated skin and eye contact. The Panel recommends that OSHA clarify the circumstances under which the proposed rule would require the use of personal protective equipment to prevent dermal exposures to solutions containing Cr(VI). In particular, OSHA should reconsider the requirements for the use of dermal protection when the PEL is exceeded; consider alternatives that are more clearly risk based; and determine whether the use of very dilute Cr(VI) solutions, as used in some laboratories, requires the use of personal protective equipment.	OSHA has changed the rule from the SBREFA draft in order to clarify when PPE is required and to assure that it is not required except where a dermal hazard exists.
The Panel recommends that OSHA provide a clearer explanation of the benefits and the need for its proposed medical surveillance provisions. The Panel recommends that OSHA provide clearer guidance as to which employees are intended to be covered under the medical surveillance provisions and, in particular, how the standard is intended to cover employees who work for	OSHA has maintained routine medical surveillance in the shipyard and construction industries. The Preamble Summary and Explanation section clarifies what is required of medical surveillance, and the extent to which the same medical examination can be used to meet the requirements of different standards.

Table VIII-14, contd. SBREFA Panel Recommendations and OSHA Responses

SBREFA Panel Recommendation	OSHA Response
several different employers during the course of a year. The Panel recommends that OSHA clarify the qualifications necessary to provide a medical examination (including what knowledge of Cr(VI) is necessary) and what the elements of such a medical examination should be. The Panel recommends that OSHA design the medical surveillance provisions to be consistent with existing OSHA standards (e.g., lead and arsenic) wherever possible, in order to minimize the need for duplicative medical examinations. The Panel also recommends that OSHA clarify that differences in medical surveillance requirements that may be unavoidable across OSHA standards nevertheless often will not require completely separate medical examinations.	
With respect to the EPA electroplating standards, the Panel recommends that OSHA examine whether important costs have been omitted, seek to develop alternatives that minimize these costs, and seek comment on the issue. With respect to possible dual jurisdiction with FIFRA, the	OSHA discusses the impact of EPA's electroplating standard in the FEA, (See **Chapter III: Technological Feasibility, Electroplating, Chapter IV: Costs of Compliance,** and **Chapter VIII: Environmental Impacts**) and sought comments on this issue. In light of these comments, OSHA significantly increased its estimated costs for the electroplating application group.

Table VIII-14, contd. SBREFA Panel Recommendations and OSHA Responses

SBREFA Panel Recommendation	OSHA Response
Panel recommends that OSHA consider dropping CCA applicators from the scope of the rule, and seek comment on this issue.	OSHA has decided to exclude CCA applicators from the scope of the standard.
With respect to the issue of using OSHA PELs as a basis for fence line standards, the Panel recommends that OSHA make clear the purpose of its PELs, and explain that they are not developed or examined in terms of their validity as a basis for air quality standards.	OSHA solicited comment on the "fence line" standard issue, but received no evidence that any state sets "fence line" standards in a way dependent on OSHA PELs.
The Panel recommends that OSHA examine whether existing standards are adequate to cover occupational exposure to Cr(VI), and, if not, develop the Cr(VI) standard in such a way as to eliminate duplicative and overlapping efforts on the part of employers.	OSHA has determined that, except for CCA applicators and cement workers, other standards cannot provide the worker protection needed, but has sought to avoid duplication of effort between standards.
The Panel recommends that OSHA consider the scientific evidence in favor of a higher PEL, analyze the costs and economic impacts of a PEL of 20 or greater, and solicit comment on this option.	OSHA has included an analysis of the scientific evidence in the health Effects and Quantitative Risk Assessment section of this Preamble, summarizes the costs and benefits, of a PEL of 20 in this Preamble summary, and has a full analysis of the costs, benefits and impacts of this option in the FEA.

Table VIII-14, contd. SBREFA Panel Recommendations and OSHA Responses

SBREFA Panel Recommendation	OSHA Response
The Panel recommends that OSHA carefully examine the entire issue of intermittent exposures, consider options that can alleviate the burden on such firms while meeting the requirements of the OSH Act, and solicit comment on such options.	OSHA determined that intermittent users need not use engineering controls to assure compliance with the PEL.
Some SERs argued that some Cr(VI) compounds offer lesser risks of cancer than others, and should be subject to different PELs. The Panel recommends that OSHA consider these arguments and seek comment on the issue.	OSHA had preliminarily determined that all Cr(VI) compounds should have the same PEL, but sought comment on the issue. In response to comments (summarized in the Health Effects section of this preamble), OSHA decided that the final rule applies to Cr(VI) in all forms and compounds except exposures that occur in pesticide application, exposures to portland cement, and situations where objective data demonstrate that materials or a process, operation, or activity involving chromium cannot release dusts, fumes, or mists in concentrations at or above 0.5 $\mu g/m^3$ under expected conditions of use.

Table VIII-14, contd. SBREFA Panel Recommendations and OSHA Responses

SBREFA Panel Recommendation	OSHA Response
The Panel recommends that OSHA continue to exempt wet cement from the scope of the standard, and that if OSHA seeks comment on this option, OSHA should note the Panel's recommendation and the reasons for the recommendation. The Panel also recommends that OSHA seek ways of adapting the standard better to the dynamic working conditions of the construction industry, examine the extent to which Cr(VI) exposures are already covered by other standards, and seek comment on these issues. The Panel also recommends that OSHA consider the alternative of developing a construction standard in a separate rulemaking.	OSHA has determined to exempt all cement exposure from the scope of the standard. OSHA made a number of changes to the construction standard in the final rule, including allowing a performance oriented approach to exposure assessment, and eliminating the regulated area requirement and the action level.
The Panel recommends that OSHA consider, and solicit comment on, approaches to their special problems; that OSHA consider the possibility of making the maritime proposed standard more similar to the construction draft standard, or consider the alternative of developing a maritime standard in a separate rulemaking.	OSHA has made a number of changes to the shipyard standard in the final rule, including allowing a performance-oriented approach to exposure assessment and eliminating the regulated area requirement.
The Panel recommends that OSHA consider and seek comment on multi-year phase-in alternatives.	OSHA has chosen to allow all firms four years before they need to implement engineering controls to meet the standard.

Table VIII-14, contd. SBREFA Panel Recommendations and OSHA Responses

SBREFA Panel Recommendation	OSHA Response
The Panel recommends that OSHA better explain the action level, including its role in ensuring workers are protected.	OSHA has included an action level in the general industry, construction, and shipyard standards and explains its role in the general industry standard in the Summary and Explanation section of the Preamble.
The Panel recommends that OSHA consider the use of SECALs and solicit comment on whether and in what industries they are appropriate using the Cadmium standard as a model.	OSHA has allowed a SECAL for certain aerospace painting applications.

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H. Need for Regulation

Employees in work environments addressed by the final standards are exposed to a variety of significant hazards that can and do cause serious injury and death. The risks to employees are excessively large due to the existence of market failures, and existing and alternative methods of alleviating these negative consequences have been shown to be insufficient. After carefully weighing the various potential advantages and disadvantages of using a regulatory approach to improve upon the current situation, OSHA concludes that in this case the final mandatory standards represent the best choice for reducing the risks to employees. In addition, rulemaking is necessary in this case in order to replace older existing standards with updated, clear, and consistent health standards.

IX. OMB Review Under the Paperwork Reduction Act of 1995

The final Cr(VI) rule contains collection of information (paperwork) requirements that are subject to review by the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1995 (PRA–95), 44 U.S.C. 3501 *et seq.*, and OMB's regulations at 5 CFR part 1320. The Paperwork Reduction Act defines ''collection of information'' as ''the obtaining, causing to be obtained, soliciting, or requiring the disclosure to third parties or the public of facts or opinions by or for an agency regardless of form or format * * *'' (44 U.S.C. 3502(3)(A)). The collection of information requirements (paperwork) associated with the proposed Cr(VI) rule were submitted to OMB on October 1, 2004. On November 30, 2004 OMB did not approve the Cr(VI) paperwork requirements, and instructed OSHA to examine ''public comment in response to the NPRM, including paperwork requirements,'' and address any public comments on the paperwork in the preamble. OMB assigned the control number 1218–0252 for the Agency to use in future submissions.

The major information collection requirements in the Standard include conducting employee exposure assessment (§§ 1910.1026 (d)(1)–(3), 1915.1026 (d)(1)–(3), and 1926.1126 (d)(1)–(3)), notifying employees of their Cr(VI)exposures when employee exposures exceed the PEL (§§ 1910.1026 (d)(4), 1915.1026 (d)(4), and 1926.1126 (d)(4)), providing respiratory protection (§§ 1910.1026 (g), 1915.1026 (f), and 1926.1126 (f)), labeling bags or containers of contaminated protective clothing or equipment (§§ 1910.1026 (h)(2), 1915.1026 (g)(2), and 1926.1126 (g)(2)), informing persons who launder or cleans protective clothing or equipment contaminated with Cr(VI) of the potential harmful effects (§§ 1910.1026 (h)(3), 1915.1026 (g)(3), and 1926.1126 (g)(3)), implementing medical-surveillance of employees (§§ 1910.1026 (k), 1915.1026 (i), and 1926.1126 (i)), providing physician or other licensed health care professional (PLHCP) with information (§§ 1910.1026 (k)(4), 1915.1026 (i)(4), and 1926.1126 (i)(4)), ensuring that employees receive a copy of their medical-surveillance results (§§ 1910.1026 (k)(5), 1915.1026 (i)(5), and 1926.1126 (i)(5)), maintaining employees' exposure-monitoring and medical-surveillance records for specific periods, and maintaining historical monitoring and objective data (§§ 1910.1026 (m), 1915.1026 (k), and 1926.1126 (k)). The collection of information requirements in the rule are needed to assist employers in identifying and controlling exposures to Cr(VI) in the workplace, and to address Cr(VI)-related adverse health effects. OSHA will also use records developed in response to this standard to determine compliance.

The final rule imposes new information collection requirements for purposes of the PRA. In response to comments on the proposed rule, OSHA has revised provisions of the final rule that affect collection of information requirements. These revisions include:

- The final rule exempts exposures to portland cement in general industry and shipyards;
- An exemption is included in the final rule where the employer can demonstrate that Cr(VI) exposures will not exceed 0.5 $\mu g/m^3$ under any expected conditions;

- The final PEL of 5 μg/m³ has been revised from the proposed 1 μg/m³;
- Requirements for exposure determination have been added to the construction and shipyard standards, and a performance-oriented option for exposure determination is included in the standards for each sector (general industry, construction, and shipyards);
- Medical surveillance must be provided to employees exposed to Cr(VI) above the action level (rather than the PEL) for 30 or more days per year in general industry, construction, and shipyards;
- Requirements to maintain records used for exposure determination have been added to the construction and shipyard standards, while requirements for training records have been removed for all sectors.

OSHA has revised the paperwork package to reflect these changes, and estimates the total burden hours associated with the collection of information to be approximately 940,000 and estimates the cost for maintenance and operation to be approximately $126 million.

Potential respondents are not required to comply with the information collection requirements until they have been approved by OMB. OMB is currently reviewing OSHA's request for approval of the final rule's paperwork requirements. OSHA will publish a subsequent **Federal Register** document when OMB takes further action on the information collection requirements in the Cr(VI) rule.

X. Federalism

The Agency reviewed the final Cr(VI) standard according to the most recent Executive Order on Federalism (Executive Order 13132, 64 FR 43225, August 10, 1999). This Executive Order requires that federal agencies, to the extent possible, refrain from limiting state policy options, consult with states before taking actions that restrict their policy options, and take such actions only when clear constitutional authority exists and the problem is of national scope. The Executive Order allows federal agencies to preempt state law only with the expressed consent of Congress; in such cases, federal agencies must limit preemption of state law to the extent possible. Under section 18 of the Occupational Safety and Health Act (the ''Act'' or ''OSH Act''), Congress expressly provides that OSHA preempt state occupational safety and health standards to the extent that the Agency promulgates a federal standard under section 6 of the Act. Accordingly, under section 18 of the Act OSHA preempts state promulgation and enforcement of requirements dealing with occupational safety and health issues covered by OSHA standards unless the state has an OSHA approved occupational safety and health plan (i.e., is a state-plan state) [see *Gade* v. *National Solid Wastes Management Association*, 112 S. Ct. 2374 (1992)]. Therefore, with respect to states that do not have OSHA-approved plans, the Agency concludes that this final rule falls under the preemption provisions of the Act. Additionally, section 18 of the Act prohibits states without approved plans from issuing citations for violations of OSHA standards; the Agency finds that this final rulemaking does not expand this limitation. OSHA has authority under Executive Order 13132 to promulgate a Cr(VI) standard because the problems addressed by these requirements are national in scope.

As explained in section VII of this preamble, employees face a significant risk from exposure to Cr(VI) in the workplace. These employees are exposed to Cr(VI) in general industry, construction, and shipyards. Accordingly, the final rule would establish requirements for employers in every state to protect their employees from the risks of exposure to Cr(VI). However, section 18(c)(2) of the Act permits state-plan states to develop their own requirements to deal with any special workplace problems or conditions, provided these requirements are at least as effective as the requirements in this final rule.

XI. State Plans

The 26 states and territories with their own OSHA-approved occupational safety and health plans must adopt comparable provisions within six months of the publication date of the final hexavalent chromium standard. These states and territories are: Alaska, Arizona, California, Hawaii, Indiana, Iowa, Kentucky, Maryland, Michigan, Minnesota, Nevada, New Mexico, North Carolina, Oregon, Puerto Rico, South Carolina, Tennessee, Utah, Vermont, Virginia, Virgin Islands, Washington, and Wyoming. Connecticut, New Jersey and New York have OSHA approved State Plans that apply to state and local government employees only. Until a state-plan state promulgates its own comparable provisions, Federal OSHA will provide the state with interim enforcement assistance, as appropriate.

XII. Unfunded Mandates

The Agency reviewed the final Cr(VI) standard according to the Unfunded Mandates Reform Act of 1995 (UMRA) (2 U.S.C. 1501 *et seq.*) and Executive Order 12875. As discussed in section VIII of this preamble, OSHA estimates that compliance with this final rule would require private-sector employers to expend about $288 million each year. However, while this final rule establishes a federal mandate in the private sector, it is not a significant regulatory action within the meaning of section 202 of the UMRA (2 U.S.C. 1532). OSHA standards do not apply to state and local governments, except in states that have voluntarily elected to adopt an OSHA-approved state occupational safety and health plan. Consequently, the provisions of the final rule do not meet the definition of a ''Federal intergovernmental mandate'' [see section 421(5) of the UMRA (2 U.S.C. 658(5))]. Therefore, based on a review of the rulemaking record, the Agency believes that few, if any, of the employers affected by the final rule are state, local, or tribal governments. Therefore, the Cr(VI) requirements promulgated herein do not impose unfunded mandates on state, local, or tribal governments.

XIII. Protecting Children From Environmental Health and Safety Risks

Executive Order 13045 requires that Federal agencies submitting covered regulatory actions to OMB's Office of Information and Regulatory Affairs (OIRA) for review pursuant to Executive Order 12866 must provide OIRA with (1) an evaluation of the environmental health or safety effects that the planned regulation may have on children, and (2) an explanation of why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the agency. Executive Order 13045 defines ''covered regulatory actions'' as rules that may (1) be economically significant under Executive Order 12866 (i.e., a rulemaking that has an annual effect on the economy of $100 million or more, or would adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities, and (2) concern an environmental health risk or safety risk that an agency has reason to believe may disproportionately affect children. In this context, the term ''environmental health risks and safety risks'' means risks to health or safety that are attributable to products or substances that children are likely to come in contact with or ingest (e.g., through air, food, water, soil, product use). The final Cr(VI) standard is economically significant under Executive Order 12866 (see section VIII of this preamble). However, after reviewing the final

Cr(VI) standard, OSHA has determined that the standard would not impose environmental health or safety risks to children as set forth in Executive Order 13045. The final standard requires employers to limit employee exposure to Cr(VI) and take other precautions to protect employees from adverse health effects associated with exposure to Cr(VI). To the best of OSHA's knowledge, no employees under 18 years of age work under conditions that involve exposure to Cr(VI). However, if such conditions exist, children who are exposed to Cr(VI) in the workplace would be better protected from exposure to Cr(VI) under the final rule than they are currently. Based on this determination, OSHA believes that the final Cr(VI) standard does not constitute a covered regulatory action as defined by Executive Order 13045.

XIV. Environmental Impacts

The Agency reviewed the final Cr(VI) standard according to the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321 *et seq.*), the regulations of the Council on Environmental Quality (40 CFR part 1500), and the Department of Labor's NEPA procedures (29 CFR part 11).

As a result of this review, OSHA has made a final determination that the final Cr(VI) standard will have no impact on air, water, or soil quality; plant or animal life; the use of land or aspects of the external environment. Therefore, OSHA concludes that the final Cr(VI) standard will have no significant environmental impacts.

XV. Summary and Explanation of the Standards

(a) Scope

OSHA is issuing separate standards addressing hexavalent chromium (also referred to as chromium (VI) or Cr(VI)) exposure in general industry, construction, and shipyards. The standard for shipyards also applies to marine terminals and longshoring. The standards for construction and shipyards are very similar to each other, but differ in some respects from the standard for general industry. OSHA believes that certain conditions in these two sectors warrant requirements that are somewhat different than those that apply to general industry. This summary and explanation will describe the final rule for general industry and will note differences between it and the standards for construction and shipyards.

Commenters were generally supportive of OSHA's decision to propose separate standards for general industry, construction, and shipyards (*e.g.*, Exs. 38–199–1; 38–212; 38–214; 38–220–1; 38–236; 38–244; 39–19), although one commenter believed that a single standard should apply to all sectors (Ex. 39–51). Where concerns were expressed about the establishment of separate standards, they focused on the provisions of the standards and their application, rather than the concept of establishing separate standards. Some commenters argued that certain activities or industries should be covered by the construction standard rather than the general industry standard (*e.g.*, Exs. 38–203; 38–228–1, p. 18; 39–52–2; 39–56); others considered the proposed construction and shipyard standards to be less protective than the proposed general industry standard (Exs. 38–222; 39–71; 47–23, pp. 16–17; 47–28).

OSHA has long recognized a distinction between the construction and general industry sectors, and has issued standards specifically applicable to construction work under 29 CFR Part 1926. The Agency has provided a definition of the term ''construction work'' at 29 CFR 1910.12(b), has explained the terms used in that definition at 29 CFR 1926.13, and has issued numerous interpretations over the years explaining the classification of activities as either general industry or construction. OSHA recognizes that in some circumstances, general industry activities and conditions in workplaces where general industry tasks are performed may be comparable to those found in construction. However, the Agency believes the longstanding delineation between sectors is appropriate. The distinction between sectors is generally well understood by both OSHA enforcement personnel and the regulated community, and any attempt to create exceptions or to provide different criteria in this final rule would not improve upon the current criteria but would rather cause confusion.

OSHA is issuing the construction and shipyard standards to account for the particular conditions found in those sectors. The Agency intends to ensure that Cr(VI)-exposed workers in construction and shipyards are provided protection that, to the extent feasible, is comparable to the protection afforded workers in general industry. OSHA believes that concerns raised about differences between the Cr(VI) proposed standard for general industry and the proposed standards for construction and shipyards will be lessened because the final standards are more consistent with one another than as originally proposed. Specifically, OSHA proposed explicit exposure assessment requirements for general industry, but not for construction and shipyard workplaces. The requirements of the final rule for exposure determination are nearly identical for all sectors (see discussion of exposure determination under paragraph (d) of this section). In addition, OSHA proposed a requirement for periodic medical examinations in general industry, but not in construction and shipyards. The final rule includes requirements for periodic medical examinations in all sectors (see discussion of medical surveillance requirements under paragraph (k) of this section). The final standards for construction and shipyards provide the most adequate protection within the constraints of feasibility.

The final rule applies to occupational exposures to Cr(VI), that is, any chromium species with a valence of positive six, regardless of form or compound. Examples of Cr(VI) compounds include chromium oxide (CrO_2), ammonium dichromate ($(NH_4)_2Cr_2O_7$), calcium chromate ($CaCrO_4$), chromium trioxide (CrO_3), lead chromate ($PbCrO_4$), potassium chromate (K_2CrO_4), potassium dichromate ($K_2Cr_2O_7$), sodium chromate (Na_2CrO_4), strontium chromate ($SrCrO_4$), and zinc chromate ($ZnCrO_4$).

Some commenters supported the proposal to include all chromium compounds within the scope of the new rule. (See, *e.g.*, Exs. 38–214; 39–60). Other commenters, however, contended that specific Cr(VI) compounds should be excluded from the scope of the final rule. Notably, the Color Pigments Manufacturers Association and Dominion Colour Corporation argued that differences in the bioavailability and toxicity of lead chromate pigments when compared to other Cr(VI) compounds warrant unique treatment (Exs. 38–201; 38–205). The Boeing Company also argued that OSHA should consider the bioavailability of different Cr(VI) compounds (Ex. 38–106). Boeing indicated that exposures to strontium chromate and zinc chromate used in aerospace manufacturing are not equivalent to Cr(VI) exposures in other industries.

OSHA considers all Cr(VI) compounds to be carcinogenic. This conclusion is based upon careful consideration of the epidemiological, animal, and mechanistic evidence in the rulemaking record, and is discussed in section V, ''Health Effects,'' of this preamble. OSHA's conclusion that all Cr(VI) compounds are carcinogenic is consistent with the findings of IARC, NTP, and NIOSH. These organizations have each found Cr(VI) compounds to

be carcinogenic, without exception. OSHA therefore sees no reason to exempt any Cr(VI) compounds from the final rule.

Several commenters argued that existing standards provide adequate protection for employees exposed to Cr(VI), citing in particular OSHA's current welding and lead standards (Exs. 38–203; 38–254; 38–124; 39–19; 39–47; 39–48; 39–52, p. 22; 39–54; 39–56). However, none of these standards provide the full range of protections afforded by the Cr(VI) rule. For example, OSHA's welding requirements (29 CFR Subpart Q for general industry; 1926 Subpart J for construction; 1915 Subpart D for shipyards) include provisions for ventilation, but do not address other aspects of worker protection included in the Cr(VI) rule such as exposure determination or medical surveillance. OSHA's lead standards (29 CFR 1910.1025 for general industry; 29 CFR 1926.62 for construction) have a PEL of 50 μg/m^3, which effectively limits Cr(VI) exposure from lead chromate to 12.5 μg/m^3; however, this value is more than double the PEL in the Cr(VI) rule. Other standards therefore do not provide protection equivalent to the final Cr(VI) rule. Moreover, even though other requirements may affect Cr(VI) occupational exposure, Cr(VI) exposure in the current workplace still results in a significant risk that can be substantially reduced in a feasible manner by the requirements of this final rule.

Portland Cement

The final rule does not cover exposure to Cr(VI) in portland cement. OSHA proposed to exclude exposure to portland cement in construction; the final rule extends this exclusion to all sectors. In the proposal, OSHA identified two general industry application groups where all employee exposure to Cr(VI) is from portland cement: Portland Cement Producers and Precast Concrete Products. (A third application group, Ready-Mixed Concrete, was later identified.) OSHA proposed to cover exposures to portland cement in general industry because the Agency's preliminary exposure profile indicated that some employees in these application groups were exposed to Cr(VI) levels associated with a significant risk of lung cancer. However, evidence in the record indicating the low Cr(VI) content of portland cement has led OSHA to conclude that the current PEL for portland cement effectively limits inhalation exposures from work with portland cement.

Cement ingredients (clay, gypsum, and chalk), chrome steel grinders used to crush ingredients, refractory bricks lining the cement kiln, and ash may serve as sources of chromium that may be converted to Cr(VI) during kiln heating, leaving trace amounts of Cr(VI) in the finished product (Ex. 35–317, p. 148). The amount of Cr(VI) in American portland cement is generally less than 20 g Cr(VI)/g cement (Exs. 9–57; 9–22; 35–417). Because the Cr(VI) concentration in portland cement is so low, OSHA's current PEL for portland cement (15 mg/m^3 for total dust, 29 CFR 1910.1000) effectively limits the Cr(VI) inhalation exposure from cement to levels below the new Cr(VI) PEL and Action Level (*i.e.*, if an employee is exposed at the PEL for portland cement and the Cr(VI) concentration in that cement is below 20 μg/g, the employee's exposure to Cr(VI) will be below 0.3 μg/m^3). Because the evidence in the record demonstrates that current requirements for portland cement are as protective as the new PEL with regard to Cr(VI) inhalation exposures, OSHA considers it reasonable to exclude portland cement from the scope of the final rule. This position was supported by a number of commenters (*e.g.*, Exs. 38–127; 38–217; 38–227; 38–229; 38–235).

A number of other commenters, including over 200 laborers, requested that portland cement be covered under the scope of the final rule (*e.g.*, Exs. 38–10; 38–35; 38–50; 38–110; 38–222). These comments generally, but not exclusively, focused on dermal hazards associated with exposure to portland cement. For example, the Building and Construction Trades Department, AFL–CIO (BCTD) stated:

> To provide construction employees with protection from predictable exposures to hexavalent chromium, the construction standard must include portland cement within its scope. Portland cement represents both a dermal and inhalation hazard in construction, and reduction of exposures would greatly benefit construction employees (Ex. 38–219).

Commenters favoring coverage of portland cement in the final rule argued that a number of the proposal's provisions would serve to protect cement workers, such as requirements for appropriate protective clothing (Exs. 47–26, pp. 26–27; 35–332, pp. 22–23; 40–4–2, p. 20), hygiene facilities (particularly washing facilities)(Exs. 38–219–1, p. 14; 47–26, pp. 26–27; 35–332, p. 19; 40–4–2, p. 19), and training and education (Exs. 47–26, pp. 26–27; 35–332, p. 19; 40–4–2, p. 19). Some commenters also favored medical surveillance requirements for workers exposed to portland cement (38–219–1, p. 18; 47–26, pp. 26–27) and requirements to reduce the Cr(VI) content of portland cement through the addition of ferrous sulfate (Exs. 38–199–1, p. 43; 38–219–1, p. 14–15; 38–222; 35–332, p. 23–24). Some noted that OSHA's Advisory Committee on Construction Safety and Health had recommended that the Agency apply certain provisions of the Cr(VI) rule to portland cement exposures in construction (Ex. 38–199–1, p. 30).

The primary intent of this rule is to protect workers from lung cancer resulting from inhalation of Cr(VI). The Agency has established that exposure to Cr(VI) at the previous PEL results in a significant risk of lung cancer among exposed workers, and compliance with the new PEL will substantially reduce that risk. As indicated previously, the existing PEL for portland cement protects employees against inhalation of Cr(VI) that is present in portland cement as a trace contaminant. Therefore, OSHA does not believe further requirements addressing inhalation exposure to Cr(VI) in portland cement are warranted.

The Agency does recognize, however, that in addition to respiratory effects resulting from Cr(VI) inhalation, Cr(VI) is also capable of causing serious dermal effects (see discussion in section V of this preamble). In previous chemical-specific health standards, OSHA typically has addressed serious health effects associated with exposure to a chemical, even if those effects are not the focus of the rule. For example, OSHA issued a standard for cadmium primarily based on lung cancer and kidney damage associated with inhalation exposures to cadmium; however, contact with cadmium can also cause irritation of the skin and OSHA included a provision in the final cadmium rule addressing protective clothing and equipment to prevent skin irritation. OSHA has followed a similar approach in the Cr(VI) rule, incorporating provisions for protective clothing and equipment that will address potential dermal hazards, and including consideration of dermal effects in medical surveillance requirements. The Agency believes this is a reasonable approach to protecting workers when a chemical causes a variety of adverse health effects.

The dermal hazards from contact with portland cement, however, are not related solely to the Cr(VI) content of cement. Portland cement is alkaline, abrasive, and hygroscopic (water-absorbing). Cement dermatitis may be irritant contact dermatitis induced by these properties, allergic contact dermatitis elicited by an immunological reaction to Cr(VI), or a combination of the two (Exs. 35–317; 46–74). Although

reports vary, the weight of the evidence indicates that the vast majority of cement dermatitis cases do not involve Cr(VI) sensitization (Ex. 46–74). Dermatitis associated with exposure to portland cement is thus substantially, perhaps even primarily, related to factors other than Cr(VI) exposure.

Moreover, OSHA believes that appropriate requirements are already in place elsewhere in OSHA standards, to protect workers from dermal effects associated with exposure to portland cement. The Agency has existing requirements for the provision and use of personal protective equipment (PPE) (29 CFR 1910.132 for general industry; 29 CFR 1915.152 for shipyards; 29 CFR 1926.95 for construction). These requirements are essentially equivalent to the requirements of the final Cr(VI) rule with respect to provision of protective clothing and equipment.

OSHA also has existing requirements for washing facilities that are comparable to those found in the final Cr(VI) rule (29 CFR 1910.141(d) for general industry and shipyards; 29 CFR 1926.51(f) for construction). For example, in operations where contaminants may be harmful to employees, the Sanitation standard for construction requires employers to provide adequate washing facilities in near proximity to the worksite. With only limited exceptions for mobile crews and normally unattended worksites, lavatories with running water, hand soap or similar cleansing agents, and towels or warm air blowers must be made available in all places of employment covered by the standard. The Sanitation requirements that apply to general industry and shipyards provide equivalent protections.

OSHA's Hazard Communication standard (29 CFR 1910.1200) requires training for all employees potentially exposed to hazardous chemicals, including mixtures such as portland cement. This training must cover the physical and health hazards of the chemicals and measures employees can take to protect themselves from these hazards, such as appropriate work practices, emergency procedures, and personal protective equipment to be used.

Concerns raised in the record with regard to protective clothing, washing facilities, and training on cement dermatitis hazards appear to relate to lack of compliance with these existing requirements, rather than any inadequacy in the requirements themselves. For example, BCTD representatives indicated that in spite of current requirements, washing facilities are rarely provided on construction sites (Tr. 1464, 1470–1471, 1474, 1479–1480). By covering portland cement in the final Cr(VI) rule, BCTD argued that compliance would improve (Tr. 1519–1522).

OSHA recognizes that reiterating the requirements of generic rules such as the Sanitation standard in a chemical-specific standard like the Cr(VI) rule can be useful in some instances by providing employers with a comprehensive reference of applicable requirements. However, the Agency does not consider the Code of Federal Regulations to be the best tool for raising awareness about existing standards. Rather, OSHA believes guidance documents, compliance assistance efforts, and enforcement of existing requirements are the best mechanisms for accomplishing this objective.

Some commenters argued that requirements not included in the generic standards were needed to protect employees working with portland cement. The International Brotherhood of Teamsters (IBT) stated that absent coverage under the standard, portland cement workers would be responsible for purchasing and maintaining their own PPE. If there is no requirement for an employer to purchase and provide required PPE, IBT argued, most employees would elect not to purchase it (Ex. 38–199–1, p. 30). Of course many employers choose to pay for the PPE so that they can be sure of its effectiveness. The important factors are that the PPE must be suitable for the job and must be used correctly. Moreover, even when employees provide their own protective equipment, OSHA's PPE standards specify that the employer is responsible for ensuring its adequacy, including proper maintenance and sanitation (see 29 CFR 1910.132(b); 29 CFR 1926.95(b)).

Other commenters believed that medical surveillance was needed for employees exposed to portland cement (Exs. 38–219–1, p. 18; 47–26, pp. 26–27). However, irritant contact dermatitis and allergic contact dermatitis present the same clinical appearance, and it is difficult to determine if an employee with dermatitis is sensitized to Cr(VI). Because cement dermatitis is often related to the irritant properties of cement rather than Cr(VI), medical surveillance requirements for portland cement would necessarily involve covering health effects not solely, or even primarily, attributable to Cr(VI) exposure. OSHA therefore does not consider a requirement for medical surveillance for portland cement workers to be appropriate within the context of the Cr(VI) rule.

Ferrous Sulfate

Finally, some commenters suggested it would be appropriate to require the addition of ferrous sulfate to portland cement (Exs. 38–199–1, p. 43; 38–219–1, pp. 14–15; 38–222; 35–332, pp. 23–24; 47–26, p. 8). Cr(VI) concentrations in portland cement can be lowered by the addition of ferrous sulfate, which reduces Cr(VI) to Cr(III). Residual Cr(VI) concentrations of less than 2 ppm are typical. As discussed in section V of this preamble, reports from two researchers suggest that the addition of ferrous sulfate to cement in Scandinavian countries reduces the incidence of Cr(VI)-related allergic contact dermatitis in cement workers (Exs. 9–131; 48–8).

It is reasonable to believe that a reduction in the Cr(VI) concentration of portland cement would reduce the potential for Cr(VI)-induced allergic contact dermatitis. However, the lack of available information regarding a dose-response relationship between Cr(VI) exposure and allergic contact dermatitis makes it impossible to estimate how substantial that reduction might be. For instance, a portion of cement samples already have relatively low Cr(VI) concentrations. Analyses of 42 samples of American portland cement reported by Perone *et al.* indicated that 33 of the samples had Cr(VI) concentrations below 2 ppm (Ex. 9–57); the benefit of adding ferrous sulfate to cement with already low Cr(VI) concentrations is unclear.

Moreover, it is not clear that the addition of ferrous sulfate to cement would be successful in reducing Cr(VI) to Cr(III) under conditions found in the U.S. Attempts in the U.S. to reduce Cr(VI) in cement to Cr(III) with ferrous sulfate have been unsuccessful, due to oxidation of the ferrous sulfate in the production process (Ex. 35–417). Methods used to handle and store cement have also been shown to influence the effectiveness of ferrous sulfate in reducing Cr(VI). When cement is exposed to moisture during storage, the ferrous sulfate in it is likely to be oxidized, and as a result, the Cr(VI) will not be reduced to Cr(III) when the cement is mixed with water (Ex. 9–91). Handling and storage of cement in silos can have this effect (Tr. 1363). Because a substantial amount of cement in the U.S. is produced in winter and stored for use during warmer weather, ferrous sulfate added to the cement at the time of production could be oxidized during that time, rendering it ineffective (Tr. 1363).

Considering this evidence, OSHA does not believe the record demonstrates that the addition of

ferrous sulfate to portland cement in the U.S. would necessarily result in a reduction in the incidence of Cr(VI)-induced allergic contact dermatitis. Therefore, OSHA does not believe that requiring the addition of ferrous sulfate to cement is warranted.

In any event, even if ferrous sulfate was completely effective in eliminating the potential for Cr(VI)-induced allergic contact dermatitis from portland cement, the potential for portland cement to induce *irritant contact dermatitis* would not be affected. (See section V(D) of this preamble for additional discussion.) Therefore, appropriate protective clothing, good hygiene practices, and training on hazards and control methods would still be necessary and these are adequately covered by OSHA's generic standards.

Pesticides

The final rule does not cover exposures to Cr(VI) that occur in the application of pesticides. Some Cr(VI)-containing chemicals, such as chromated copper arsenate (CCA) and acid copper chromate (ACC), are used for wood treatment and are regulated by EPA as pesticides. Section 4(b)(1) of the OSH Act precludes OSHA from regulating working conditions of employees where other Federal agencies exercise statutory authority to prescribe or enforce standards or regulations affecting occupational safety or health. Therefore, OSHA specifically excludes those exposures to Cr(VI) resulting from the application of a pesticide regulated by EPA from coverage under the final rule.

The exception for exposures that occur in the application of pesticides was limited to the proposed standard for general industry. At the time, OSHA was not aware of exposures to Cr(VI) from application of pesticides in other sectors. Exposures to Cr(VI) from pesticide application outside of general industry were brought to OSHA's attention during the public comment period (Exs. 39–47, p. 9; 39–48, p. 4; 39–52). This provision excluding coverage or exposures occurring in the application of pesticides has therefore been added to the standards for construction and shipyards as well.

The exemption pertains to the application of pesticides only. The manufacture of pesticides containing Cr(VI) is not considered pesticide application, and is covered under the final rule. The use of wood treated with pesticides containing Cr(VI) is also covered. In this respect, the Cr(VI) standard differs from OSHA's Inorganic Arsenic standard (29 CFR 1910.1018). The Inorganic Arsenic standard explicitly exempts the use of wood treated with arsenic. When the Inorganic Arsenic standard was issued in 1978, OSHA found that the evidence in the record indicated ''the arsenic in the preserved wood is bound tightly to the wood sugars, exhibits substantial chemical differences from other pentavalent arsenicals after reaction, and appears not to leach out in substantial amounts'' (43 FR 19584, 19613 (5/5/78)). Based on the record in that rulemaking, OSHA did not consider it appropriate to regulate the use of preserved wood. A number of commenters argued that a similar exception should be included in the final rule for use of wood preserved with Cr(VI) compounds (Exs. 38–208; 38–231; 38–244; 43–28). However, OSHA's exposure profile indicates that work with wood treated with pesticides containing Cr(VI) can involve Cr(VI) exposures above the new PEL (see FEA, Chapter III). OSHA therefore considers a blanket exception from the scope of the final rule for use of wood treated with Cr(VI) to be unjustified.

Other Requested Exemptions

In addition to those who maintained that Cr(VI)-treated wood should be exempted from the final rule, a number of commenters requested exemptions from the final rule for other operations or industries (*e.g.*, welding, electric utilities, Cr(VI) pigment production, residential construction, and telecommunications (Exs. 38–124; 38–203; 38–205; 38–211; 38–230; 38–244; 38–254; 39–14; 39–15; 39–47; 47–25; 47–37). OSHA does not believe that the evidence in the record supports a blanket exception from the final rule for these operations and industries. In no case have commenters submitted data demonstrating that the operations or industries for which an exception was requested do not involve exposures to Cr(VI) that present significant risk to the health of employees. Rather, the data presented in Chapter III of the FEA indicate that exposures in these sectors can and do involve exposures at levels that entail significant risk to workers, and may exceed the new PEL. OSHA therefore has not included exceptions for these operations or industries in the final rule.

One commenter argued that the provisions of the standard, including the new PEL, should apply only where Cr(VI) exposures occur on more than 30 days per year (Ex. 38–233, pp. 43–44). However, exposures of 30 or fewer days per year may involve cumulative exposures associated with significant risk of lung cancer. For example, if an employee was exposed to 50 μg/m^3 Cr(VI) for 30 days during a year, that employee s cumulative exposure for the year would exceed that of an employee exposed at the new PEL of 5 μg/m^3 working five days a week through the entire year. Therefore, OSHA does not believe such an exemption is appropriate because it would deny workers exposed to relatively high levels of Cr(VI) for 30 or fewer days per year the protections afforded by the Cr(VI) rule. The Agency does include exceptions from certain requirements of the rule for exposures occurring on fewer than 30 days per year (*e.g.*, with regard to requirements for engineering controls and periodic medical surveillance). However, these exceptions are related to the practical aspects of implementing protective measures, and not to an absence of risk for exposures occurring on fewer than 30 days per year.

Other commenters suggested that materials or substances containing trace amounts of Cr(VI) (*e.g.*, less than 0.1% or 1%) be exempted from the final rule (Exs. 38–203; 38–254; 39–19; 39–47; 39–48; 39–52; 39–54; 39–56). In particular, some utilities argued that fly ash produced by the incineration of coal contains trace amounts of Cr(VI) that are so low as to be insignificant, and that an exclusion from the final rule for coal ash was warranted (Ex. 39–40). Edison Electric Institute supported this argument by submitting sampling data and material safety data sheets that indicated the Cr(VI) concentrations in ash by-products of the coal combustion process (Exs. 47–25–1; 47–25–2; 47–25–3; 47–25–4; 47–25–5; 47–25–6; 47–25–7).

OSHA does not believe that it would be appropriate to establish a threshold Cr(VI) concentration for coverage of substances under the scope of this final rule. The evidence in the rulemaking record is not sufficient to lead OSHA to conclude that the suggested concentration thresholds would be protective of employee health. While OSHA has recognized that the Cr(VI) content of portland cement is sufficiently low to warrant an exception from the standard, a threshold concentration of 0.1% for Cr(VI) would be more than 50-fold higher than Cr(VI) levels typically found in portland cement (<0.002%). See above discussion of the extremely low Cr(VI) concentration in portland cement (<20 μg/g).

Although evidence submitted to the record indicates that Cr(VI) levels in coal ash may be comparable to levels in portland cement, OSHA does not believe that the evidence is sufficient to establish that all coal ash from all

sources will necessarily have comparable Cr(VI) content.

A threshold concentration is also not reasonable because many operations where Cr(VI) exposures occur are the result of work with materials that do not contain any Cr(VI). Welders, who represent nearly half of the workers covered by this final rule, do not ordinarily work with materials that contain Cr(VI). Rather, the high temperatures created by welding oxidize chromium in steel to the hexavalent state. An exception based on a specified Cr(VI) concentration could be interpreted to exclude these workers from the scope of the standard. This would be particularly inappropriate in view of the fact that data in the record show that many welders have significant Cr(VI) exposures.

OSHA does, however, appreciate the concerns of commenters regarding situations where they believe exposures are minimal and represent very little threat to the health of workers. The Agency believes that a reasonable approach is to have an exception based on Cr(VI) exposure level. OSHA is therefore including in the final rule an exception for those circumstances where the employer has objective data demonstrating that a material containing chromium or a specific process, operation, or activity involving chromium cannot release dusts, fumes, or mists of chromium (VI) in concentrations at or above 0.5 μg/m³ as an 8-hour TWA under any expected conditions of use.

OSHA believes this approach is sensible because it provides an exception for situations where airborne exposures are not likely to present significant risk and thus allows employers to focus resources on the exposures of greatest occupational health concern. The Agency has added a definition for ''objective data'' (discussed with regard to paragraph (b) of the final rule) to clarify what information and data can be used to satisfy the obligation to demonstrate that Cr(VI) exposures will be below 0.5 μg/m³.

Other standards which have included similar exceptions (*e.g.*, Acryolitrile, 29 CFR 1019.1045; Ethylene Oxide, 29 CFR 1910.1047; 1,3-Butadiene, 29 CFR 1910.1051) have generally relied upon the action level as an exposure threshold. A threshold lower than the action level has been selected for the Cr(VI) rule because OSHA believes this to be more protective of worker health given the existing significant risk at the action level. Although OSHA understands the difficulties of developing objective data to demonstrate that exposures will be below a given level, the Agency believes that the 0.5 μg/m³ coverage threshold represents an exposure level where it is still reasonably possible to develop objective data to take advantage of this exception if Cr(VI) exposure levels are minimal. For instance, variation in exposures even in well controlled workplaces requires that typical exposures be below 0.25 μg/m³ in order for an employer to be reasonably sure that exposures will consistently be below 0.5 μg/m³ (see Exs. 46–79; 46–80; 46–81). Where typical exposures are below 0.25 μg/m³, an industry survey might be used to show that exposures for a given operation would be below 0.5 μg/m³ under any expected conditions of use.

When using the phrase ''any expected conditions of use'' OSHA is referring to situations that can reasonably be foreseen. The criteria are not intended to be so circumscribed that it is impossible to meet them. OSHA acknowledges that a constellation of unforeseen circumstances can occur that might lead to exposures above 0.5 μg/m³ even when the objective data demonstration has been correctly made, but believes that such occurrences will be extremely rare.

(b) Definitions

''Action level'' is defined as an airborne concentration of Cr(VI) of 2.5 micrograms per cubic meter of air (2.5 μg/m³) calculated as an eight-hour time-weighted average (TWA). The action level triggers requirements for exposure monitoring and medical surveillance.

Because employee exposures to airborne concentrations of Cr(VI) are variable, workers may sometimes be exposed above the PEL even if exposure samples (which are not conducted on a daily basis) are generally below the PEL. Maintaining exposures below the action level provides increased assurance that employees will not be exposed to Cr(VI) at levels above the PEL on days when no exposure measurements are made in the workplace. Periodic exposure measurements made when the action level is exceeded provide the employer with a degree of confidence in the results of the exposure monitoring. The importance of the action level is explained in greater detail in the exposure determination and medical surveillance discussions of this section (paragraphs (d) and (k) respectively).

As in other standards, the action level has been set at one-half of the PEL. The Agency has had successful experience with an action level of one-half the PEL in other standards, including those for inorganic arsenic (29 CFR 1910.1018), ethylene oxide (29 CFR 1910.1047), benzene (29 CFR 1910.1028), and methylene chloride (29 CFR 1910.1052).

Following the publication of the proposed rule, which included a proposed action level of 0.5 μg/m³ (½ the proposed PEL of 1 μg/m³), OSHA received several comments pertaining to the definition of the action level. Commenters such as the International Brotherhood of Teamsters (IBT) supported OSHA s preliminary determination that the action level should be set at one-half the permissible exposure limit (Exs. 38–199–1, p. 9; 38–219, p. 16–17; 38–228–1; 40–10–2). The IBT stated that the action level set at one-half the PEL has been successful historically in OSHA's standards such as inorganic arsenic, cadmium, benzene, ethylene oxide, methylenedianiline, and methylene chloride (Ex. 38–199–1, pp. 9, 44). NIOSH also supported OSHA's approach, stating that the action level of one-half the PEL is the appropriate level to indicate sufficient probability that an employee's exposure does not exceed the PEL on other days (Ex. 40–10–2, p. 17). The North American Insulation Manufacturer's Association (NAIMA) agreed that an action level of one-half the PEL is appropriate (in conjunction with a higher PEL than that proposed) (Ex. 38–228–1, pp. 23–24).

Previous standards have recognized a statistical basis for using an action level of one-half the PEL (*see, e.g.*, acrylonitrile, 29 CFR 1910.1045; ethylene oxide, 29 CFR 1910.1047). In brief, OSHA previously determined (based in part on research conducted by Leidel *et al.*) that where exposure measurements are above one-half the PEL, the employer cannot be reasonably confident that the employee is not exposed above the PEL on days when no measurements are taken (Ex. 46–80).

Following the publication of the proposed rule, the United Automobile, Aerospace, and Agricultural Implement Workers of America (UAW) requested an action level of one-tenth of the permissible exposure limit (PEL) (Tr. 791; Exs. 39–73; 39–73–2, pp. 3, 10; 40–19–1). The UAW argued that the lower action level is appropriate because variability in exposures is greater than was previously believed in some occupational settings. While OSHA previously assumed a geometric standard deviation (GSD) of 1.4, the UAW stated that a GSD of 2 should be assumed as a matter of policy. They concluded that this GSD implies an action level of one-tenth the PEL to minimize the frequency of exposures above the PEL on days when measurements are not taken (Ex. 39–73–2, p. 12).

If the variability of workplace exposures is typically as high as the UAW suggests, an action level less than one-half the PEL would be required to give employers a high degree of confidence that employees' exposures are below the PEL on most workdays. Leidel *et al.*, calculated that for exposures with a GSD of 2.0, an action level of 0.115 times the PEL would be required to limit to 5% the probability that 5% or more of an employee's unmeasured daily exposure averages will exceed the PEL (Ex. 46–80, p. 29). However, the evidence in the record is insufficient to permit OSHA to conclude that a GSD of 2.0 is typical of workplace Cr(VI) exposures. Furthermore, while OSHA recognizes the value of high (95%) confidence that exposures exceed the PEL very infrequently (< 5%), the Agency believes that the action level should be set at a value that effectively encourages employers to reduce exposures below the action level while still providing reasonable (though possibly < 95%) assurance that workers' exposures are typically below the PEL. OSHA's experience with past rules and the comments and testimony of NIOSH and other union representatives indicate that reasonable assurance of day-to-day compliance with the PEL is achieved with an action level of one-half the PEL (Exs. 40–10–2, p. 17; 199–1, pp. 9, 44).

The Agency's experience with previous standards also indicates that an action limit of one-half the PEL effectively encourages employers, where feasible, to reduce exposures below the action level to avoid the added costs of required compliance with provisions triggered by the action level. Where there is continuing significant risk at the PEL, the decision in the Asbestos case (*Building and Construction Trades Department, AFL–CIO* v. *Brock,* 838 F. 2d 1258 (D.C. Cir 1988)) indicates that OSHA should use its legal authority to impose additional requirements on employers to further reduce risk when those requirements will result in a greater than de minimus incremental benefit to workers' health. OSHA believes that the action level will result in a very real and necessary further reduction in risk beyond that provided by the PEL alone.

The action level improves employee protection while increasing the cost-effectiveness and performance orientation of the standard. The action level will encourage employers who can, in a cost-effective manner, identify approaches or innovative methods to reduce their employees' exposures to levels below the action level, because this will eliminate the costs associated with exposure monitoring and medical surveillance. The employees of such employers will have greater protection against adverse health effects because their exposures to Cr(VI) will be less than half of those permitted by the permissible exposure limit. Employees of those employers who are not able to lower exposures below the action level will have the additional protection provided by medical surveillance, exposure monitoring, and the other provisions of the standard that are triggered by the action level.

''Chromium (VI) [hexavalent chromium or Cr(VI)]'' means chromium with a valence of positive six, in any form or chemical compound in which it occurs. This term includes Cr(VI) in all states of matter, in any solution or other mixture, even if encapsulated by another or several other substances. The term also includes Cr(VI) when created by an industrial process, such as when welding of stainless steel generates Cr(VI) fume.

For regulatory purposes, OSHA is treating Cr(VI) generically, instead of addressing specific compounds individually. This is based on OSHA's determination that the toxicological effect on the human body is similar from Cr(VI) in any of the substances covered under the scope of this standard, regardless of the form or compound in which it occurs. As discussed in Section V of this preamble, some variation in potency may result due to differences in the solubility of compounds. Other factors, such as encapsulation, may have some effect on the bioavailability of Cr(VI). However, OSHA believes that these factors do not result in differences that merit separate provisions for different Cr(VI) compounds. OSHA considers it appropriate to apply the requirements of the standard uniformly to all Cr(VI) compounds.

''Emergency'' means any occurrence that results, or is likely to result, in an uncontrolled release of Cr(VI), such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment. To constitute an emergency, the exposure to Cr(VI) must be unexpected and significant. If an incidental release of chromium (VI) can be controlled at the time of release by employees in the immediate release area, or by maintenance personnel, it is not an emergency. Similarly, if an incidental release of Cr(VI) may be safely cleaned up by employees at the time of release, it is not considered to be an emergency situation for the purposes of this section. Those instances that constitute an emergency trigger certain requirements in this standard (*e.g.*, medical surveillance) that are discussed later in this section.

In comments submitted to OSHA following the publication of the proposed Cr(VI) rule, the International Brotherhood of Teamsters (IBT) disagreed with OSHA's definition of ''emergency''. IBT stated that all spills and leaks involving Cr(VI) are unexpected and significant, and should be considered emergencies (Ex. 38–199–1, pp. 20–21).

OSHA does not agree with the IBT's position that every spill or leak should be considered an emergency. Not all spills and leaks are significant; the particular circumstances of the release, such as the quantity involved, confined space considerations, and the adequacy of ventilation will have an impact on the amount of Cr(VI) to which employees are exposed when a spill or leak occurs. For example, a minor spill that can be quickly cleaned up by an employee with minimal airborne or dermal exposure to Cr(VI) is clearly not an emergency. In addition, factors such as the personal protective equipment available, pre-established standard operating procedures for responding to releases, and engineering controls that employees can activate to assist them in controlling and stopping the release are all factors that must be considered in determining whether a release is incidental or an emergency.

The IBT also stated that the person who determines whether a spill or leak constitutes an emergency situation should be qualified with specific training, knowledge, and experience regarding the hazards associated with exposure to Cr(VI) and the appropriate response measures that must be implemented to prevent Cr(VI) exposures during the spill or leak remediation (Ex. 38–199–1, pp. 20–21). OSHA believes that the provisions of the Hazard Communication standard adequately address the IBT's concern (29 CFR 1910.1200). Paragraph (h)(3) of that standard directs employers to provide employees who are exposed or potentially exposed to a hazardous chemical (such as Cr(VI)) with training on the physical and health hazards of the chemical and

> [t]he measures employees can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used * * * (29 CFR 1910.1200 (h)(3)(iii)).

The Agency expects that employers and employees equipped with the training required by the Hazard Communication

standard will be sufficiently knowledgable to determine whether an emergency has occurred, and that it is not necessary to mandate additional specialized training for this purpose.

''Employee exposure'' means exposure to airborne Cr(VI) that would occur if the employee were not using a respirator. This definition is included to clarify the fact that employee exposure is measured outside any respiratory protection worn. It is consistent with OSHA's previous use of the term in other standards.

''Historical monitoring data'' means data from chromium (VI) monitoring conducted prior to May 30, 2006, obtained during work operations conducted under workplace conditions closely resembling the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations. To demonstrate employees' exposures, historical monitoring data must satisfy all exposure monitoring requirements of this section (*e.g.*, accuracy and confidence requirements).

''Objective data'' means information other than employee monitoring that demonstrates the expected employee exposure to chromium (VI) associated with a particular product or material or a specific process, operation, or activity. Types of information that may serve as objective data include, but are not limited to, air monitoring data from industry-wide surveys; data collected by a trade association from its members; or calculations based on the composition or chemical and physical properties of a material.

''Physician or other licensed health care professional'' [PLHCP] is an individual whose legally permitted scope of practice (*i.e.*, license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the particular health care services required by the medical surveillance provisions of this final rule. This definition is consistent with several recent OSHA standards, including the respiratory protection standard (29 CFR 1910.134), the bloodborne pathogens standard (29 CFR 1910.1030), and the methylene chloride standard (29 CFR 1910.1052). In these standards, the Agency determined that any professional licensed by state law to do so may perform the medical evaluation procedures required by the standard. OSHA recognizes that the personnel qualified to provide the required medical evaluation may vary from state to state, depending on state licensing laws.

At the public hearing, the 3M Company (3M) expressed concern with OSHA's interpretation of licensing requirements for PLHCPs. In the recent standards discussed above, OSHA has interpreted the requirements to mean that PLHCPs must be licensed in the states of residence for the employees they evaluate. This interpretation is based on OSHA's recognition of state licensing laws that require PHLCP's to be licensed in the state in which they practice. 3M encouraged OSHA to adopt an expanded definition of PLHCP for the Cr(VI) standard, allowing PLHCPs licensed in any U.S. state to evaluate employees residing in that or any other state, arguing that other federal agencies such as the Department of Transportation permitted similar allowances. 3M argued that this arrangement '' * * * would permit one medical director to oversee the program in several states'' where a company has operations (Tr. 1592, Ex. 47–36). Moreover, 3M added that OSHA has no authority to enforce state licensing requirements.

Despite the concerns raised by 3M, OSHA continues to believe that it is appropriate to establish PLHCP requirements consistent with state requirements for medical practice. OSHA's goal is that the medical surveillance provisions of the final Cr(VI) rule be conducted by or under the supervision of a health care professional who is appropriately licensed to perform those provisions and is therefore operating under his or her legal scope of practice. OSHA also continues to believe that issues regarding a PLCHP's legal scope of practice reside most appropriately with state licensing boards. While OSHA does not enforce state licensing requirements (*e.g.*, fining an individual PHCLP for operating outside their legal state license), OSHA can cite, using the Cr(VI) standard, an employer for using a health care professional who is not operating under his or her legal scope of practice. Thus, the Agency believes that the proposed definition for PHLCP is reasonable, and has retained it in the final rule. OSHA's experience with other standards using this definition supports the Agency's determination in this matter.

''Regulated area'' means an area, demarcated by the employer, where an employee's exposure to airborne concentrations of Cr(VI) exceeds, or can reasonably be expected to exceed the PEL. This definition is consistent with the use of the term in other standards, including those for cadmium (29 CFR 1910.1027), butadiene (29 CFR 1910.1051), and methylene chloride (29 CFR 1910.1052).

OSHA has not included a requirement for regulated areas in construction and shipyards. This definition is therefore not included in the standards for construction and shipyards.

The definitions for ''Assistant Secretary'', ''Director'', ''High-efficiency particulate air [HEPA] filter'', and ''This section'' are consistent with OSHA's previous use of these terms found in other health standards.

(c) Permissible Exposure Limit (PEL)

Introduction

Paragraph (c) of the final rule establishes an 8-hour time-weighted average (TWA) exposure limit of 5 micrograms of Cr(VI) per cubic meter of air (5 $\mu g/m^3$). This limit means that over the course of any 8-hour work shift, the average exposure to Cr(VI) cannot exceed 5 $\mu g/m^3$. The new limit applies to Cr(VI), as opposed to the previous PEL which was measured as CrO_3. The previous PEL of 1 milligram per 10 cubic meters of air (1 $mg/10m^3$, or 100 $\mu g/m^3$) reported as CrO_3 is equivalent to a limit of 52 $\mu g/m^3$ as Cr(VI).

OSHA proposed a PEL of 1 $\mu g/m^3$ for Cr(VI). This PEL was proposed because the Agency made a preliminary determination that occupational exposure to Cr(VI) at the previous PEL resulted in a significant risk of lung cancer among exposed workers, and compliance with the proposed PEL was expected to substantially reduce that risk. Based on the information available to OSHA at the time, a PEL of 1 $\mu g/m^3$ was believed to be economically and technologically feasible for affected industries.

The PEL was a focus of comment in the rulemaking process, revealing sharply divided opinion on the justification for a PEL of 1 $\mu g/m^3$. Some support was expressed for the proposed PEL (Exs. 38–199–1, p. 42; 38–219–1, p. 2; 39–73–1). The vast majority of commenters, however, did not believe the proposed PEL was appropriate. Some maintained that a higher PEL was warranted, arguing that the proposed limit was infeasible or was not justified by the health and risk evidence (*e.g.*, Exs. 38–205; 38–215; 38–231; 38–228; 38–233). Several commenters suggested alternative PELs that they considered appropriate, such as 10 $\mu g/m^3$ (Exs. 38–134; 38–135; 38–195; 38–203; 38–212; 38–250; 38–254), 20 $\mu g/m^3$ (Ex. 38–204), 23 $\mu g/m^3$ (*e.g.*, Exs. 38–7; 43–22; 43–23; 43–25; 43–39), or 26 $\mu g/m^3$ (Ex. 38–263). Others maintained that the remaining risk at the proposed PEL was excessive and believed OSHA should adopt a

lower PEL, suggesting 0.2 or 0.25 μg/m³ (Exs. 39–71; 40–10–2; 47–23; 47–28).

After careful consideration of the evidence in the rulemaking record, OSHA has established a final PEL of 5 μg/m³. OSHA s examination of the health effects evidence, discussed in section V of this preamble, reaffirms the Agency's preliminary conclusion that exposure to Cr(VI) causes lung cancer, as well as other serious adverse health effects. OSHA's quantitative risk assessment, presented in section VI, indicates that the most reliable lifetime estimate of risk from exposure to Cr(VI) at the previous PEL is 101 to 351 excess lung cancer deaths per 1000 workers. As discussed in section VII, this clearly represents a significant risk of material impairment of health. OSHA believes that lowering the PEL to 5 μg/m³ will substantially reduce this risk. OSHA estimates the lifetime excess risk of death from lung cancer at the new PEL to be between 10 and 45 per 1000 workers.

The Agency considers the level of risk remaining at the new PEL to be significant. However, based on evidence evaluated during the rulemaking process, OSHA has concluded that a uniform PEL of 5 μg/m³ is appropriate. The new PEL is technologically and economically feasible for all industry sectors. In only two operations within one of those sectors, the painting of aircraft and large aircraft parts in the aerospace industry, is a PEL of 5 μg/m³ infeasible. In accordance with section 6(b)(5) of the OSH Act, OSHA has determined that the new PEL is the lowest limit that employers can generally achieve, consistent with feasibility constraints. Additional requirements are included in the final rule to further reduce any remaining risk. OSHA anticipates that these ancillary provisions will reduce the risk beyond the reduction that will be achieved by the new PEL alone.

OSHA's rationale for adopting a uniform PEL of 5 μg/m³ is set forth in greater detail below. The discussion is organized around the issues of primary importance to commenters: (a) Whether a uniform PEL is appropriate for all chromium compounds, (b) the technologic and economic feasibility of various PELs, (c) the requirement of section 6(b)(5) to promulgate the most protective standard consistent with feasibility, and (d) whether there is a need for a short-term exposure limit.

A Uniform PEL Is Appropriate for All Chromium Compounds

OSHA believes that it is appropriate to establish a single PEL that applies to all Cr(VI) compounds. OSHA's preferred estimates of risk are derived from two cohorts of chromate production workers that were predominantly exposed to sodium chromate and sodium dichromate. A number of commenters argued that risk estimates from these cohorts were not applicable to certain other Cr(VI) compounds (Exs. 38–106; 38–201–1; 38–205; 38–215–2).

After carefully evaluating the epidemiological, animal and mechanistic evidence in the rulemaking record, OSHA considers all Cr(VI) compounds to be carcinogenic. (For additional discussion see section V of this preamble.) OSHA has determined that the risk estimates developed from the chromate production cohorts are reasonably representative of the risks expected from equivalent exposures to different Cr(VI) compounds in other industries. OSHA finds that the risks estimated from the Gibb and Luippold cohorts of chrome production workers adequately represent the risks to workers in other industries who are exposed to equivalent levels of Cr(VI) compounds. (The rationale supporting these conclusions is discussed in detail in sections V and VI of this preamble. In particular, see Section VI(H) of the Quantitative Risk Assessment.) Because OSHA's estimates of risk are reasonably representative of all occupational Cr(VI) exposures, the Agency considers it appropriate to establish a single PEL applicable to all Cr(VI) compounds. A number of rulemaking participants supported this approach (Exs. 38–214; 38–220; 39–20; 39–60; 40–10; 40–19). *See also, e.g., Color Pigments Mfr. Ass'n, Inc.* v. *OSHA*, 16 F.3d 1157, 1161 (11th Cir. 1994):

> Given the absence of definiteness on the issue, the volume of evidence that points at least implicitly to the dangers of cadmium pigments, and the serious potential health risks present if cadmium exposure is as great in pigment form as in other compounds, we believe that OSHA was justified in choosing to include cadmium pigments in the PEL * * *;

Asarco, Inc. v. *OSHA*, 746 F.2d 483, 495 (9th Cir. 1984) (permissible for OSHA to ''use trivalent arsenic studies and conclusions to support inclusion of pentavalent arsenic in the standard'').

The Final PEL of 5 μg/m³ Is Technologically and Economically Feasible for all Affected Industries; the Proposed PEL Is Not

OSHA has concluded that a PEL of 5 μg/m³ is economically and technologically feasible for all the affected industries. OSHA has also concluded, based on the comments and evidence submitted to the record, that the proposed PEL of 1 μg/m³ is not feasible in all industries. OSHA's feasibility determinations are explained below.

Technologic feasibility of the final PEL. In making its determination of technological feasibility, OSHA relied upon guidance provided by the courts that have reviewed previous standards. In particular, the decision of the U.S. Court of Appeals for the District of Columbia on OSHA's Lead standard (*United Steelworkers of America* v. *Marshall*, 647 F.2d 1189 (D.C. Cir. 1981)) established a benchmark that the Agency has relied on for evaluating technological feasibility. The court explained that OSHA has ''great discretion * * * in determining the feasibility of a chosen PEL.'' 647 F.2d at 1309. Both technological and economic feasibility are ''to be tested industry-by-industry.'' 647 F.2d at 1301. In order to establish that a standard is technologically feasible, ''OSHA must prove a reasonable possibility that the typical firm will be able to develop and install engineering and work practice controls that can meet the PEL in most of its operations.'' 647 F.2d at 1272. The court allowed that ''insufficient proof of technological feasibility for a few isolated operations within an industry, or even OSHA's concession that respirators will be necessary in a few such operations, will not undermine'' OSHA's finding of technological feasibility. *Id.*

Applying this definition of feasibility, OSHA has evaluated each affected industry and has concluded that a PEL of 5 μg/m³ can be achieved through engineering and work practice controls, with only limited respirator use, in every industry. The primary evidentiary support for this conclusion is the report of Shaw Environmental, Inc., discussed in depth in the Final Economic and Regulatory Flexibility Analysis (FEA). Based on the data collected by Shaw, OSHA concludes that engineering controls, such as local exhaust ventilation (LEV), process control, and process modification or substitution can be used to control exposures in most operations.

OSHA recognizes that there are certain instances in which supplemental respirator use will be required because engineering and work practice controls are not always sufficient to reduce airborne exposures below the PEL. Summary information regarding the extent of respirator usage expected at various potential PELs is presented in Table VIII–3 (see section VIII, summary of the FEA). Considering this information together with other data and analysis presented in the FEA, OSHA has concluded that a PEL of 5 μg/

m^3 is technologically feasible in all affected industry sectors and in virtually all operations, with the limited exception of some aerospace painting operations discussed more fully below. In only three sectors would respirator use be required by more than 5% of exposed employees. In two of these sectors, chromate pigment producers and chromium dye producers, use of respirators will be intermittent. The third sector, stainless steel welding, presents technological challenges in certain operations. However, the new PEL can clearly be achieved in most operations with engineering and work practice controls.

OSHA recognizes that for two distinct operations within the aerospace industry, painting aircraft and painting large aircraft parts, engineering and work practice controls cannot control exposures below 25 μg/m^3 and respirators would be required for most employees performing these operations. (See additional discussion of aerospace painting below.) For that reason OSHA is adopting a provision for those specific operations requiring employers to use engineering and work practice controls to limit employee exposures to 25 μg/m^3. Respiratory protection must then be used to achieve the PEL.

OSHA did not set the PEL at 25 μg/m^3, a level achievable in *every* operation in *every* industry with engineering and work practice controls alone. That approach is inappropriate because it would leave the vast majority of affected employees exposed to Cr(VI) levels above those that could feasibly be achieved in most industries and operations. As discussed above, the lower PEL of 5 μg/m^3 is feasible within the meaning of the case law, although it will result in limited use of respirators in some industries and significant respirator use in two painting operations in the aerospace industry. The two aerospace painting operations with significant respirator use are covered by the provision discussed above. For those operations, OSHA weighed the added protection provided by respirators against the negative aspects of respiratory protection requirements, and decided that the additional respirator use was acceptable.

Technological feasibility of the proposed PEL. OSHA concludes that the proposed PEL of 1 μg/m^3 is not technologically feasible for all industries under the criteria in the D.C. Circuit's *Lead* decision. The court's definition of technological feasibility recognizes that for a standard based on a hierarchy of controls, a particular PEL is not technologically feasible simply because it can be achieved through the widespread use of respirators. 647 F.2d at 1272. This is consistent with OSHA's long-held view that it is prudent to avoid requirements that will result in extensive respirator use.

In its post-hearing brief, Public Citizen argued that a PEL should be considered technologically feasible if respirator use would be necessary to achieve compliance in a significant number of operations within an industry, or even if the PEL could only be achieved through use of respirators alone (Ex. 47–23, pp. 12–15). That position is inconsistent with the established test for feasibility for standards based on the hierarchy of controls. Moreover, as discussed in the preamble explanation of paragraph (f) on methods of compliance, use of respirators in the workplace presents a number of independent safety and health concerns. The vision of workers wearing respirators may be diminished, and respirators can impair the ability of employees to communicate with one another. Respirators can impose physiological burdens on employees due to the weight of the respirator and increased breathing resistance experienced during operation. The level of physical work effort required, the use of protective clothing, and environmental factors such as temperature extremes and high humidity can interact with respirator use to increase the physiological strain on employees. Inability to cope with this strain as a result of medical conditions such as cardiovascular and respiratory diseases, reduced pulmonary function, neurological or musculoskeletal disorders, impaired sensory function, or psychological conditions can place employees at increased risk of illness, injury, and even death. Routine use of respirators for extended periods of time is regarded by the Agency to be of greater significance than intermittent use for short time periods.

OSHA also believes that respirators are inherently less reliable than engineering and work practice controls. To consistently provide adequate protection, respirators must be appropriately selected and fitted, properly used, and properly maintained. Because these conditions can be difficult to attain, and are subject to human error, OSHA does not believe respirators provide the same degree of protection as do engineering and work practice controls.

Based on evidence and comment submitted in response to the proposal, OSHA finds that a PEL of 1 μg/m^3 is not technologically feasible for a substantial number of industries and operations employing a large number of the workers covered by the standard. The record shows that a PEL of 1 μg/m^3 is technologically infeasible for welding and aerospace painting because engineering and work practice controls cannot reduce exposures below 1 μg/m^3 for many operations. OSHA also finds that the record contains insufficient evidence to establish the technologic feasibility of the proposed PEL for four other industries: chromate pigment producers, chromium catalyst producers, chromium dye producers and some hard chrome electroplaters. OSHA's findings on the technologic feasibility of the proposed PEL are summarized below, and are discussed more extensively in Chapter III of the FEA (in particular, see section titled: ''Technological Feasibility of the Proposed 1 μg/m^3 8-Hour TWA PEL.'').

Welding. OSHA has concluded that a PEL of 1 μg/m^3 is not technologically feasible for shielded metal arc welding (SMAW) on stainless steel because engineering and work practice controls cannot generally reduce employee exposures to below 1 μg/m^3. Almost one third (29%) of all stainless steel SMAW operations would need to use respirators at a PEL of 1 μg/m^3. In general industry alone, more than half (52%) of stainless steel SMAW processes would be unable to use engineering or work practice controls to reduce Cr(VI) exposures below 1 μg/m^3. Notably, stainless steel welding is widespread throughout the economy; it occurs in over 20,000 establishments employing approximately 127,000 workers in over sixty-five 3-digit NAICS codes. SMAW is the most common type of stainless steel welding and is performed by more than 67,000 employees—more than half of the total number of stainless steel welders and one quarter of all welders covered by the standard.

OSHA initially recommended the substitution of gas metal arc welding (GMAW) for SMAW as the cheapest and most effective method to reduce Cr(VI) exposures. GMAW, like SMAW, is a common type of welding, but GMAW tends to produce lower exposures than SMAW. However, based on hearing testimony and evidence submitted to the record, OSHA now believes that only 60% of SMAW operations can switch to GMAW (Exs. 38–220–1, p. 8; 39–60, p. 3; 39–70, p. 2; 35–410, p. 4). Moreover, even among the SMAW operations with current exposures above 1 μg/m^3 that can switch to GMAW, only a portion (40% in general industry and 59% in construction and maritime)

would be able to achieve a PEL of 1 μg/m³ without respirators.

OSHA has also determined that a PEL of 1 μg/m³ is technologically infeasible for stainless steel welding that is performed in confined or enclosed spaces due to limitations on the availability of ventilation. Because engineering and work practice controls cannot consistently reduce exposures to below 1 μg/m³, a large percentage of stainless steel welding operations in confined or enclosed spaces would require respirators at a PEL of 1 μg/m³. In general industry, for example, 60% of welding tasks done on stainless steel in confined spaces would be unable to comply with the proposed PEL by using engineering or work practice controls.

In sum, OSHA has concluded that it is infeasible for some of the most common welding operations to achieve a PEL of 1 μg/m³. For a more detailed explanation of OSHA's technological feasibility analysis for welding operations, see Chapter III of the FEA. OSHA has also decided that although it may be feasible for some of the less common types of welding operations to achieve a PEL of 1 μg/m³ with engineering and work practice controls, the ubiquitous nature of welding necessitates a finding that a PEL of 1 μg/m³ is generally infeasible for all welding operations. In particular, OSHA believes that the proposed PEL is infeasible for welding operations generally because welding is not easily separated into high and low exposure operations. Welders may perform different types of welding in the same day, making it difficult or impossible for employers to monitor them on an operation by operation basis. See, e.g., Ex. 39–22. In addition, because workers doing different types of welding often work alongside one another, what is technologically feasible for a welding operation considered in isolation may not be technologically feasible for that operation when it is performed next to SMAW on stainless steel or another operation for which a PEL of 1 μg/m³ is technologically infeasible.

Welding occurs in over 40,000 establishments spanning sixty-five different 3-digit NAICS codes. Welding is done in a variety of sites throughout many diverse workplaces (Ex. 38–8, p. 5). Stainless steel SMAW is commonly done in close proximity to other welding or cutting operations, which could expose nearby workers to the higher exposures generated by the SMAW welder (Ex. 38–214, p. 7). The Specialty Steel Industry of North America commented that, ''workers in job categories other than those evaluated by OSHA may spend significant time in areas of potential exposure'' (Ex. 38–233, p. 10). The Integrated Waste Services Association similarly indicated that inspectors, scaffold workers, laborers, pipe fitters, and refractory workers may pass through areas with potential Cr(VI) exposure during nickel chrome alloy overlay (Ex. 38–258, p. 2). The Building and Construction Trades Department of the AFL–CIO also stated that ''workers may be exposed to hazards even if they are not directly performing tasks associated with Cr VI exposure via close proximity exposure'' (Ex. 31–6–1).

Moreover, OSHA is aware that welders sometimes weld in many different environments on a variety of types of base metal using different welding methods in the course of a project or even during a single work shift (Exs. 34–10, 38–235). In those situations, the employee's overall exposure levels are inevitably influenced by the variety of exposures present during the various welding tasks he or she performs. Therefore, depending on how much time the employee spends doing welding operations for which a PEL of 5 μg/m³ is the lowest feasible level, even the use of engineering and work practice controls to comply with a PEL of 1 μg/m³ in the other welding operations would not necessarily reduce the employee's overall exposure levels below that mark.

Because of these factors, welding is not easily separated into high and low exposure operations in the real work site. For these reasons, OSHA believes the record demonstrates that the proposed PEL of 1 μg/m³ is infeasible for welding operations generally. Almost 270,000 of the employees covered by the new standard engage in these welding operations (Table VIII–2).

Aerospace painting. There are approximately 8300 exposed employees in aerospace painting (Table VIII–2). A PEL of 1 μg/m³ is not feasible for approximately two thirds of all aerospace painting operations. At a PEL of 5 μg/m³, only ⅓ of aerospace painting operations would require substantial respirator use.

Exposures in aerospace painting are controlled by enclosing the operations in painting booths or dedicated rooms with LEV. This is feasible for small parts, but as the size of the parts increases it becomes more difficult to control exposures. For example, when painting most small parts, exposures below 1 μg/m³ are achievable, but for larger parts exposures can only be reduced to between 1 μg/m³ and 5 μg/m³ using engineering and work practice controls. This group that can achieve levels between 1 μg/m³ and 5 μg/m³ (approximately ⅓ of total aerospace painting operations) can use LEV, but as the size of the part increases it becomes increasingly difficult to provide good air flow around the entire part, such as underneath large horizontal structures. Moreover, as the size of the part increases, it becomes increasingly difficult for the painter to position him or herself to avoid being downstream of the paint overspray due to the geometry of the parts.

When painting even larger parts, such as fuselages, wings or the entire aircraft, exposures below 5 μg/m³ are no longer achievable without supplementary respiratory protection. Because these large parts do not fit into enclosures or painting rooms, they must be painted in oversized workspaces, typically hangers that can reach the size of a football field (Ex. 38–106–2, p. 2). In oversized workspaces the ventilation system becomes less effective and generally, the larger the space, the more difficult it is to ventilate.

Moreover, when ventilation is put into such areas, the simple solution of increasing air flow is not feasible because the amount of air that is needed to dilute or diffuse the contaminated air can adversely affect the quality of the job to the point where the paint or coating is unacceptable for its purpose of protecting the part or plane (Ex. 38–106, p. 38). Thus, simply increasing the air flow in these sites and situations is not a viable alternative. As discussed above, OSHA has established a provision to address the situation where exposures cannot be brought below 25 μg/m³ through engineering and work practice controls alone. However, a PEL of 5 μg/m³ can be achieved using respiratory protection for these operations.

In short, OSHA believes a PEL of 5 μg/m³ is feasible for aerospace painting operations. Although one-third of those operations will need to use respiratory protection to achieve the PEL, the remainder can do so with engineering and work practice controls alone. Half of that remaining group cannot achieve a PEL of 1 μg/m³ because, even though they can take advantage of enclosures such as paint rooms with LEV, the LEV becomes less effective as the part becomes larger. For this reason lowering the PEL from 5 μg/m³ to 1 μg/m³ would result in the above-described substantial increase in the number of employees required to wear respirators. OSHA has therefore concluded that a PEL of 1 is not generally feasible for aerospace painting. For a more detailed explanation of OSHA's technological feasibility analysis for aerospace

painting operations, see Chapter III of the FEA.

Other industries. There are other major industries or applications where OSHA is confident the PEL of 5 μg/m³ can be met with engineering and work practice controls, but the record does not establish that a PEL of 1 μg/m³ would be technologically feasible. In particular, chromate pigment producers, chromium catalyst producers, and chromium dye producers would have difficulty meeting the proposed PEL. A significant portion of operations in these industries are conducted in open and often large areas that are very dusty, making exposures hard to control. Just as in aerospace painting above, the primary control is to enclose the operation and then ventilate. However, some of the operations cannot be enclosed because of the physical configuration of the plant, especially in older facilities (Ex. 47–3, p. 55). Moreover, because the medium containing the Cr(VI) tends to be a fine powder, additional LEV in any worksite potentially can result in significant and intolerable product loss. In other words, the product could be drawn up through the ventilation system (Ex. 38–12, pp. 12–14).

Thus, depending in large part on the number of facilities that can accommodate enclosures, these operations could potentially require extensive respirator use in order to meet a PEL of 1 μg/m³; at 1 μg/m³, OSHA expects that 44% of employees in these three industries would need to wear respirators on at least an intermittent basis. This number could be even higher if there are a large number of facilities that cannot enclose troublesome operations.

To find the proposed PEL technologically feasible for an industry, OSHA must ''prove a reasonable possibility'' that the typical firm can meet it with engineering and work practice controls in most operations. *United Steelworkers*, 647 F.2d at 1272. Table VIII–3 indicates that intermittent respirator use would be required to reach the proposed PEL of 1 μg/m³ for chromate pigment producers, chromium catalyst producers, and chromium dye producers. The extent of daily respirator usage that would be required to meet the proposed PEL is not clear if the recommended controls of enclosures and automation of the key operations are not feasible for existing facilities, but could be substantial depending upon the variables discussed above. On balance, OSHA does not believe that the record establishes the likelihood that the typical firm in these industries can meet the proposed PEL with engineering and work practice controls. There are a total of approximately 469 exposed employees in these three industries (Table VIII–2). For a more detailed explanation of OSHA's technological feasibility analysis for chromate pigment producers, chromium catalyst producers, and chromium dye producers, see Chapter III of the FEA.

Technological feasibility is also an issue for hard chrome electroplating operations where fume suppressants cannot be used to control Cr(VI) exposures because they would interfere with the product specifications, making the resulting product unusable.

In conclusion, OSHA has determined that while a PEL of 5 μg/m³ is technologically feasible for all affected industries, the record does not support the feasibility of the proposed PEL of 1 μg/m³ for welding operations, aerospace painting, chromate pigment producers, chromium catalyst producers, chromium dye producers, and some hard chrome electroplating operations.

Economic feasibility of the final and proposed PELs. OSHA has also evaluated the economic feasibility of the proposed and final PELs. With regard to economic feasibility, OSHA must ''provide a reasonable assessment of the likely range of costs of its standard, and the likely effects of those costs on the industry,'' so as to ''demonstrate a reasonable likelihood that these costs will not threaten the existence or competitive structure of an industry, even if it does portend disaster for some marginal firms.'' *AFL–CIO* v. *OSHA*, 965 F.2d 982 (11th Cir. 1992). OSHA believes that the final PEL of 5 μg/m³ is feasible for all affected industries. (For a more detailed discussion of OSHA's economic feasibility analysis, see Chapter VIII, Summary of the Final Economic Analysis and Regulatory Flexibility Analysis, Sections D and E.) In the majority of industries, costs will be less than 1% of revenues. For fewer than 10 of the approximately 250 NAICS (North American Industry Classification System) categories affected by the rule, costs are estimated to exceed 1% of revenues. OSHA has concluded that all affected industries will be able to absorb these costs without threatening their existence or competitive structure. Accordingly, OSHA has concluded that the new standard is economically feasible for all industries.

By contrast, the proposed PEL of 1 μg/m³ would not be economically feasible for a significant industry-electroplating job shops (NAICS 332813; electroplating, plating, polishing anodizing and coloring services). Electroplating establishments can be broadly classified into two categories: (1) Job shops and (2) captive shops, with roughly half of establishments falling into each category. Job shops perform electroplating services for others, while captive shops provide plating services to the facility of which they are part.

A PEL of 1 μg/m³ would result in costs exceeding 2.7% of revenues and 65% of profits for electroplating job shops. As explained further in section VIII of this preamble, and in the FEA, OSHA does not believe that options for reducing impacts (e.g., phase-ins or allowing use of respirators) would significantly alleviate the burden of the proposed PEL. OSHA is concerned that these costs could alter the competitive structure of the industry. Approximately 33,400 workers are employed in electroplating job shops.

Summary of the technological and economic feasibility of the final and proposed PELs. To summarize, OSHA concludes that the final PEL of 5 μg/m³ is technologically and economically feasible for the affected industries. On the other hand, the proposed PEL of 1 μg/m³ would be technologically or economically infeasible or is of unproven feasibility in a large number of industries and operations covered by the standard, including welding, aerospace painting, chromate pigment production, chromium catalyst production, chromium dye production, some hard chrome electroplating operations, and electroplating job shops. These operations affect approximately 312,170 exposed employees, or almost 56% of the total number of employees occupationally exposed to Cr(VI) (Table VIII–2). This figure includes 270,000 employees in welding, 8,300 employees in aerospace painting operations, 33,400 employees in electroplating job shops, and 469 employees in the other three industries. (Note that this number does not include a separate count for employees performing hard chrome electroplating in order to avoid double counting employees performing that operation who are employed in the electroplating job shop category). OSHA did not receive data or recommendations regarding setting the PEL at any levels between 1 and 5 μg/m³.

A Uniform PEL of 5 μg/m³ Is Consistent With the Feasibility Constraint of Section 6(b)(5)

Section 6(b)(5) of the OSH Act requires OSHA to set the standard which most adequately assures, to the extent feasible * * * that no employee will suffer material impairment of health.'' This provision requires the agency to eliminate or reduce significant risk, to the extent feasible. *See*

American Textile Mfr. Inst., Inc. v. *Donovan*, 452 U.S. 490, 506–22(1981). OSHA has always interpreted Section 6(b)(5) to accord the agency substantial discretion to set the PEL at the lowest level that is feasible for industries and operations as a whole. OSHA has not interpreted the provision to require setting multiple PELs based on the lowest level particular industries or operations could achieve. Because Congress did not speak to the precise issue in the statute, OSHA has authority to adopt the reasonable interpretation that it judges will best carry out the purposes of the Act. *Chevron U.S.A.* v. *Natural Resources Defense Council*, 467 U.S. 837 (1984).

The new Cr(VI) standard meets the requirements of Section 6(b)(5) because the PEL of 5 μg/m³ is the lowest feasible limit for many operations and sectors employing a large number of covered employees in fact, a majority of affected employees. In addition, the record does not afford a basis for any further disaggregation.

OSHA recognizes that, according to the determination made in Section VII of this preamble, significant risk remains at a PEL of 5 μg/m³. As indicated in Table VII–3 in the Significance of Risk section, the remaining risk for a worker exposed at the PEL throughout a 45-year working lifetime is comparable to or greater than the remaining risk in previous OSHA health standards where quantitative estimates have been presented. Although OSHA anticipates that the ancillary provisions of the standard will reduce this residual risk, the Agency realizes that lower PELs might be achievable in some industries and operations, which would reduce this risk even further. As explained below, however, OSHA concludes that these benefits would be offset by the significant disadvantages of attempting to establish and apply multiple PELs for the diverse group of industries and operations covered by the standard. *See Building & Constr. Trades Dep't* v. *U.S. Dep't of Labor*, 838 F.2d 1258, 1273 (D.C. Cir. 1988) (administrative difficulties, if appropriately spelled out, could justify a decision to select a uniform PEL).

Requiring OSHA to set multiple PELs—taking into account the feasibility considerations unique to each industry or operation or group of them—would impose an enormous evidentiary burden on OSHA to ascertain and establish the specific situations, if any, in which a lower PEL could be reached. Such an onerous obligation would inevitably delay, if not preclude, the adoption of important health standards. In addition, the demanding burden of setting multiple PELs would be complicated by the difficulties inherent in precisely defining and clearly distinguishing between affected industries and operations where the classification determines legal obligations. The definitional and line-drawing problem is far less significant when OSHA merely uses a unit of industries and operations for analytical but not compliance purposes, and when it sets a PEL in the aggregate, *i.e.*, when its analysis is limited to determining whether a particular PEL is the lowest feasible level for affected industries as a whole. If OSHA had to set multiple PELs, and assign industries or operations to those PELs, the problem would become much more pronounced as the consequences of imprecise classifications would become much more significant.

The North American Industry Classification System (NAICS), which has replaced the Standard Industrial Classification (SIC) system as the standard Federal statistical agencies use in classifying business establishments, is not an appropriate basis for establishing multiple PELs. NAICS classifications are based on generally-worded definitions and it is not always clear which definition best fits a particular establishment. Moreover, an establishment's NAICS classification is based on its primary activity. The establishment may include many other activities, however, and what is the lowest feasible level for operations in one activity may not be so for other activities. In addition, the primary activity in an establishment may change over time and the NAICS system itself is subject to revision every five years. Definitional uncertainties, the presence of multiple and changing business activities, and periodic revisions in individual codes could have important consequences for enforcement of the standard over time. For these reasons, OSHA has historically been reluctant to disaggregate coverage of a standard by SIC classification. See 58 FR 166620–16621 (March 30, 1993) (discussing disaggregation of coverage of lockout/tagout standard).

Similarly, disaggregation by operation has major practical disadvantages. In addition to definitional complexities, a significant problem with the use of operations for disaggregating the PEL is that many firms have exposures in two or more different categories. Welding, for example, is widely used in manufacturing operations in general industry, maritime and construction. So, for instance, setting the PEL at 5 for welding applications and 1 for other applications would mean that some firms would have to attain two different PELs for Cr(VI) exposures within the same workplace, and possibly even for the same employees. As another example, chromium conversion is a process where a treated metal surface is converted to a layer containing a complex mixture of chromium compounds. Unlike electroplating, chromium conversion is an entirely chemical process, and results in lower Cr(VI) exposures than are typically associated with chromium electroplating. Where chromium conversion is performed along with chromium electroplating in a single establishment, it may be virtually impossible to distinguish exposures from one source versus the other. The same workers may even perform both tasks. Exposures from hard chrome electroplating inevitably affect other nearby workers because hard chrome plating is often done in the same workplaces or areas and even at the same time as other operations involving lower Cr(VI) exposures such as decorative plating and chrome conversion. In fact, in many circumstances it can be virtually impossible to distinguish the different sources that contribute to a particular employee's exposure levels.

These are just a few examples of the many instances reflected in the record in which individual employers will have Cr(VI) exposures emanating from two or more different operations (Exs. 38–233, pp. 9–10; 39–52, p. 4; 47–24, p. 2; 39–20, p. 5). If multiple PELs were established for different operations, employers would be forced to monitor for compliance with two or more PELs within the same workplace—a task rendered all the more difficult by the fact that the exposure of an employee may not be tied exclusively to a single task; different processes may be performed in close proximity to one another and each may contribute to the exposure of an individual.

OSHA also believes that a uniform PEL will ultimately make the standard more effective by making it easier for affected employers to understand and comply with the standard's requirements. A uniform PEL also makes it easier for OSHA to provide clear guidance to the regulated community and to identify non-compliant conditions.

Finally, OSHA is concerned that adopting multiple PELS could result in a great number of subcategories that would have to be tracked for enforcement purposes. Apart from welding and electroplating, which present particularly severe

dissagregation problems, there are over thirty other industry sectors with exposure to Cr(VI). None of these sectors individually accounts for more than 6% of the total of exposed employees; in fact, several of those groups employ fewer than 100 employees.

For these reasons, OSHA has historically interpreted section 6(b)(5) to accord the Agency substantial discretion to set the PEL at the lowest level feasible for industries or operations as a whole. In adopting the arsenic standard, for example, OSHA expressly declined to set different PELS, finding that ''[s]uch an approach would be extremely difficult to implement.'' 43 FR 19584, 19601 (May 5, 1978). In that instance, OSHA explained:

> The approach OSHA believes appropriate and has chosen for this and other standards is the lowest level achievable through engineering controls and work practices in the majority of locations. This approach is intended to provide maximum protection without excessively heavy respirator use. *Id.*

Similarly, when OSHA initially lowered the PEL for benzene from 10 ppm to 1 ppm, it considered, but rejected, the idea of establishing additional lower PELs, concluding that ''different levels for different industries would result in serious administrative difficulties.'' 43 FR 5918, 5947 (Feb. 10, 1978). And when OSHA subsequently reconsidered the benzene standard after it was remanded for a more specific finding of significant risk, OSHA considered, but rejected, a PEL of 0.5 ppm, noting:

> The unions have pointed out some situations where controls might do somewhat better than 1 ppm * * * [but] OSHA believes it has chosen the correct balance at 1 ppm as the level it can have a high degree of confidence is generally achievable. 52 FR 34460, 34519 (Sept. 11, 1987).

In the case of cotton dust, where OSHA did set different PELs for certain discrete groups, the groups involved exposures to different kinds of cotton dust and different degrees of risk. Even so, OSHA declined to adopt a unique PEL for every single affected sector. *See* 43 FR 27350, 37360–61 (June 23, 1978) (OSHA set one PEL for textile industries and a separate PEL for non-textile industries, but expressly rejected the option of adopting different exposure limits for each non-textile industry).

In conclusion, the new PEL is the lowest level that can feasibly be attained for many industries and operations employing a large number of covered workers, in fact a majority of employees exposed to hexavalent chromium. Considering all of the factors outlined above, OSHA finds that a uniform PEL of 5 $\mu g/m^3$ is consistent with section 6(b)(5) and that further dissagregation is not warranted.

A Short-term Exposure Limit is Unnecessary. Several commenters recommended that OSHA establish a short-term exposure limit (STEL) for Cr(VI) (Exs. 38–219; 38–222; 39–38; 39–50; 40–19). By restricting potential high magnitude exposures of short duration, a STEL is intended to protect against health effects associated with relatively high exposures, as well as to reduce cumulative exposures. The UAW indicated that the high residual risk of cancer justified a STEL (Ex. 40–19), while NIOSH stated that short-term exposures to high levels of Cr(VI) can cause severe respiratory effects (40–10–2, p. 17). Other commenters did not believe a STEL was justified, in some cases noting that neither NIOSH nor ACGIH recommends a STEL for Cr(VI) (Exs. 38–214; 38–220; 39–19; 39–20; 39–40; 39–41; 39–47; 39–51; 39–52; 39–60; 43–26).

OSHA decided not to include a STEL in the final Cr(VI) standard for three reasons. First, employers already are required to reduce exposures to levels at or below the new PEL, which is expected to limit the occurrence of high exposure excursions. Although it will not eliminate all risk from peak exposures, the Agency anticipates that compliance with the new PEL will substantially reduce the frequency and magnitude of high exposure excursions, and thereby minimize the likelihood of adverse health effects resulting from peak exposures. Second, although in theory imposing a STEL might further lower cumulative exposures to Cr(VI), there is little record evidence supporting this supposition. Third, in some application groups, such as plastic colorant producers, employees are typically exposed to Cr(VI) not only for short durations but also intermittently. The industry has estimated that only 5% of pigments used contain Cr(VI) (Ex. 47–24–1). For these users, compliance with a STEL might require the expenditure of considerable resources without providing much additional protection to workers. These resources could more effectively be allocated to other forms of worker protection.

Without better justification, OSHA does not consider establishment of a STEL to be reasonably necessary or appropriate. OSHA has concluded that a STEL would provide at most a *de minimis* health benefit.

(d) Exposure Determination

Paragraph (d) of the final rule sets forth requirements for determining employee exposures to Cr(VI). The requirements are issued pursuant to Section 6(b)(7) of the OSH Act (29 U.S.C. 655) which mandates that any standard promulgated under section 6(b) shall, where appropriate, ''provide for monitoring or measuring of employee exposure at such locations and intervals, and in such manner as may be necessary for the protection of employees.''

The purpose of requiring an assessment of employee exposures to Cr(VI) includes: determination of the extent and degree of exposure at the worksite; identification and prevention of employee overexposure; identification of the sources of exposure to Cr(VI); collection of exposure data so that the employer can select the proper control methods to be used; and evaluation of the effectiveness of those selected methods. Assessment enables employers to meet their legal obligation to ensure that their employees are not exposed to Cr(VI) in excess of the permissible exposure level and to notify employees of their exposure levels, as required by section 8(c)(3) of the Act. In addition, the availability of exposure data enables the PLHCP performing medical examinations to be informed of the extent of occupational exposures.

The final requirements have been revised from those proposed in response to comments received. In the proposed general industry standard, OSHA included a requirement for initial exposure monitoring in all workplaces covered by the rule, unless monitoring had been performed in the previous 12 months, or the employer had data to demonstrate that exposures would be below the action level. Periodic monitoring was required at intervals determined by monitoring results (*i.e.*, at least every 6 months if exposures were at or above the action level, at least every 3 months if exposures were above the PEL), and additional monitoring was required when changes in the workplace resulted in new or additional exposures to Cr(VI). These requirements are similar to requirements for monitoring found in previous OSHA substance-specific health standards, such as those for methylene chloride (29 CFR 1910.1052) and 1,3-butadiene (29 CFR 1910.1051).

The proposed standards for construction and shipyards did not include provisions for exposure monitoring. OSHA did not propose specific exposure monitoring requirements for construction and shipyards because operations in these sectors are often of short duration, and are performed under varying environmental conditions.

In omitting exposure monitoring requirements from the proposed

standards for construction and shipyards, OSHA intended to provide construction and shipyard employers with the flexibility to assess Cr(VI) exposures in any manner they considered appropriate. It was not the Agency's intent that employers ignore substantial exposures to Cr(VI). Because the obligation to comply with the PEL would remain, the employer would have to accurately characterize Cr(VI) exposures in order to determine if they were in compliance. At the time of the proposal, OSHA considered this performance-oriented approach a reasonable way to determine employee exposures to Cr(VI) while avoiding the more infeasible requirements of a scheduled monitoring approach that might not be useful in construction and shipyard workplaces. This performance-based approach was consistent with OSHA's standard for air contaminants (29 CFR 1910.1000), which establishes PELs for over 400 substances but does not include specific requirements for exposure monitoring.

Construction and shipyard employers who expressed an opinion on the issue generally supported the absence of specific exposure monitoring requirements (*e.g.*, Exs. 38–220; 38–235; 38–244). In addition to those operations that involved changing conditions, employers argued that periodic monitoring requirements were unnecessary when conditions did not change (Exs. 38–124; 38–213, 38–215; 38–189, 38–191). For example, the U.S. Navy stated:

> The prescriptive schedule of required air sampling has not proved beneficial in assessing risks in shipyards * * * where there has been virtually no change in conditions, yet costs for consistent air sampling have been incurred on an annual basis without informational benefit or added protection for workers. The performance-based sampling approach * * * is protective, efficient, and logical (Ex. 38–220).

A number of employers also supported a performance oriented approach for exposure determination in general industry workplaces (Exs. 38–189; 38–191; 38–213; 38–215; 39–48). Some of these commenters argued that Cr(VI) exposures in their workplaces were intermittent, variable, and of short duration, and therefore similar to those found in construction and shipyards (Exs. 38–203; 38–254; 39–19; 39–48; 39–56). Other comments focused on requirements for periodic monitoring that were considered to be excessive (*e.g.*, Exs. 38–124; 38–189; 38–191; 38–213; 38–215; 38–233). For example, the Color Pigments Manufacturers Association stated:

> OSHA continues to require repeated monitoring at great cost in general industry under circumstances where no change in procedure, process, equipment or exposure has occurred to warrant repeated exposure monitoring. This requirement is unnecessary and punitive. It forces general industry to expend valuable resources on continual monitoring without reason (Ex. 38–205).

Some employers, while maintaining that periodic monitoring requirements were not warranted, indicated that initial exposure monitoring or an initial hazard assessment would be appropriate (Exs. 38–214; 38–245–1).

Other commenters, including unions, Public Citizen, and NIOSH, supported explicit requirements for exposure assessment (Exs. 38–199–1; 38–222; 40–10–2; 47–23, p. 16). These parties argued that employers will not know whether or not they are in compliance with the standard without mandated exposure monitoring. For example, the Building and Construction Trades Department, AFL–CIO, stated:

> If OSHA indeed intends construction employers to conduct an exposure assessment, this requirement must be explicitly stated in the regulation. To suggest that employers will attempt to characterize exposure routinely without an explicit requirement in the regulation is ludicrous (Ex. 38–219).

Even where controls are implemented, it was argued, exposure assessment is still necessary to ensure that those controls are adequately protective (Ex. 38–219). NIOSH suggested that OSHA might want to consider developing alternative means for assessing exposures, such as the use of interim protection provisions in construction for certain tasks until exposure monitoring could be done (see the lead standard, 29 CFR 1926.62(d)) and the use of grouped tasks and grouping job types into classes based on exposure potential (see the asbestos standard, 29 CFR 1926.1101) (Ex. 40–10–2, p. 19).

After considering the evidence and arguments advanced by rulemaking participants, OSHA is convinced that requirements for scheduled initial and periodic Cr(VI) exposure monitoring are not appropriate in all circumstances. In particular, OSHA believes that the evidence in this rulemaking, as discussed earlier in this section in paragraph (c), permissible exposure limit, demonstrates the varied nature of Cr(VI) exposures across a number of different work operations. However, OSHA also believes that valid concerns have been raised regarding the adequacy of exposure assessments that would be performed in the absence of explicit requirements. The Agency is therefore including in the final rule two alternative options for all affected employers to follow for determining employee exposures to Cr(VI). The first option, referred to as the ''scheduled monitoring option'', consists of requirements for initial monitoring and periodic monitoring at intervals based on monitoring results. This approach is similar to that proposed for general industry in this rulemaking and with exposure assessment requirements in previous OSHA substance-specific standards. The second option, referred to as the ''performance-oriented option'', allows employers to use any combination of air monitoring data (i.e., data obtained from initial and periodic monitoring performed in accordance with the requirements of the Cr(VI) standard), historical monitoring data, or objective data to determine employee exposures to Cr(VI), as long as the data are sufficient to accurately characterize exposures.

OSHA believes that by including explicit requirements for exposure determination in the standards for general industry, construction, and shipyards, the Agency makes clear the obligation of employers to accurately assess employee exposures to Cr(VI) in all sectors. By offering two options for achieving this goal, the final rule provides a framework that is familiar to many employers and has been successfully applied in the past, as well as flexibility for employers who are able to characterize employee exposures through alternative methods.

OSHA has chosen not to use the task-based approaches suggested by NIOSH (Ex. 40–10–2) that the Agency has used in several previous health standards covering construction. While OSHA believes that these approaches are effective in certain construction settings, there was not sufficient information in this rulemaking record for OSHA to develop classes of exposures that would apply across the many varied work operations with Cr(VI) exposures. While it was not possible to develop specific classes of operations to apply across all industries, OSHA believes that an individual employer, with specific information about the work processes at his worksite, may be able to use such an approach in using the performance-based option allowed by this final rule.

Paragraph (d)(2) contains requirements for employers who choose the scheduled monitoring option. Employers who select this option must conduct initial monitoring to determine employee exposure to Cr(VI). OSHA has not established a separate compliance date for initial monitoring to allow employers flexibility in scheduling this activity. However, employers must

allow sufficient time after initial monitoring is performed to achieve compliance (e.g., establish regulated areas, provide appropriate respiratory protection) by the start-up dates specified in paragraph (n) (paragraph (l) for construction and shipyards). Monitoring to determine employee exposures must represent the employee's time-weighted average exposure to airborne Cr(VI) over an eight-hour workday. Samples must be taken within the employee's breathing zone (i.e., ''personal breathing zone samples'' or ''personal samples''), and must represent the employee's exposure without regard to the use of respiratory protection.

Employers must accurately characterize the exposure of each employee to Cr(VI). In some cases, this will entail monitoring all exposed employees. In other cases, monitoring of ''representative'' employees is sufficient. Representative exposure sampling is permitted when a number of employees perform essentially the same job under the same conditions. For such situations, it may be sufficient to monitor a fraction of these employees in order to obtain data that are ''representative'' of the remaining employees. Representative personal sampling for employees engaged in similar work with Cr(VI) exposure of similar duration and magnitude is achieved by monitoring the employee(s) reasonably expected to have the highest Cr(VI) exposures. For example, this may involve monitoring the Cr(VI) exposure of the employee closest to an exposure source. This exposure result may then be attributed to the remaining employees in the group.

Exposure monitoring should include, at a minimum, one full-shift sample taken for each job function in each job classification, in each work area, for each shift. These samples must consist of at least one sample characteristic of the entire shift or consecutive representative samples taken over the length of the shift. Where employees are not performing the same job under the same conditions, representative sampling will not adequately characterize actual exposures, and individual monitoring is necessary.

Employers who have workplaces covered by the standard must determine if any of their employees are exposed to Cr(VI) at or above the action level. Further obligations under the standard are based on the results of this assessment. These may include obligations for periodic monitoring, establishment of regulated areas, implementation of control measures, and provision of medical surveillance.

Requirements for periodic monitoring depend on the results of initial monitoring. If the initial monitoring indicates that employee exposures are below the action level, no further monitoring is required unless changes in the workplace result in new or additional exposures. If the initial determination reveals employee exposures to be at or above the action level but at or below the PEL, the employer must perform periodic monitoring at least every six months. If the initial monitoring reveals employee exposures to be above the PEL, the employer must repeat monitoring at least every three months.

The scheduled monitoring option also includes provisions to adjust the frequency of periodic monitoring based on monitoring results. If periodic monitoring results indicate that employee exposures have fallen below the action level, and those results are confirmed by consecutive measurements taken at least seven days apart, the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring. Similarly, if periodic monitoring measurements indicate that exposures are at or below the PEL but at or above the action level, the employer may reduce the frequency of the monitoring to at least every six months.

OSHA recognizes that exposures in the workplace may fluctuate. Periodic monitoring provides the employer with assurance that employees are not experiencing higher exposures that may require the use of additional control measures. In addition, periodic monitoring reminds employees and employers of the continued need to protect against the hazards associated with exposure to Cr(VI).

Because of the fluctuation in exposures, OSHA believes that when initial monitoring results equal or exceed the action level but are at or below the PEL, employers should continue to monitor employees to ensure that exposures remain at or below the PEL. Likewise, when initial monitoring results exceed the PEL, periodic monitoring allows the employer to maintain an accurate profile of employee exposures. If the employer installs or upgrades controls, periodic monitoring will demonstrate whether or not controls are working properly. Selection of appropriate respiratory protection also depends on adequate knowledge of employee exposures.

In general, the more frequently periodic monitoring is performed, the more accurate the employee exposure profile. Selecting an appropriate interval between measurements is a matter of judgment. OSHA believes that the frequency of six months for subsequent periodic monitoring for exposures at or above the action level but at or below the PEL, and three months for exposures above the PEL, provides intervals that are both practical for employers and protective for employees. This belief is supported by OSHA's experience with comparable monitoring intervals in other standards, including those for cadmium (29 CFR 1910.1027), methylenedianiline (29 CFR 1910.1050), methylene chloride (29 CFR 1910.1052), and formaldehyde (29 CFR 1910.1048).

OSHA recognizes that monitoring can be a time-consuming, expensive endeavor and therefore offers employers the incentive of discontinuing monitoring for employees whose sampling results indicate exposures are below the action level. The Agency does not believe that periodic monitoring is generally necessary when monitoring results show that exposures are below the action level because there is a low probability that the results of future samples would exceed the PEL. Therefore the final rule provides an incentive for employers to control their employees' exposures to Cr(VI) below the action level to minimize their exposure monitoring obligations while maximizing the protection of employees' health.

Under the scheduled monitoring option, employers are to perform additional monitoring when there is a change in production process, raw materials, equipment, personnel, work practices, or control methods, that may result in new or additional exposures to Cr(VI). For example, if an employer has conducted monitoring for an electroplating operation while using fume suppressants, and the use of fume suppressants is discontinued, then additional monitoring would be necessary to determine employee exposures under the modified conditions. In addition, there may be other situations which can result in new or additional exposures to Cr(VI) which are unique to an employer's work situation. For instance, a welder may move from an open, outdoor location to an enclosed or confined space. Even though the task performed and materials used may remain constant, the changed environment could reasonably be expected to result in higher exposures to Cr(VI). In order to cover those special situations, OSHA requires the employer to perform additional monitoring whenever the employer has any reason to believe that a change has occurred which may result in new or additional

exposures. This additional monitoring is necessary to ensure that monitoring results accurately represent existing exposure conditions. This information will enable the employer to take appropriate action to protect exposed employees, such as instituting additional engineering controls or providing appropriate respiratory protection. On the other hand, additional monitoring is not required simply because a change has been made, if the change is not reasonably expected to result in new or additional exposures to Cr(VI). For example, monitoring may be conducted in an establishment when welding was performed on steel with 15% Cr content. If the establishment switches to a steel with 10% Cr content without changing any other aspect of the work operation, then additional exposures to Cr(VI) would not reasonably be expected, and additional monitoring would not be required.

The performance-oriented option allows the employer to determine the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data, historical monitoring data, or objective data sufficient to accurately characterize employee exposure to Cr(VI). This option is intended to allow employers flexibility in assessing the Cr(VI) exposures of their employees. Where the employer elects to follow this option, the exposure determination must be performed prior to the time the work operation commences, and must provide the same degree of assurance that employee exposures have been correctly characterized as air monitoring would. The employer is expected to reevaluate employee exposures when there is any change in the production process, raw materials, equipment, personnel, work practices, or control methods that may result in new or additional exposures to Cr(VI).

When using the term ''air monitoring data'' in this paragraph, OSHA refers to initial and periodic Cr(VI) monitoring conducted to comply with the requirements of this standard, including the prescribed accuracy and confidence requirements. Historical monitoring data refers to Cr(VI) monitoring data that was obtained prior to the effective date of the final rule, where the data were obtained during work operations conducted under workplace conditions closely resembling the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations, and where that monitoring satisfies all other requirements of this section, including the accuracy and confidence requirements described below.

Objective data means information such as air monitoring data from industry-wide surveys or calculations based on the composition or chemical and physical properties of a substance demonstrating employee exposure to Cr(VI) associated with a particular product or material or a specific process, operation, or activity. The data must reflect workplace conditions closely resembling the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations. Objective data demonstrate the Cr(VI) exposures associated with a work operation or product under the range of expected conditions of use. For example, data collected by a trade association from its members may be used to determine exposures to Cr(VI) provided the data meet the definition of objective data in the standard.

Previous OSHA substance-specific health standards have usually allowed employers to use objective data to characterize employee exposures, but have generally limited its use to demonstrating that exposures would be below the action level (*e.g.*, the Cadmium standard, 29 CFR 1910.1027(d)(2)(iii)). Likewise, use of historical monitoring data has typically been allowed, but has usually been limited to data obtained within the previous 12 months (*e.g.*, the Methylene Chloride standard, 29 CFR 1910.1052(d)(2)(ii)). In this instance, OSHA does not place these limitations on the use of historical monitoring data or objective data. However, the burden is on the employer to show that the data comply with the requirements of this section. For example, historical monitoring data obtained 18 months prior to the effective date of the standard could be used to determine employee exposures, but only if the employer could show that the data were obtained during work operations conducted under workplace conditions closely resembling the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations, and that the monitoring satisfies all other requirements of this section, including the accuracy and confidence requirements. OSHA's intent is to allow employers the greatest possible flexibility in methods used to determine employee exposures to Cr(VI), but to ensure that the methods used are accurate in characterizing employee exposures.

Under paragraph (d)(4) of the final rule, employers covered by the general industry standard must notify each affected employee within 15 working days if the exposure determination indicates that employee exposure exceeds the PEL. In construction and shipyards, employers must notify each affected employee as soon as possible but not more than 5 working days after the exposure determination indicates that employee exposure exceeds the PEL. A shorter time period for notification is provided in construction and shipyards in recognition of the often short duration of operations and employment in particular locations in these sectors. The time allowed for notification is consistent with the harmonized notification times established for these sectors in Phase II of OSHA's Standards Improvement Project (70 FR 1112 (1/5/05)). Where the employer follows the scheduled monitoring option, the 15 (or 5) working day period commences when monitoring results are received. For employers following the performance-oriented option, the 15 (or 5) working day period commences when the determination is made (*i.e.*, prior to the time the work operation commences, and when exposures are reevaluated).

When using the term ''affected employees'' in this provision, OSHA is referring to all employees considered to be above the PEL. This would include employees who are not actually subject to personal monitoring, but are represented by an employee who is sampled. Affected employees also include employees whose exposures have been deemed to be above the PEL on the basis of historical or objective data. The employer shall either notify each affected employee in writing or post the monitoring results in an appropriate location accessible to all affected employees. In addition, whenever the PEL has been exceeded, the written notification must contain a description of the corrective action(s) being taken by the employer to reduce the employee's exposure to or below the PEL. The requirement to inform employees of the corrective actions the employer is taking to reduce the exposure level to or below the PEL is necessary to assure employees that the employer is making efforts to furnish them with a safe and healthful work environment, and is required under section 8(c)(3) of the Act.

Paragraph (d)(5) of the final rule requires the employer to use monitoring and analytical methods that can measure airborne levels of Cr(VI) to within an accuracy of plus or minus 25% (±25%) and can produce accurate measurements to within a statistical confidence level of 95% for airborne concentrations at or above the action level. Many laboratories presently have

methods to measure Cr(VI) at the action level with at least the required degree of accuracy. One example of an acceptable method of monitoring and analysis is OSHA method ID215, which is a fully validated analytical method used by the Agency. (See Chapter III of the FEA for a discussion of issues regarding methods of sampling and analysis). Rather than specifying a particular method that must be used, OSHA allows the employer to use any method as long as the chosen method meets the accuracy specifications. This is consistent with the general performance approach favored in the OSH Act.

Paragraph (d)(6) requires the employer to provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to Cr(VI), whether the employer uses the scheduled monitoring option or the performance-oriented option. When observation of monitoring requires entry into an area where the use of protective clothing or equipment is required, the employer must provide the observer with that protective clothing or equipment, and assure that the observer uses such clothing or equipment and complies with all other required safety and health procedures.

The requirement for employers to provide employees or their representatives the opportunity to observe monitoring is consistent with the OSH Act. Section 8(c)(3) of the OSH Act mandates that regulations developed under Section 6 provide employees or their representatives with the opportunity to observe monitoring or measurements. Also, Section 6(b)(7) of the OSH Act states that where appropriate, OSHA standards are to prescribe suitable protective equipment to be used in dealing with hazards. The provision for observation of monitoring and protection of the observers is also consistent with OSHA's other substance-specific health standards such as those for cadmium (29 CFR 1910.1027) and methylene chloride (29 CFR 1910.1052).

(e) Regulated Areas

Paragraph (e) of the final rule requires general industry employers to establish regulated areas wherever an employee's exposure to airborne concentrations of Cr(VI) is, or can reasonably be expected to be, in excess of the PEL. Regulated areas are to be demarcated from the rest of the workplace in a manner that adequately establishes and alerts employees to the boundaries of these areas. Access to regulated areas is to be limited to persons authorized by the employer and required by work duties to be present in the regulated area; any person entering the regulated area to observe monitoring procedures; or any person authorized by the OSH Act or regulations issued under it to be in a regulated area.

The purpose of a regulated area is to ensure that the employer makes employees aware of the presence of Cr(VI) at levels above the PEL, and to limit Cr(VI) exposure to as few employees as possible. The establishment of a regulated area is an effective means of limiting the risk of exposure to substances known to have carcinogenic effects. Because of the potentially serious results of exposure and the need for persons exposed above the PEL to be properly protected, the number of persons given access to the area must be limited to those employees needed to perform the job. Limiting access to regulated areas also has the benefit of reducing the employer's obligation to implement provisions of this standard to as few employees as possible.

In keeping with the performance orientation of this standard, OSHA has not specified how employers are to demarcate regulated areas. OSHA proposed that warning signs be posted at all approaches to regulated areas, and set forth specific language in paragraph (1) of the proposed standard to be included on the warning signs. However, OSHA has determined that other means of demarcation such as barricades, lines and textured flooring, or signs using other language can be equally effective in identifying the boundaries of regulated areas and notifying employees of associated hazards, the need to restrict access to such areas, and protective measures to be implemented. The specific language for warning signs included in paragraph (1) of the proposal, and the reference to that language in this provision, have therefore been deleted from the final rule.

In the final rule, OSHA thus has provided employers with the flexibility to use the methods of demarcation that are most appropriate for identifying regulated areas in their workplace. Factors that the Agency believes are appropriate for employers to consider in determining how to mark their areas include the configuration of the area, whether the regulated area is permanent, the airborne Cr(VI) concentration, the number of employees in adjacent areas, and the period of time the area is expected to have exposure levels above the PEL. Permitting employers to choose how best to identify and limit access to regulated areas is consistent with OSHA's belief that employers are in the best position to make such determinations, based on their knowledge of the specific conditions of their workplaces. Whatever methods are chosen, the demarcation must effectively warn employees not to enter the area unless they are authorized, and then only if they are using the proper personal protective equipment. Allowing employers to demarcate and limit access to the regulated areas as they choose is consistent with OSHA's two most recent substance-specific health standards, addressing occupational exposure to methylene chloride (29 CFR 1910.1052(e)) and 1,3-butadiene (29 CFR 1910.1051(e)).

Access to the regulated area is restricted to ''authorized persons.'' For the purposes of this standard, these are persons required by their job duties to be present in the area, as authorized by the employer. This may include maintenance and repair personnel, management, quality control engineers, or other personnel if job duties require their presence in the regulated area. In addition, persons exercising the right to observe monitoring procedures are allowed to enter regulated areas when exposure monitoring is being conducted. Persons authorized under the OSH Act, such as OSHA compliance officers, are also allowed access to regulated areas.

In the final rule, OSHA has not included a requirement for regulated areas in construction and shipyard workplaces, due to the expected practical difficulties of establishing regulated areas for operations in these sectors. OSHA raised the issue of requiring regulated areas for these workplaces and received comments and testimony from a variety of sources. A number of commenters supported not requiring regulated areas in construction and shipyards (Exs. 38–214; 38–220; 38–235; 38–236; 38–244; 39–37; 39–20; 39–40; 39–48; 39–64; 39–65). The National Association of Home Builders, for example, indicated that regulated areas are not feasible on residential construction jobsites because the area where exposures would exceed the PEL could not be accurately determined, stating:

> Because of the fluid nature of construction work and the ever-changing work environment, a regulated area could never be accurately determined due to the fact that construction areas are mostly exposed to the ambient environment. Factors such as shifting winds, tight work areas and multiple operations adjacent to the regulated area would create changes in air movement and would make establishment of a regulated area unattainable (Ex. 38–244).

Associated Builders and Contractors concurred with this assessment, and maintained that establishment of regulated areas could interfere with construction operations:

> The nature of construction sites makes it extremely difficult to close off certain areas from others without shutting down or interfering with significant construction activities (Ex. 39–65).

Some commenters maintained that certain activities should not be subject to requirements for regulated areas (Exs. 38–7, p. 5; 38–124; 38–203; 38–205; 38–228; 38–233; 38–238; 38–254; 39–19; 39–56; 39–62). The Office of Advocacy of the Small Business Administration, for example, stated that requirements for regulated areas should be limited to industries and processes where they would likely reduce exposures, arguing that establishment of regulated areas would have the effect of requiring respirators or other controls for more employees than necessary (Ex. 38–7). Because regulated areas are required only where exposures exceed the PEL, OSHA considers that these requirements are limited to situations where they can reduce exposures. As mentioned previously, making employees aware of potential exposures in excess of the PEL and limiting the number of employees present in regulated areas will effectively reduce exposures to Cr(VI). Moreover, establishment of regulated areas will not result in additional requirements for respirators or other controls, because requirements for these other control measures are not directly related to the establishment of regulated areas. Simply entering a regulated area, for example, does not trigger a requirement for use of respiratory protection.

Other commenters maintained that certain general industry activities, or general industry as a whole, should not be subject to the proposed requirements for regulated areas. Alabama Power, for example, indicated that the same rationale used to justify the absence of regulated area requirements in construction and shipyards also applied to general industry environments such as power plants (Exs. 38–254; 38–203). Others argued that regulated areas were not appropriate for specific activities such as welding (Ex. 38–124), job shop fabrication (Exs. 38–238; 39–62), or glass manufacturing (Ex. 38–228).

Other commenters expressed support for regulated area requirements, arguing that they were a feasible and useful means of protecting workers, and should apply to construction and shipyards as well as general industry workplaces (Exs. 38–199–1; 38–219; 38–222; 39–38; 39–71; 40–10–2; 47–28). For example, NIOSH indicated that regulated areas help minimize exposures to bystanders in construction and shipyard worksites:

> * * * regulated areas are important on construction and shipyard worksites because of the potential for ''bystander'' exposures given that it is common for employees from different trades to work in close proximity. For construction, bystander employees may work for different employers, thus complicating control efforts (Ex. 40–10–2).

Regulated areas, it was argued, are not unduly burdensome. Dr. Franklin Mirer of the United Auto Workers, when asked if he foresaw problems with requirements for regulated areas, stated:

> * * * you put a sign [up] and you tell people who don't have to be there not to be there * * * what's burdensome about that? It's like * * * putting up a sign on the ladies room. Certain people can't go in that regulated area (Tr. 837).

OSHA believes, however, that Dr. Mirer oversimplifies the situation. The difficulty is not with the mere physical act of putting up a sign at a regulated area, but rather with determining where, when, and for how long a duration to establish a regulated area. Making these determinations is very problematic given the varied and changing nature of the operations involving Cr(VI) exposures at construction and shipyard worksites. Moreover, areas where employees are exposed above the PEL might change on a daily or even hourly basis and may occur at different sites on the worksite than they did the day before, making it unreasonably difficult to keep up with the posting (and removal) of signs, barricades or other warning in a manner that would effectively let employees know about the hazard.

OSHA has concluded that requirements for regulated areas are appropriate for general industry, but not for construction and shipyards, because the work sites and conditions and other factors, such as environmental variability normally present in construction and shipyard employment, differ substantially from those typically found in general industry. Construction and shipyard tasks are often of relatively short duration; are commonly performed outdoors, sometimes under adverse environmental conditions (*e.g.*, wind, rain); and are often performed at non-fixed workstations or work sites. Collectively, these factors make establishment of regulated areas impracticable for many construction and shipyard operations.

These difficulties are particularly evident with regard to welding operations in construction and shipyard workplaces. Welding is the predominant source of Cr(VI) exposures in these sectors, accounting for over 82% of employees exposed above the PEL in construction and over 73% of employees exposed above the PEL in shipyards. Welding operations in construction and shipyards often involve movement to different locations during the workday, and welding fumes are highly subject to changes in air currents, meaning the exposure patterns can shift rapidly.

In the typical shipyard and construction project involving exposure, it is difficult to determine appropriate boundaries for regulated areas because the work and worksite are varied and subject to environmental influences. Moreover, workers are often moving from place to place throughout the site on a regular basis. While each employer has the obligation under the requirements of paragraph (d) of this final rule to determine Cr(VI) exposures for all employees, accurately demarcating all areas where Cr(VI) exposures could potentially exceed the PEL is a separate and potentially much more difficult undertaking. In general industry environments, which are typically more stable, likely to be indoors, and usually at a fixed location, this can generally be accomplished with minimal difficulty. In construction and shipyard workplaces, for the reasons described above, OSHA has determined that establishing regulated areas to control exposures to Cr(VI) can not reasonably be accomplished, and has therefore not included a requirement for regulated areas for these sectors in the final rule.

The Agency realizes that in some cases general industry work operations and work environments may be comparable to those found in construction and shipyards, and where the general industry employer can show compliance is not feasible, regulated areas will not have to be established. However, OSHA believes its longstanding distinction between these sectors provides an appropriate line for delineating between those operations where the employer generally is reasonably able to establish regulated areas where exposures to Cr(VI) exceed the PEL versus operations where regulated areas are generally not practicable.

OSHA recognizes that the determination not to include requirements for regulated areas for construction and shipyards in this final rule differs from the determinations made in previous rulemakings. The AFL–CIO pointed out that a number of

previous standards including those for asbestos, cadmium, benzene, 1,2-dibromo-3-chloropropane, ethylene oxide, methylenedianiline, formaldehyde, and 1,3 butadiene, included provisions for regulated areas in construction (Exs. 38–222; 47–28–1). It is important to note, however, that many of these standards such as benzene, 1,2-dibromo-3-chloropropane, ethylene oxide, methylenedianiline, and formaldehyde involved relatively few exposures in construction operations. For example, in the preamble to the final benzene standard OSHA concluded that while the standard would cover construction, ''The standard has virtually no impact on construction'' (52 FR at 34527). Similarly, requirements for regulated areas in the standard for cadmium in construction did not pose major problems for employers, because few workers were expected to be exposed above the PEL and thus subject to requirements for regulated areas. More importantly, in the cadmium rulemaking as in others discussed below, regulated areas for construction were not at issue because so few employees were potentially exposed above the PEL. Thus, the Agency did not address the factors that were presented in this rulemaking.

OSHA's standards for lead in construction and asbestos in construction, on the other hand, affect relatively large numbers of employers and employees. The standard for lead in construction is a notable exception to the AFL–CIO's list. OSHA did not include requirements for regulated areas in that standard (see 29 CFR 1926.62). While the asbestos construction standard does include requirements for regulated areas, the classification scheme for asbestos construction operations (*i.e.*, Class I, II, III and IV) and requirements for enclosing many work operations makes establishment of regulated areas easier for employers. (see 29 CFR 1926.1101). The Agency believes that the broad scope of the Cr(VI) final rule for construction, similar to the standard covering lead construction operations, would make application of regulated area requirements substantially more difficult than is the case for a standard with a much more limited scope, such as the standards for cadmium or benzene in construction.

Finally, in none of the previous health standards were the particular difficulties of implementing regulated areas for shipyard and construction work specifically considered as they have been in this rulemaking. In this rulemaking, the establishment of regulated areas was a major issue with a significant volume of comments and testimony, allowing OSHA to fully consider the matter in light of the specific nature of Cr(VI) exposures. First, OSHA's proposal did not include regulated areas in construction and shipyard employment. Secondly, in the proposal, OSHA included two general questions, numbers 31 and 32, on modifying the requirements for construction and shipyard employment and one very specific question, number 47, on whether regulated areas should be included for construction and shipyard employment (69 FR 59452, 59310). Thus, the public had sufficient notice and OSHA was able to weigh the evidence, ultimately finding the reasons for excluding regulated areas from construction and shipyard employment persuasive.

(f) Methods of Compliance

Paragraph (f) of the final rule (paragraph (e) for construction and shipyards) establishes which methods must be used by employers to comply with the PEL. It requires that employers institute effective engineering and work practice controls as the primary means to reduce and maintain employee exposures to Cr(VI) to levels that are at or below the PEL unless the employer can demonstrate that such controls are not feasible. Where the employer demonstrates that such controls are not feasible, the final rule requires the employer to institute engineering and work practice controls to reduce exposures to the lowest feasible level. The employer is then required to supplement these controls with respiratory protection to achieve the PEL.

A number of commenters supported OSHA's inclusion of the hierarchy of controls in the final Cr(VI) rule (*e.g.*, Tr. 826, Exs. 38–232; 38–235; 38–238; 39–20; 39–47; 40–10–2; 47–23; 47–26). For example, NIOSH endorsed the use of engineering and work practice controls as primary methods of controlling exposures to Cr(VI) (Ex. 40–10–2). Personal protective equipment such as respirators was regarded by NIOSH as the last line of defense, to be used only when engineering controls are not feasible. Other commenters objected to OSHA's proposed application of the hierarchy of controls in the Cr(VI) rule, arguing that use of respiratory protection instead of engineering controls should be allowed in a variety of different situations (*e.g.*, Exs. 38–204; 38–215; 38–216–1; 38–218; 38–233; 39–51; 39–66; 43–14; 47–30; 47–31; 47–32). For example, the National Paint and Coatings Association contended that respirator use should be permitted in paint and coatings manufacture:

> * * * exposures to hexavalent chromium compounds are limited in time and place, and their handling is seldom encountered by other[sic] than a relatively small number of workers, whose use of respirators would not pose most of the problems OSHA associates with respirators * * * (Ex. 39–66).

OSHA is requiring primary reliance on engineering controls and work practices because reliance on these methods is consistent with good industrial hygiene practice, with the Agency's experience in assuring that workers have a healthy workplace, and with the Agency's traditional adherence to a hierarchy of preferred controls. Engineering controls are reliable, provide consistent levels of protection to a large number of workers, can be monitored, allow for predictable performance levels, and can efficiently remove a toxic substance from the workplace. Once removed, the toxic substance no longer poses a threat to employees. The effectiveness of engineering controls does not generally depend to any substantial degree on human behavior, and the operation of equipment is not as vulnerable to human error as is personal protective equipment.

Engineering controls can be grouped into three main categories: (1) Substitution; (2) isolation; and (3) ventilation, both general and localized. Quite often a combination of these controls can be applied to an industrial hygiene control problem to achieve satisfactory air quality. It may not be necessary to apply all these measures to any specific potential hazard.

Substitution can be an ideal control measure. One of the best ways to prevent workers from being exposed to a toxic substance is to stop using it entirely. Although substitution is not always possible, replacement of a toxic material with a less hazardous alternative should always be considered.

In those cases where substitution of a less toxic material is not possible, substituting one type of process for another process may provide effective control of an air contaminant. For example, process changes from batch operations to continuous operations will usually reduce exposures. This is true primarily because the frequency and duration of workers' potential contact with process materials is reduced in continuous operations. Similarly, automation of a process can further reduce the potential hazard.

In addition to substitution, isolation should be considered as an option for controlling employee exposures to

Cr(VI). Isolation can involve containment of the source of a hazard, thereby separating it from most workers. Workers can be isolated from Cr(VI) by working in a clean room or booth, or by placing some other type of barrier between the source of exposure and the employee. Employees can also be protected by being placed at a greater distance from the source of Cr(VI) emissions.

Frequently, isolation enhances the benefits of other control methods. For example, Cr(VI) compounds may be used in the formulation of certain paints. If the mixing operation is conducted in a small, enclosed room the airborne Cr(VI) potentially generated by the operation could be confined to a small area. By ensuring containment, local exhaust ventilation is more effective.

Ventilation is a method of controlling airborne concentrations of a contaminant by supplying or exhausting air. A local exhaust system is used to remove an air contaminant by capturing the contaminant at or near its source before it spreads throughout the workplace. General ventilation (dilution ventilation), on the other hand, allows the contaminant to spread throughout the work area but dilutes it by circulating large quantities of air into and out of the area. A local exhaust system is generally preferred to dilution ventilation because it provides a cleaner and healthier work environment.

Work practice controls involve adjustments in the way a task is performed. In many cases, work practice controls complement engineering controls in providing worker protection. For example, periodic inspection and maintenance of process equipment and control equipment such as ventilation systems is an important work practice control. Frequently, equipment which is in disrepair or near failure will not perform normally. Regular inspections can detect abnormal conditions so that timely maintenance can then be performed. If equipment is routinely inspected, maintained, and repaired or replaced before failure is likely, there is less chance that hazardous exposures will occur.

Workers must know the proper way to perform their job tasks in order to minimize their exposure to Cr(VI) and to maximize the effectiveness of control measures. For example, if an exhaust hood is designed to provide local ventilation and a worker performs a task that generates a contaminant away from the exhaust hood, the control measure will be of no use. Workers can be informed of proper operating procedures through information and training. Good supervision further ensures that proper work practices are carried out by workers. By persuading a worker to follow proper procedures, such as positioning the exhaust hood in the correct location to capture the contaminant, a supervisor can do much to minimize unnecessary exposure.

Employees' exposures can also be controlled by scheduling operations with the highest exposures at a time when the fewest employees are present. For example, routine clean-up operations that involve Cr(VI) releases might be performed at night or at times when the usual production staff is not present.

Respirators are another important, although less preferred, method of compliance. However, to be effective, respirators must be individually selected; fitted and periodically refitted; conscientiously and properly worn; regularly maintained; and replaced as necessary. In many workplaces, these conditions for effective respirator use are difficult to achieve. The absence of any of these conditions can reduce or eliminate the protection the respirator provides to some of all of the employees.

Respirator effectiveness ultimately relies on the good work practices of individual employees. In contrast, the effectiveness of engineering controls does not rely so routinely on actions of individual employees. Engineering and work practice controls are capable of reducing or eliminating a hazard from the workplace as a whole, while respirators protect only the employees who are wearing them correctly. Furthermore, engineering and work practice controls permit the employer to evaluate their effectiveness directly through air monitoring and other means. It is considerably more difficult to directly measure the effectiveness of respirators on a regular basis to ensure that employees are not unknowingly being overexposed. OSHA therefore considers the use of respirators to be the least satisfactory approach to exposure control.

In addition, use of respirators in the workplace presents other safety and health concerns. Respirators can impose substantial physiological burdens on employees, including the burden imposed by the weight of the respirator; increased breathing resistance during operation; limitations on auditory, visual, and odor sensations; and isolation from the workplace environment. Job and workplace factors such as the level of physical work effort, the use of protective clothing, and temperature extremes or high humidity can also impose physiological burdens on workers wearing respirators. These stressors may interact with respirator use to increase the physiological strain experienced by employees.

Certain medical conditions can compromise an employee's ability to tolerate the physiological burdens imposed by respirator use, thereby placing the employee wearing the respirator at an increased risk of illness, injury, and even death. These medical conditions include cardiovascular and respiratory diseases (*e.g.*, a history of high blood pressure, angina, heart attack, cardiac arrhythmias, stroke, asthma, chronic bronchitis, emphysema), reduced pulmonary function caused by other factors (*e.g.*, smoking or prior exposure to respiratory hazards), neurological or musculoskeletal disorders (*e.g.*, epilepsy, lower back pain), and impaired sensory function (*e.g.*, a perforated ear drum, reduced olfactory function). Psychological conditions, such as claustrophobia, can also impair the effective use of respirators by employees and may also cause, independent of physiological burdens, significant elevations in heart rate, blood pressure, and respiratory rate that can jeopardize the health of employees who are at high risk for cardiopulmonary disease.

These concerns about the burdens placed on workers by the use of respirators were acknowledged in OSHA's revision of its Respiratory Protection standard, and are the basis for the requirement that employers provide a medical evaluation to determine the employee's ability to wear a respirator before the employee is fit tested or required to use a respirator in the workplace (63 FR 1152, 1/8/98). Although experience in industry shows that most healthy workers do not have physiological problems wearing properly chosen and fitted respirators, nonetheless common health problems can cause difficulty in breathing while an employee is wearing a respirator.

In addition, safety problems created by respirators that limit vision and communication must always be considered. In some difficult or dangerous jobs, effective vision or communication is vital. Voice transmission through a respirator can be difficult, annoying, and fatiguing. In addition, movement of the jaw in speaking can cause leakage, thereby reducing the efficiency of the respirator and decreasing the protection afforded the employee. Skin irritation can result from wearing a respirator in hot, humid conditions. Such irritation can cause considerable distress to workers and can cause workers to refrain from wearing

the respirator, thereby rendering it ineffective.

Because respirators are less reliable than engineering and work practice controls and may create additional problems, OSHA believes that primary reliance on respirators to protect workers is generally inappropriate when feasible engineering and work practice controls are available. All OSHA substance-specific health standards have recognized and required employers to observe the hierarchy of controls, favoring engineering and work practice controls over respirators. Moreover, OSHA's enforcement experience with these standards has reinforced the importance of this concept in the protection of employee health.

The Color Pigment Manufacturers Association suggested that supplied air respirators provide an acceptable alternative to engineering controls in many circumstances (Ex. 38–205, p. 44). The American Foundry Society concurred with this opinion (Ex. 43–14). They claimed that supplied air hoods do not present the problems and limitations associated with the use of other respirators and are more reliable and effective than most engineering controls (Tr. 1713–1717, Exs. 38–205; 43–14). The National Paint and Coatings Association (NPCA) indicated that Cr(VI) exposures in paint and coatings manufacturing are sporadic and are limited to a small number of processes and a few workers (Ex. 39–66). NPCA believed these exposures could be effectively controlled with modern air purifying or supplied air respirators (Ex. 39–66).

While OSHA acknowledges that certain types of respirators may lessen problems associated with breathing resistance and skin discomfort, these respirators may still present safety concerns of their own. OSHA does not believe that respirators provide employees with a level of protection that is equivalent to engineering controls, regardless of the type of respirator used. To summarize: engineering and work practice controls are capable of reducing or eliminating a hazard from the workplace; respirators only protect the employees who are wearing them. In addition, the effectiveness of respiratory protection always depends on the actions of employees, while the efficacy of engineering controls is generally independent of the individual.

It is well-recognized that certain types of respirators are superior to other types of respirators with regard to the level of protection offered, or impart other advantages. OSHA is currently evaluating the level of protection offered by different types of respirators in the Agency's Assigned Protection Factors rulemaking (68 FR 34036, 6/6/03). However, OSHA believes that engineering controls offer more reliable and consistent protection to a greater number of workers, and are therefore preferable to any type of respiratory protection.

Collier Shannon Scott, on behalf of various steel industry groups, maintained that OSHA should allow use of respiratory protection as a primary control to achieve the PEL where respiratory protection is currently used to comply with another OSHA standard (Exs. 38–233; 40–12). Without such an allowance, it was claimed, employers would have to add additional controls where employees are already wearing respirators, which would impose ''significant burden and expense on the employer with no attendant benefit to the employee'' (Ex. 38–233, p. 34). If an employer has adopted all feasible engineering controls to address other workplace exposures (e.g., lead, cadmium), and no other feasible engineering controls are available to limit Cr(VI) exposures, the final Cr(VI) rule would not require additional engineering controls to meet the new Cr(VI) PEL. On the other hand, if additional feasible engineering controls are available that would reduce Cr(VI) exposures that exceed the PEL, then these controls would justifiably be required. OSHA believes these additional engineering controls would better protect employees. As discussed previously, OSHA considers engineering controls to be the most effective method of protecting employees and allows respiratory protection only where such controls have been found infeasible.

A number of responses to the proposal commented on the possibility of including separate engineering control air limits, or SECALs, in the final Cr(VI) rule. Several commenters maintained that SECALs were unnecessary (Exs. 38–214; 38–220; 39–20). The majority of respondents who expressed an opinion on this issue supported the use of SECALs (Tr. 373, 1701, 1732, Exs. 38–205; 38–215; 38–216; 38–218; 38–231; 39–43; 47–30). However, it was apparent that these commenters did not have a common understanding of the basis for establishing SECALs or their application in the workplace.

SECALs were included in one previous OSHA rule, the Cadmium standard for general industry (29 CFR 1910.1027). In that rule, SECALs were based on a two tiered approach to controlling worker exposures. As described in the preamble to the final rule:

> The first tier would be a PEL, set at the level required by the health science data to protect workers' health. The PEL, in the case of industries where compliance by means of engineering and work practice controls was infeasible, could be achieved by any allowable (e.g., not worker rotation) combination of work practice and engineering controls and respirators. The second tier would be set above the PEL at the lowest feasible level that could be achieved by engineering and work practice controls (57 FR 42389, 9/14/92).

Thus, employers in all industries covered by the cadmium standard were required to use engineering and work practice controls to the extent feasible to achieve the PEL. For specified processes in particular industries, SECALs provided explicit recognition of the lowest exposure level that could feasibly be achieved with engineering and work practice controls. Respirators could then be used as supplementary controls to reduce exposures to the PEL.

While the cadmium standard is the only standard to use the term ''SECAL'' other standards have adopted the same approach. For example, although the PEL in the lead standard is set at 50 μg/m^3 (29 CFR 1910.1025(c)) the brass and bronze ingot manufacture industry sector is only required to achieve a lead in air concentration of 75 μg/m^3 through engineering and work practice controls (29 CFR 1910.1025(e)(1) Table I, n.3). As with all industry sectors, brass and bronze ingot manufacture must provide respiratory protection to supplement engineering and work practice controls if they cannot achieve the PEL. Similarly, the asbestos standard exempts certain specified operations from meeting the PEL of 0.1 fiber per cubic centimeter of air (0.1 fiber/cm^3) through engineering controls, but requires such operations to use such controls to get down to 0.5 fiber/cm^3 or 2.5 fibers/cm^3 for short term exposures and to provide supplemental respiratory protection (29 CFR 1910.1001(f)(1)(iii)).

Public Citizen maintained that SECALs could be used to provide a more protective PEL. According to Public Citizen, technological feasibility considerations applicable to a relatively small number of workers should not form the basis for establishing a PEL. They said that if OSHA determines that a lower PEL is not feasible in limited applications through use of engineering and work practice controls, the Agency should use SECALs to allow for use of respirators in those applications (Tr. 721, Ex. 47–23). However, SECALs (or equivalent provisions) can only be applied to discrete operations that can

be distinguished from other sources of Cr(VI) exposure. As discussed with regard to the PEL in paragraph (c) of this Summary and Explanation, this is not the case for most operations involving Cr(VI) exposure. Moreover, and also as discussed with regard to paragraph (c), the established test for technological feasibility for standards requires that the PEL be achieved in most operations with engineering and work practice controls.

On the other hand, a number of commenters supported SECALs in the belief that they would lessen the burdens imposed on employers. These parties appeared to believe that SECALs would allow them to circumvent the hierarchy of controls and use respiratory protection to achieve the PEL, even when feasible engineering controls were available. This approach was advocated by Elementis Chromium and the Chrome Coalition (Exs. 38–216; 38–231).

As discussed previously, OSHA considers engineering and work practice controls to be superior to respiratory protection for controlling workplace exposures to Cr(VI). The Agency, therefore, does not consider it appropriate to allow regular use of respirators to achieve the PEL when feasible engineering and work practice controls are available. The scenario envisioned by some commenters, which apparently involves a SECAL established at some point higher than the lowest level achievable with engineering and work practice controls, would therefore compromise worker safety by allowing an inferior method of control to substitute for a superior and feasible method.

OSHA does recognize, however, that an administrative burden can be relieved by providing explicit recognition in the final rule of operations where the PEL cannot be achieved through use of engineering and work practice controls alone. In these instances, absent recognition of infeasibility in the standard, the employer would need to be able to demonstrate that feasible engineering and work practice controls could not achieve the PEL.

As discussed in Chapter III of the Final Economic Analysis, OSHA has determined that during certain painting operations in the aerospace industry, the PEL of 5 μg/m^3 cannot be achieved with engineering and work practice controls (Ex. 49). In these operations, the evidence indicates that employee exposure to Cr(VI) can feasibly be reduced to 25 μg/m^3 using engineering and work practice controls; respiratory protection is necessary to supplement these controls to achieve the PEL. Accordingly, a provision has been added to the final rule recognizing the limitations of engineering and work practice controls in controlling Cr(VI) exposures where painting of aircraft or large aircraft parts is performed in the aerospace industry. In using the term ''aircraft or large aircraft parts'' OSHA is referring to the interior or exterior of whole aircraft, aircraft wings, tail sections, wing panels and rocket sections, large aircraft body sections, control surfaces such as rudders, elevators, and ailerons, or comparably sized aircraft parts. Thus, in these operations employee exposures must be reduced to 25 μg/m^3 or less using engineering and work practice controls. Respiratory protection will then need to be used to achieve the PEL.

There may even be some situations where the engineering and work practice controls cannot achieve exposures of 25 μg/m^3. The final rule recognizes this and addresses this by permitting the employer to demonstrate the infeasibility of achieving 25 μg/m^3 with these controls. In these limited circumstances the employer would be permitted to further rely on respirators to protect employees.

OSHA acknowledges that engineering and work practice controls cannot feasibly achieve the PEL in some specific operations. In particular, OSHA is aware that the use of engineering and work practice controls to comply with the PEL is infeasible for some maintenance and repair operations and during emergency situations. These situations are recognized in paragraph (g) of the final rule (paragraph (f) for construction and shipyards), which addresses use of respiratory protection where employers can demonstrate that engineering and work practice controls are not feasible. In such situations, the burden of proof is appropriately placed on the employer to make and support a claim of infeasibility because the employer has better access to information specific to the particular operation that is relevant to the issue of feasibility.

An exception to the general requirement for primary reliance on engineering and work practice controls is included in the final rule for employers who do not have employee exposures above the PEL for 30 or more days per year (during 12 consecutive months) in a particular process or task. Thus, if a particular process or task causes employee exposures to Cr(VI) that exceed the PEL on 29 or fewer days during any 12 consecutive months, the employer is allowed to use any combination of controls, including respirators alone, to achieve the PEL. The obligation to implement engineering and work practice controls to comply with the PEL is not triggered until a process or task causes employees to be exposed above the PEL on 30 or more working days during a year.

The employer may use this exception if he or she can demonstrate that a process or task will not cause employee exposures above the PEL for 30 or more days per year (12 consecutive months). The burden of proof is on the employer to show that exposures do not exceed the PEL on 30 or more days per year. OSHA believes this provision provides needed flexibility to employers, while still providing adequate protection for workers.

Under current exposure conditions, the primary adverse health effect addressed by this final rule (i.e., lung cancer) is associated with cumulative exposure to Cr(VI). Thus, assuming stable exposure levels, the fewer number of days that a worker is exposed, the lower the risk incurred. Consequently, some exception based on the number of days of exposure is justified.

OSHA realizes that in some industries (e.g., color pigment manufacturing), exposure to Cr(VI) is typically infrequent (i.e., fewer than 30 days, over 12 consecutive months). For example, certain Cr(VI) processes may occur only several days a year when production of a particular product is needed. Under such conditions, it may not be cost effective or very beneficial to workers' health for employers to invest the monies needed to install engineering controls to control Cr(VI) to the PEL. Without this exception, employers would be required to implement feasible engineering controls and work practice controls wherever employees are exposed to Cr(VI) above the PEL, even if they are only exposed on one or several days a year. OSHA believes that the expense of implementing engineering controls in such circumstances is not reasonable.

A number of commenters expressed general support for this exception (*e.g.*, Tr. 1426–1427, 1730; Exs. 38–205; 38–218; 38–220; 38–235; 39–19; 39–20; 39–47; 39–51; 40–1; 47–31). For example, the Navy expressed the view that this provision allowed employers to focus on the most serious hazards:

> This 30-day threshold approach reflects the reality and challenges of the Maritime Industry and has value in the shipbuilding and repair industry. The concept allows employers to focus engineering and work practice controls on those operations having the potential to result in the greatest cumulative exposure while providing the

flexibility to address lower-exposure operations based on a hazard assessment approach (Ex. 38–220).

Some commenters requested that the parameters of the exception be expanded to apply to exposures that occur more frequently, but for short durations of time (e.g., a few minutes per day), or to a longer time period (i.e., a greater number of days)(Tr. 558–559, 1807–1809, Exs. 38–218; 38–205; 47–31). Another commenter argued that, if an exception was to be included in the final rule, it should be limited to situations where exposure at *any* level occurs on fewer than 30 days (Ex. 39–71).

OSHA believes that the threshold exposure duration of fewer than 30 days per year is appropriate. With this exception, OSHA intends to provide relief exclusively to employers whose operations result in employee exposure to Cr(VI) at or above the PEL only for short periods of time. Because the PEL is expressed as an 8-hour time-weighted average, it is appropriate to express this exception in terms of a given number of days. Exposures that occur for short durations of time during the day are balanced by longer time periods when no exposure occurs. The PEL therefore already addresses most situations where exposures occur for only a few minutes during the day. If the brief exposures are so high that they cause the 8-hour time weighted average exposure to exceed the PEL, it is appropriate that they be considered equivalent to other exposure scenarios where the PEL is exceeded.

The question, then, is what number of days should be selected as the maximum, above which engineering and work practice controls must be implemented. There is no simple, scientifically definitive answer to this question. OSHA believes that the choice of 30 or more working days per year provides a reasonable balance between the preference for the more reliable engineering and work practice controls, and the desire to focus resources on those exposures that present the greatest risks to workers.

The choice of providing the limited exception for exposures on fewer than 30 working days per year is also consistent with the lead and cadmium standards, which incorporate a similar exception. Further, the 30 day exception is congruent with the 30 day exposure trigger for medical surveillance included in paragraph (k) of this standard (paragraph (i) for construction and shipyards), which simplifies the application of these provisions where employee exposures are tied to a single process or task. For example, if an employer has employees exposed to Cr(VI) while performing a single process or task, and the employer determines that exposures do not occur on 30 or more days per year, the employer has established that (1) any combination of controls can be used to achieve the PEL; and (2) no medical surveillance is necessary unless an employee develops signs or symptoms of the adverse health effects associated with Cr(VI) exposure or is exposed in an emergency situation. In any event, OSHA believes that the 30 day designation is reasonable and no other number of days would be a more appropriate benchmark. The Agency concludes the 30 working day exclusion will make the standard more flexible in workplaces where exposure days are limited.

Several commenters did not believe that an exception to the general requirement for use of engineering and work practice controls should be included in the final Cr(VI) rule (Tr. 558–559, 766, 1433, 1807, Exs. 38–199; 38–214; 38–219; 39–71; 40–10–2; 40–18–1; 40–19–1). For example, NIOSH maintained that such a provision would represent a significant weakening of the requirement for priority of engineering controls in preference to respirators (Ex. 40–10–2). OSHA agrees that engineering and work practice controls are generally superior to respirators. However, as discussed earlier, the Agency believes an exception for a limited duration of exposure is a reasonable way to focus resources on areas where the highest exposures are likely to occur and that the requirement for respirator use in these situations will provide sufficient protection for these workers.

Several respondents contended that it would be difficult to track employee exposure days, apparently believing that the exemption would be based on the exposures of individual workers, rather than the exposures created by a process or task (e.g., Tr. 1433, Ex. 40–19–1). OSHA intends for this exception to be process-or task-based: i.e., it is specific to a process where engineering controls might be implemented to reduce exposures to or below the PEL. For example, an employer might have two processes, A and B, where A involves an ongoing process in the facility with exposures above the PEL for 30 or more days and another process, B, that results in exposures above the PEL for 29 or fewer days per year. The fact that the employer has employees exposed above the PEL for more than 30 days in process A will not be used to determine that engineering and work practice controls have to be used for process B. OSHA intends this exception to be similarly applied by process or task in the construction and shipyard environments where employees may move from one work site to another.

By basing the exception on the process or task being performed, OSHA aims to preclude employers from using job rotation as a means of limiting the number of days individual employees are exposed above the PEL. Job rotation does not reduce the risk faced by workers, but only distributes that risk among a larger worker population. Therefore, OSHA considers the process or task to be the appropriate basis for applying this exception, rather than basing an exception on the number of days that an individual worker is exposed.

Some responses to the proposal did not consider the criteria used to qualify for the exception to be sufficiently clear (Tr. 765, Exs. 39–65; 40–18–1). The proposal indicated that this exception would apply where the employer ''has a reasonable basis for believing that no employee in a process or task will be exposed above the PEL for 30 or more days per year.'' To clarify the Agency's intent, this language has been modified to indicate that the employer can take advantage of the exception when he or she ''can demonstrate that no employee in a process or task will be exposed above the PEL for 30 or more days per year.'' This revised language makes clear that the employer has the burden to demonstrate that a process or task does not result in employee exposures above the PEL for 30 or more days per year. The burden of proof is placed on the employer because the employer has access to the necessary information about employee exposure levels and processes and tasks at the worksite. Where existing information is inadequate, the employer is also in the best position to develop the necessary information.

Historical data, objective data, or exposure monitoring data may be used to demonstrate that employees will not be exposed above the PEL for 30 or more days per year. Other information, such as production orders showing that processes involving Cr(VI) exposures are conducted on fewer than 30 days per year, may also demonstrate that employees will not be exposed above the PEL for 30 or more days per year. The obligation to demonstrate that employees in a process or task will not be exposed above the PEL for 30 or more days per year is the same for general industry, construction, and shipyard employers.

OSHA has included a provision in the final rule prohibiting the rotation of employees to different jobs as a means of achieving the PEL. Although rotation of employees may reduce the risk of

cancer among individual workers, the practice places a larger pool of workers at risk. Since no threshold has been established for the carcinogenic effects of Cr(VI), rotation would not be expected to reduce the risk to the population of workers when considered as a whole. A prohibition on worker rotation to achieve the PEL was supported by several responses to the proposal (e.g., Exs. 38–199–1; 40–10–2) and is consistent with good industrial hygiene practice. A prohibition on worker rotation to achieve the PEL is also consistent with many OSHA standards regulating carcinogens such as those for 1,3-butadiene (29 CFR 1910.1051), methylene chloride (29 CFR 1910.1052), asbestos (29 CFR 1910.1001), and cadmium (29 CFR 1910.1027).

A number of commenters, however, objected to a prohibition on worker rotation to achieve the PEL (e.g., Exs. 38–205; 38–214; 38–218; 38–228; 38–233; 39–51; 39–60; 47–30–1). For example, the Society for the Plastics Industry argued that employers should be allowed to implement employee rotation where it will result in exposure levels that are not associated with a significant risk of cancer (Ex. 38–218, pp. 29–30). However, worker rotation to lower the exposures of individual employees simply distributes exposures among a larger number of workers. The intent of this final rule is not simply to achieve a PEL, but to protect the largest number of workers possible from the adverse health effects of Cr(VI) exposure, particularly lung cancer. If the exposures of individual employees are reduced, but a corresponding increase occurs in the total number of employees exposed, then the intent of the final rule would be undermined.

Several commenters argued that job rotation has been allowed in previous OSHA health standards such as those for arsenic, formaldehyde, and lead, and should be allowed in this case as well (e.g., Exs. 38–218; 38–228; 47–30). With regard to arsenic and formaldehyde, although worker rotation was not specifically prohibited, the preamble discussions for each of these final standards indicated that the Agency did not consider worker rotation to be an appropriate control strategy (43 FR 19584, 19617(5/5/78); 52 FR 46168, 46263–46264 (12/4/87)).

OSHA's Lead standard was issued in 1978, and was based on a range of adverse health effects including damage to the nervous, urinary, and reproductive systems and inhibition of heme synthesis. Based on the information available at that time, lead was not recognized by OSHA as a carcinogen, and worker rotation was regarded as ''a relatively safe and effective means of maintaining TWA levels below permissible limits'' (43 FR 52952, (11/14/78)). The preamble to the final lead rule noted that such practices were unacceptable ''when the contaminant is one for which no effect levels are unknown, e.g., carcinogens'' (43 FR 52952, (11/14/78)). The Lead standard therefore does not set a precedent for allowing worker rotation for a carcinogen such as Cr(VI).

OSHA recognizes that employers rotate workers for a variety of reasons. For example, an employer may rotate workers in order to provide cross-training on different tasks, or to allow workers to alternate physically demanding tasks with less strenuous activities. OSHA does not place any restrictions on worker rotation when it is conducted for reasons other than compliance with the PEL. The Agency does not intend for this provision to be interpreted as a general prohibition on employee rotation where workers are exposed to Cr(VI).

Some commenters believed that the hierarchy of controls should apply to dermal as well as inhalation exposures to Cr(VI)(Exs. 38–199–1; 38–219). OSHA agrees that engineering and work practice controls can often be useful in controlling dermal Cr(VI) exposures. In fact, the Agency believes that engineering and work practice controls used to limit inhalation exposures to or below the PEL will often be effective in limiting dermal exposures as well. Substitution, isolation, and ventilation all serve to control dermal as well as inhalation exposures.

As discussed in section V of this preamble, OSHA recognizes that dermal exposures to Cr(VI) are capable of causing serious adverse health effects. However, dermal exposures do not present the same level of risk as inhalation exposures. Moreover, OSHA does not anticipate that engineering and work practice controls will eliminate the need for protective clothing and equipment and hygiene facilities for protection from dermal hazards. Therefore, due to the limited benefits that would be expected from such a provision, OSHA does not believe that a requirement for preferential use of engineering and work practice controls to reduce dermal exposures is reasonably necessary in this final rule. This determination is consistent with previous OSHA health standards, including standards addressing adverse dermal effects (e.g., formaldehyde (29 CFR 1910.1048) and 1,2-dibromo-3-chloropropane (29 CFR 1910.1044)).

Several commenters advocated a task-based approach for specifying required methods of compliance (Exs. 38–219; 38–235; 40–10–2). Others indicated that they did not see any benefit to this approach (Exs. 38–220; 39–20). Under a task-based approach, appropriate control measures would be specified for particular tasks and employers would be required to implement the specified controls when employees perform that task. This approach was used in OSHA's standards for exposure to asbestos in construction (29 CFR 1926.1101) and shipyards (29 CFR 1915.1001). However, sufficient information is not available in this rulemaking record to allow OSHA to establish the specific and detailed requirements that would be necessary to address the various tasks covered under the rule.

In the standards for asbestos in construction and shipyards, OSHA was able to divide the vast majority of activities involving asbestos exposure into four classes, and to identify control measures that were generally appropriate for each of the four classes of work. The Agency is unable to make comparable categorizations for the types of work covered in this rulemaking. For example, welding operations may involve substantially different potential Cr(VI) exposures depending upon the chromium content of the steel being welded and consumables used, the type of welding being performed, and the environment where the welding takes place. Appropriate control measures will vary based on these factors. Because OSHA is unable to specify generally applicable controls for common tasks involving exposure to Cr(VI), the Agency considers the performance-oriented approach used in this final rule to be the only reasonable approach for methods of compliance to control exposures to Cr(VI). The approach used in this rule is consistent with most other OSHA substance-specific health standards, including those for cadmium in construction (29 CFR 1926.1127) and lead in construction (29 CFR 1926.62).

OSHA has not included a requirement for a written compliance program in the final rule. In some previous standards, the Agency has required that employers prepare a written document detailing the measures used to achieve compliance. This document typically was required to include a description of operations that result in exposure; specific methods used to control exposures; a detailed implementation schedule; a work practice program; a plan for emergencies; and other information. The purpose of requiring an employer to establish a written

compliance program is to promote compliance with the standard. Some urged OSHA to include a provision for a written compliance program in the Cr(VI) standard (Ex. 38–199–1; 39–71; 40–19–1).

OSHA has not included a provision for compliance plans in the Cr(VI) standard in order to limit the amount of paperwork employers would be required to complete. The Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*) requires agencies to minimize paperwork burdens imposed on the public. Preparation of written compliance plans would be classified as paperwork under that Act. Although a written program may be useful to some employers, OSHA does not believe that the lack of a written compliance program will substantially reduce the effectiveness of the standard. This finding is consistent with OSHA health standards such as those for formaldehyde (29 CFR 1910.1048) and methylene chloride (29 CFR 1910.1052). Compliance with this standard will be promoted through outreach, which OSHA has concluded will be effective in assisting employers and employees to comply.

(g) Respiratory Protection

Paragraph (g) of the general industry standard (paragraph (f) for construction and shipyards) establishes the final rule's requirements for use of respiratory protection. Employers are required to provide employees with respiratory protection when engineering controls and work practices cannot reduce employee exposure to Cr(VI) to within the PEL. Specifically, respirators are required during the installation and implementation of engineering and work practice controls; during work operations where engineering and work practice controls are not feasible; when all feasible engineering and work practice controls have been implemented, but are not sufficient to reduce exposure to or below the PEL; during work operations where employees are exposed above the PEL for fewer than 30 days per year, and the employer has elected not to implement engineering and work practice controls to achieve the PEL; and during emergencies. Where respirator use is required, the employer must institute a respiratory protection program in accordance with OSHA's Respiratory Protection standard (29 CFR 1910.134).

These requirements for the use of respirators are identical to those proposed and are generally consistent with other OSHA health standards, such as those for 1,3 butadiene (29 CFR 1910.1051) and methylene chloride (29 CFR 1910.1052). They reflect the Agency's determination, discussed in the section on methods of compliance, that respirators are inherently less reliable than engineering and work practice controls. OSHA therefore will allow reliance on respirators only in limited situations.

OSHA received relatively few comments specifically addressing the proposed respiratory protection requirements. A numbers of comments focused on the use of respiratory protection in lieu of engineering and work practice controls (e.g., Exs. 38–199; 38–214; 38–219; 38–220; 38–231; 38–232; 38–233; 39–47; 39–51; 39–57; 39–60; 39–65; 39–66; 40–1; 40–7; 40–18; 40–19; 47–3; 47–31). This issue is addressed in the methods of compliance section above.

OSHA recognizes that respirators may be essential to reduce worker exposure in certain circumstances where engineering and work practice controls cannot be used to achieve the PEL (e.g., in emergencies, or during periods when equipment is being installed), or where engineering controls may not be reasonably necessary (e.g., where employees are exposed above the PEL for fewer than 30 days per year), and provision is made for their use as primary controls in these situations. In other circumstances, where feasible work practices and engineering controls alone cannot reduce exposure levels to the PEL, respirators must be used for supplemental protection. In these situations, the burden of proof is placed on the employer to demonstrate that engineering and work practice controls are not feasible.

OSHA anticipates that engineering and work practice controls will generally be in place within four years of the effective date of the standard, as specified in paragraph (n) of the final rule (paragraph (l) for construction and shipyards). The Agency realizes that in some cases employers may commence operations that involve employee Cr(VI) exposures after that date, may install new or modified equipment, or make other workplace changes that result in new or additional exposures to Cr(VI). In these cases, a reasonable amount of time may be needed before appropriate engineering controls can be installed and proper work practices implemented and paragraph (g)(1)(i) addresses this situation. Employers are expected to provide respirators to protect workers during such periods.

Respiratory protection is also required during work operations where engineering and work practice controls are not feasible. OSHA anticipates that there will be few situations where no engineering and work practice controls are feasible to limit employee exposure to Cr(VI). However, the Agency recognizes that it may be infeasible to control Cr(VI) exposure with engineering and work practice controls during certain work operations, such as maintenance and repair activities. Respirators are required in these situations. Several commenters supported allowing the use of respiratory protection in these circumstances (e.g., Exs. 38–254; 39–47; 39–56).

In other cases, some engineering and work practice controls may be feasible, but these controls may not be capable of lowering employee exposures to or below the PEL. For example, OSHA recognizes that in certain welding operations such as welding stainless steel in confined spaces, the PEL cannot always be achieved with feasible engineering and work practice controls. In these cases, the employer must install engineering controls and implement work practice controls where such controls are feasible to reduce exposures, even if these controls cannot reduce exposures to the PEL. Respirators must also be provided to supplement the engineering and work practices controls to achieve the PEL.

The requirement to provide respiratory protection when feasible engineering controls are not sufficient to reduce exposures to within the PEL also applies in instances where effective engineering controls have been installed and are being maintained or repaired. In these situations, controls may not be effective while maintenance or repair is underway. Where exposures exceed the PEL, the employer is required to provide respirators.

As discussed earlier with regard to methods of compliance, OSHA is including an exception from the general requirement for use of engineering and work practice controls where employee exposures do not exceed the PEL on 30 or more days per year. Where this exception applies, the employer is then required to provide respiratory protection to achieve the PEL.

OSHA also believes that respirators must be used to protect employees in emergencies. Since an emergency, by definition, involves or is likely to involve an uncontrolled release of Cr(VI), it is important for employers to have procedures to protect employees from the significant exposures that may occur.

Whenever respirators are used to comply with the requirements of the standard, the employer must implement a comprehensive respiratory protection program in accordance with the

Agency's Respiratory Protection standard (29 CFR 1910.134). The respiratory protection program is designed to ensure that respirators are properly used in the workplace, and are effective in protecting workers. The program must include procedures for selecting respirators for use in the workplace; medical evaluation of employees required to use respirators; fit testing procedures for tight-fitting respirators; procedures for proper use of respirators in routine and reasonably foreseeable emergency situations; procedures and schedules for maintaining respirators; procedures to ensure adequate quality, quantity, and flow of breathing air for atmosphere-supplying respirators; training of employees in the proper use of respirators; and procedures for evaluating the effectiveness of the program. This provision serves as a reminder to employers covered by the Cr(VI) rule that they must also comply with the Respiratory Protection standard when respirators are provided to employees.

OSHA has proposed to revise the Respiratory Protection standard to include assigned protection factors (APFs) (68 FR 34036 (6/6/03)). The proposed revision includes a table which indicates the level of respiratory protection that a given respirator or class of respirators is expected to provide, and will apply to employers whose employees use respirators for protection against Cr(VI) when it becomes a final rule (68 FR 34036, 34115 (6/6/03)).

A number of commenters supported the reference to the Respiratory Protection standard (e.g., Tr. 1586–1589, Exs. 38–232; 39–38; 39–57; 47–36). For example, the 3M Company stated:

> Many of our customers use respirators to help protect workers from exposures to multiple contaminants and the reference in the Cr(VI) standard to the requirements of 1910.134 brings uniformity that will result in better compliance and protection for workers such as welders that have exposures to other metals besides Cr(VI) and workers in the pigment industry that may have exposures to both cadmium and Cr(VI) (Ex. 38–232).

In contrast, the AFL–CIO suggested specific changes to the proposed respiratory protection requirements. The AFL–CIO recommended that OSHA require HEPA filters for all air purifying respirators required in the final rule (Ex. 38–222). They argued that HEPA filters would provide the highest level of protection, and a requirement to provide HEPA filters would be consistent with similar provisions in other OSHA health standards such as those for asbestos, lead, and cadmium.

OSHA does not believe that a specific requirement mandating use of HEPA filters for air purifying respirators used for protection from Cr(VI) is justified, and has not included such a requirement in the final rule. For air-purifying respirators, in addition to the option of providing a respirator equipped with a filter certified by NIOSH under 30 CFR Part 11 as a HEPA filter, the Respiratory Protection standard allows employers several alternatives. Under 1910.134 the employer may also provide either (1) An air-purifying respirator equipped with a filter certified for particulates by NIOSH under 42 CFR Part 84; or (2) an air-purifying respirator equipped with any filter certified for particulates by NIOSH where dealing with contaminants consisting primarily of particles with mass median aerodynamic diameters (MMAD) of at least 2 micrometers. OSHA believes these requirements are appropriate for protection from exposures to Cr(VI).

NIOSH published revised requirements for testing and certification procedures for non-powered, air-purifying, particulate-filter respirators and recodified the previous certification standards for other respirator classes as 42 CFR Part 84 on June 8, 1995. Respirators certified under Part 84 have passed a more demanding certification test than was previously required, involving the most penetrating particle size of 0.3 micrometers. OSHA believes that these testing and certification requirements ensure that particulate filters certified under 42 CFR Part 84 are efficient in preventing the penetration of submicron-sized particles, and recognized this when the Agency's revised Respiratory Protection standard was issued on January 8, 1998. OSHA likewise believes that an air-purifying respirator equipped with any filter certified for particulates by NIOSH will be efficient in preventing the penetration of particles with diameters of 2 micrometers or more, because filters will be more efficient in protecting against particles larger than 0.3 micrometers in diameter. These findings were established for air contaminants in general during the rulemaking that revised the Respiratory Protection standard, and OSHA does not find any basis in this rulemaking record to make an exception for Cr(VI).

The AFL–CIO suggested that the final Cr(VI) rule should prohibit the use of disposable particulate (filtering facepiece) respirators for protection against Cr(VI) exposures (Ex. 38–222). The AFL–CIO indicated that they believed the record for OSHA's APFs rulemaking (Docket H049C) supports the position that disposable particulate respirators do not provide the same level of protection as do elastomeric half mask respirators, and noted that OSHA does not allow the use of disposable respirators under the Agency's Asbestos standard.

As noted above, OSHA is in the process of establishing respirator selection provisions in the APFs rulemaking, which will modify the Agency's Respiratory Protection standard. It is the Agency's intent that substance-specific standards, such as this final Cr(VI) rule, should refer to provisions of the Respiratory Protection standard (including the generic APFs) where possible instead of establishing their own separate respirator selection requirements. The record for the Cr(VI) rulemaking contains no evidence to support separate respirator selection requirements for Cr(VI), such as a prohibition or restriction on the use of disposable particulate respirators. As no basis has been established for distinguishing Cr(VI) from other air contaminants, OSHA believes it is appropriate for employers required to provide respirators for protection against Cr(VI) to follow the provisions of the Respiratory Protection standard.

Pinnacle West Capital Corporation, parent company of Arizona Public Service Company, expressed the view that the respiratory protection requirements of the proposed rule could conflict with requirements of the Nuclear Regulatory Commission (NRC). Referring to operations in the firm's nuclear power plant, Pinnacle West stated:

> * * * the potential exists for respiratory requirements under this rule to be in conflict with Nuclear Regulatory Commission expectations for keeping radiation exposures ''As Low as Reasonably Achievable'' (ALARA). In some cases, the use of a respirator can increase the stay time in a radioactive area, thus increasing the time exposed to an external radiation dose. In such cases, ALARA practice requires that a respirator not be used (Ex. 39–40).

OSHA does not forsee a conflict between the final rule's requirements for use of respiratory protection and NRC requirements for minimizing radiation exposure. NRC and OSHA share jurisdiction over occupational safety and health at NRC-licensed facilities. With regard to respiratory protection, NRC standards apply when the hazard is radiation. However, the NRC standards explicitly recognize in Appendix A to 10 CFR Part 20 that respirator use must comply with Department of Labor requirements when chemical or other respiratory hazards exist instead of, or in addition to,

radioactive hazards. The responsibilities of each agency for worker protection are discussed in a memorandum of understanding (MOU) between NRC and OSHA (available at *http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=MOU&p_id=233*). As NRC's Regulatory Guide 8.15—Acceptable Programs for Respiratory Protection indicates, ''The MOU makes it clear that if an NRC licensee is using respiratory protection to protect workers against nonradiological hazards, the OSHA requirements apply'' (see *http://www.nrc.gov/reading-rm/doc-collections/reg-guides/occupational-health/active/8–15/#_1_6*). NRC thus recognizes that respiratory protection for chemical hazards may be required, and the provisions for respirator use in the final Cr(VI) rule do not conflict with NRC requirements.

Several commenters expressed the opinion that respiratory protection should be provided at no cost to employees (e.g., Exs. 38–219; 38–222; 39–50). OSHA's Respiratory Protection standard explicitly requires that respirators, as well as associated training and medical evaluations, be provided at no cost to employees (29 CFR 1910.134(c)(4)). The Agency believes that the Respiratory Protection standard adequately establishes this requirement; therefore, repetition of the requirement in this Cr(VI) standard is unnecessary.

(h) Protective Work Clothing and Equipment

Paragraph (h) of the final rule (paragraph (g) for construction and shipyards) sets forth requirements for the provision of protective clothing and equipment. The rule requires the employer to provide appropriate protective clothing and equipment at no cost to employees where a hazard is present or is likely to be present from skin or eye contact with Cr(VI). Ordinary street clothing and work uniforms or other accessories that do not serve to protect workers from Cr(VI) hazards are not considered protective clothing and equipment under this standard. The employer is also required to ensure that employees use the clothing and equipment provided, and follow a number of specified practices to ensure that protective clothing and equipment is used and handled in a manner that is protective of employee health.

These requirements are intended to prevent the adverse health effects associated with dermal exposure to Cr(VI) (described in Section V.D of this preamble) and the potential for inhalation of Cr(VI) that would otherwise be deposited on employees' street clothing. The requirements further serve to minimize exposures to Cr(VI) that may occur as a result of improper handling of contaminated protective clothing or equipment. The requirements of this paragraph are based upon widely accepted principles and conventional practices of industrial hygiene, and are similar to provisions for protective clothing and equipment in other OSHA health standards such as those for cadmium (29 CFR 1910.1027) and methylenedianiline (29 CFR 1910.1050). The requirements are also consistent with Section 6(b)(7) of the OSH Act which states that, where appropriate, standards shall prescribe suitable protective equipment to be used in connection with hazards.

A number of responses to the proposal expressed the view that requirements for protective clothing and equipment in a final Cr(VI) standard would duplicate OSHA's existing generic requirements for personal protective equipment (Tr. 1320–1321, 1389, Exs. 38–124; 38–127; 38–214; 38–217; 38–218, p. 23; 38–229; 38–233, p. 39; 39–20; 47–25). OSHA acknowledges that the Agency's generic personal protective equipment standards (29 CFR 1910.132 for general industry; 29 CFR 1915.152 for shipyards; 29 CFR 1926.95 for construction) currently have requirements for provision of protective clothing and equipment that are essentially equivalent to the requirement in this final rule. However, OSHA believes that the additional requirements contained in this paragraph which address practices associated with the use of protective clothing and equipment (*e.g.*, removal and storage, cleaning and replacement) are necessary and appropriate to provide adequate protection from the hazards related to Cr(VI) exposure. Because these additional provisions are closely associated with requirements for protective clothing and equipment, including the protective clothing and equipment requirements in this paragraph helps to make the additional provisions clear and understandable. Also, OSHA believes it is useful and appropriate for this rule to provide a consolidated set of requirements for protective clothing and equipment that apply to Cr(VI) exposures in the workplace, to the extent that this is reasonably possible and beneficial. This provides an administratively convenient source of information on these regulatory requirements, will enable employers to more easily and effectively identify and implement the measures necessary to protect employees, and will clarify that additional requirements for protective clothing and equipment in this standard are linked to the requirements currently in place.

One commenter maintained that OSHA had not shown that dermal exposures present a significant risk, or that the proposed controls (including provisions for change rooms and washing facilities included in a subsequent paragraph of this standard) are reasonably necessary and appropriate to address that risk (Ex. 38–218). OSHA disagrees. While there were insufficient data to perform a quantitative risk assessment on dermatitis, OSHA has established in the preamble discussion of health effects that Cr(VI) is capable of causing serious adverse effects to the skin and eyes, resulting in material impairment of the health of affected individuals. Further, as discussed in regard to significance of risk (Section VII of this preamble), without appropriate control measures the effect of dermal exposures could contribute to the significant risk presented by other workplace exposures to Cr(VI). Moreover, as discussed below, these provisions are not only reasonable and necessary but to a great extent reflect requirements in existing generic standards. This approach is consistent with other health standards where dermal hazards were present, where OSHA has included requirements for protective clothing and equipment (e.g., methylene chloride, formaldehyde).

One commenter suggested that the term ''protective clothing and equipment'' be changed to ''protective clothing and protective equipment'' (Ex. 39–65). OSHA has retained the term ''protective clothing and equipment'' as proposed because the Agency believes it is sufficiently clear, and is consistent with longstanding use of this term by the Agency. The term ''protective'' serves to modify both the word ''clothing'' and the word ''equipment''. When using the term ''protective clothing and equipment'' OSHA is referring only to clothing and equipment that serves to protect workers from Cr(VI) hazards. Other clothing, work uniforms, tools, or other apparatus that do not serve to protect workers from Cr(VI) hazards are not considered protective clothing and equipment under this rule.

The final rule requires the employer to provide appropriate protective clothing and equipment where a hazard is present or is likely to be present from skin or eye contact with Cr(VI), but does not specify criteria to be used for determining when a hazard is present or is likely to be present. To make this

determination, the employer must evaluate the workplace. This performance-oriented requirement is consistent with the current requirements of the Agency's standards for use of personal protective equipment in general industry and shipyards, which require the employer to assess the workplace to determine if hazards (including hazards associated with eye and skin contact with chemicals) are present, or are likely to be present (see, e.g., 29 CFR 1910.132(d)(1)).

To determine whether there is a hazard (or likely to be a hazard) from skin or eye contact with Cr(VI) in a particular workplace, the employer should ''exercise common sense and appropriate expertise'' in assessing the hazards. (See non-mandatory appendices providing guidance on hazard assessment in 29 CFR 1910 Subpart I Appendix B; 29 CFR 1915 Subpart I Appendix A). The recommended approach involves a walk-through survey to identify sources of hazards to workers. Review of injury/accident data is also recommended. Information obtained during this process provides a basis for the evaluation of potential hazards.

Several commenters supported this approach to assessing Cr(VI) hazards to the skin and eyes (Exs. 38–214; 38–220; 38–245–1; 39–19; 39–20; 39–40; 39–47; 39–48; 39–52). Electric Boat Corporation, for example, stated:

> Electric Boat believes the approach is sound in that the employer should perform a hazard assessment, like it does for many other potential hazards in the workplace, and decide if protective clothing and equipment is necessary to protect from adverse health effects associated with the skin and eyes (Ex. 38–214).

The U.S. Navy also supported this method, indicating that ''It is appropriate to expect an employer to exercise common sense and appropriate expertise to determine if a hazard is present or likely to be present'' (Ex. 38–220).

On the other hand, other commenters believed that such a requirement was vague and subjective, and did not adequately indicate when personal protective clothing was necessary (Tr. 626, Exs. 38–218; 38–233). One commenter complained that the proposal provided no objective or quantitative basis for determining when a hazard exists, and requirements for protective clothing and equipment could be triggered by exposure to a few particles of dust (Ex. 38–233). Another commenter requested that OSHA describe the conditions it believes constitute skin and eye hazards, suggesting the inclusion of descriptive phrases such as ''a light dusting on the skin and work surfaces'' (Ex. 39–51).

One commenter suggested that protective clothing and equipment should be required for employees exposed above the PEL (Ex. 39–71). Other commenters argued that a blanket requirement that protective clothing and equipment be provided for any exposures above the PEL was not warranted (Exs. 38–214; 38–220; 38–245–1; 39–19; 39–20; 39–40; 39–47; 39–48; 39–51; 39–52). Still other commenters considered that a threshold concentration for the Cr(VI) content of mixtures should be established, below which protective clothing would not be required (Exs. 39–56; 38–254; 39–60). Establishing a threshold concentration, it was argued, would help define where and when protective clothing would be beneficial (Exs. 39–56; 38–254).

OSHA has not established quantitative thresholds for exposure to Cr(VI) that would trigger the requirement for provision of protective clothing and equipment. Cr(VI) is present in a large number of different chemical compounds, each with differing physical and chemical properties. These compounds themselves can be contained in a wide variety of mixtures in various concentrations. The characteristics of these compounds and mixtures can have substantial influence on the ability of Cr(VI) to elicit adverse health effects to the skin and eyes. Therefore, it is not possible to specify appropriate thresholds for dermal or ocular effects from Cr(VI) containing compounds. Exposures must be evaluated on a case-by-case basis, taking into account factors such as the acidity or alkalinity of the compound or mixture as well as the magnitude and duration of exposure. Clearly, the employer, with knowledge of the workplace, work practices, and Cr(VI) compounds used, is in the best position to evaluate whether personal protective clothing or equipment are necessary and appropriate for his or her workplace exposures.

OSHA is not aware of any evidence that would allow establishment of a threshold concentration of Cr(VI) below which adverse skin or eye effects would not occur. Likewise, the Agency does not have sufficient evidence to demonstrate that a skin or eye hazard will necessarily occur when exposures exceed the PEL. Therefore, OSHA believes that a performance-oriented requirement for provision of protective clothing and equipment is most appropriate for exposures to Cr(VI) covered by this rule.

As part of this performance-oriented requirement, once a determination has been made that a hazard is present or likely to be present in the workplace, the employer must determine what clothing and equipment are necessary to protect employees. The employer has flexibility to select the clothing and equipment most suitable for his or her particular workplace. The type of protective clothing and equipment needed to protect employees from Cr(VI) hazards will depend on the potential for exposure and the conditions of use in the workplace. Examples of protective clothing and equipment that may be necessary include, but are not limited to gloves, aprons, coveralls, foot coverings, and goggles.

The employer must exercise reasonable judgment in selecting the appropriate clothing and equipment to protect employees from Cr(VI) hazards. In some instances gloves may be all that is necessary to prevent hazardous Cr(VI) exposure. In other situations, such as when a worker is performing abrasive blasting on a structure covered with Cr(VI)-containing paint, more extensive measures such as coveralls, head coverings, and goggles may be needed. Where exposures to Cr(VI) are minute, such as in typical welding operations, no protective clothing or equipment may be necessary. The chemical and physical properties of the compound or mixture may also influence the choice of protective clothing and equipment. For example, a chrome plater may require an apron, gloves, and goggles to protect against possible splashes of chromic acid that could result in both Cr(VI) exposure and chemical burns. Other factors such as size, dexterity, and cut and tear resistance should be considered in the selection process as well (Ex. 40–10–2).

This performance approach is consistent with OSHA's current standards for provision of personal protective equipment and with methods currently utilized to select appropriate protective clothing and equipment. For example, several parties testified that they already make qualitative determinations or exercise professional judgment in selecting protective clothing and equipment in their workplaces (Tr. 924–925, 1259–1260, 1414–1416).

The final rule requires employers to provide clothing and equipment necessary to protect against Cr(VI) hazards at no cost to employees. Some commenters agreed with this approach (Tr. 1107–1108, 1438–1441, Exs. 39–50; 38–199–1; 38–219–1; 38–222; 39–71; 40–10–2; 47–26). Others disagreed, arguing either that the Agency should not include a provision requiring employer payment or should defer to

the outcome of OSHA's ongoing rulemaking addressing payment for personal protective equipment in all workplaces (64 FR 15401 (3/31/99))(e.g., Exs. 38–214, p. 20; 38–244, p.11–12; 39–19; 39–47; 39–60).

OSHA has included a requirement that the employer pay for protective clothing and equipment in the final rule because the Agency believes that the employer is generally in the best position to select and obtain the proper type of protective clothing and equipment for protection from Cr(VI) hazards and to retain control over them. The protective clothing and equipment at issue is designed and intended to protect against Cr(VI) hazards at work. Because of the serious health hazards associated with Cr(VI) exposure, employees may not remove contaminated clothing and equipment from the worksite (except for the employees whose job it is to launder, clean, maintain, or dispose of such clothing or equipment). The employer is responsible for cleaning or disposing of the protective clothing and equipment and retains complete control over it. OSHA believes that by providing and owning this protective clothing and equipment, the employer will maintain control over the inventory of these items, conduct periodic inspections, and, when necessary, repair or replace it to maintain its effectiveness.

Employer payment for PPE has been a continuing issue for OSHA. OSHA notes that in the generic rulemaking, the Agency has raised for public comment, among other issues, whether employers should not be required to pay for PPE that is personal in nature and used off the job, or that is a ''tool of the trade'' typically supplied by the employee and carried from job site to job site or employer to employer (65 FR 15401, 3/31/1999; 69 FR 41221, 7/8/2004). OSHA has not made a final determination on any of the issues raised in the generic rulemaking. The Agency notes that the protective clothing and equipment involved here do not fall into either of these categories. Employees are not allowed even to take the contaminated PPE home.

The determination that the protective clothing and equipment required by the final standard is to be provided at no cost to employees is specific to this Cr(VI) rule. It reflects the particular considerations presented by workplace exposures to Cr(VI). The determination is made without prejudice to the ongoing generic rulemaking addressing payment for personal protective equipment.

The employer must ensure that protective clothing and equipment contaminated with Cr(VI) is removed at the completion of the work shift or at the completion of tasks involving Cr(VI) exposure, whichever comes first. For example, if employees perform work tasks involving Cr(VI) exposure for the first two hours of a work shift, and then perform tasks that do not involve Cr(VI) exposure, they must remove their protective clothing after the exposure period (in this case, the first two hours of the shift). If, however, employees are performing tasks involving Cr(VI) exposure intermittently throughout the day, or if employees are exposed to other contaminants where protective clothing and equipment are needed, this provision does not prevent them from wearing the clothing and equipment until the completion of their shift. This provision is intended to limit the duration of employees' exposure, and to prevent contamination from Cr(VI) residues on protective clothing reaching areas of the workplace where exposures would not otherwise occur.

To limit exposures outside the workplace, the final rule requires the employer to ensure that Cr(VI)-contaminated protective clothing and equipment is removed from the workplace only by those employees whose job it is to launder, clean, maintain, or dispose of such clothing or equipment. This provision is intended to ensure that clothing contaminated with Cr(VI) is not carried to employees' cars and homes, increasing the worker's exposure as well as exposing other individuals to Cr(VI) hazards. Furthermore, the standard requires that clothing and equipment that is to be laundered, cleaned, maintained, or disposed of be placed in closed, impermeable containers to minimize contamination of the workplace and ensure employees who later handle these items are protected. Those cleaning the Cr(VI)-contaminated clothing and equipment will be further protected by warning labels placed on containers to inform them of the potential hazards of exposure to Cr(VI).

The proposed provision addressing labels on containers of contaminated clothing and equipment has been modified to reference the requirements of OSHA's Hazard Communication standard (HCS)(29 CFR 1910.1200). Rather than requiring the specific language proposed, the final rule indicates that bags or containers are to be labeled in accordance with the requirements of the HCS. As indicated in the discussion of paragraph (l) of this standard below, OSHA believes that it is appropriate maintain the labeling requirement but to allow employers to retain the flexibility provided by the HCS with regard to the language used on labels. The reference to the HCS is included to remind employers of their obligation under that standard to label containers of hazardous chemicals such as Cr(VI).

Several commenters objected to requirements for storage and transport of contaminated items in impermeable bags or other impermeable containers, as well as the associated labeling requirements. The Textile Rental Services Association (TRSA) maintained that such requirements were not justified, and that no evidence indicated that laundry workers could be exposed to levels of Cr(VI) that would be cause for concern (Tr. 1566–1572, Ex. 38–252). TRSA claimed that the short processing time and minimal handling of garments limits the potential exposure of laundry workers, and that reduction of Cr(VI) to Cr(III) over time further limits potential exposure. Moreover, TRSA argued that labels would cause unwarranted concerns and lead to unnecessary testing. The Color Pigments Manufacturers Association contended that the labeling required in the proposal would lead to commercial laundries refusing to accept items contaminated with Cr(VI), or accepting them only at significantly increased cost (Ex. 38–205). Atlantic Marine also believed that laundries would refuse to accept contaminated clothing (Tr. 926). It was also alleged that contractors who repair and maintain equipment might refuse to accept Cr(VI)-contaminated items (Ex. 38–233, p.39).

OSHA believes that the requirements of the final rule for use of impermeable bags or other impermeable containers for the storage and transport of Cr(VI)-contaminated items are clearly justified, as are the requirements for labeling containers in accordance with the HCS. As discussed previously, this rule requires protective clothing and equipment when the employer has determined that a skin or eye hazard is present or is likely to be present from exposure to Cr(VI). Thus, protective clothing and equipment are only used under this rule in situations where exposure to Cr(VI) is at least likely to cause a hazardous exposure. The contamination of protective clothing and equipment that results from such exposures poses a threat to the health of workers who handle such clothing and equipment, just as it does to the workers who use the clothing and equipment. Measures to minimize the likelihood of hazardous exposures to workers who handle these items, such as requirements for the use of impermeable

containers, are therefore reasonably necessary and appropriate.

Moreover, OSHA believes it is reasonable to use labels to inform employers and employees who handle hazardous substances such as Cr(VI) of the identity of these substances, as well as to provide appropriate hazard warnings. This provision simply directs the employer's attention to longstanding labeling requirements of the HCS. When employers and employees are aware of the presence of Cr(VI) and its potential hazards, appropriate measures can be implemented to protect employees. The alternative of leaving those who handle these items in ignorance of the presence of Cr(VI) discounts the very real possibility that adverse health effects may occur if proper precautions are not taken. Other OSHA health standards, such as those for lead (29 CFR 1910.1025), asbestos (29 CFR 1910.1001), cadmium (29 CFR 1910.1027), and bloodborne pathogens (29 CFR 1910.1030) include similar labeling requirements.

The final rule requires that the employer clean, launder, repair and replace protective clothing as needed to ensure that the effectiveness of the clothing and equipment is maintained. This provision is necessary to ensure that clothing and equipment continue to serve their intended purpose of protecting workers. This also prevents unnecessary exposures outside the workplace from employees taking contaminated clothing and equipment home for cleaning.

In keeping with the performance-orientation of the final rule, OSHA does not specify how often clothing and equipment must be cleaned, repaired or replaced. The Agency believes that appropriate time intervals may vary widely based on the types of clothing and equipment used, Cr(VI) exposures, and other circumstances in the workplace. The obligation of the employer, as always, is to keep the clothing and equipment in the condition necessary to perform its protective functions.

Removal of Cr(VI) from protective clothing and equipment by blowing, shaking, or any other means which disperses Cr(VI) in the air is prohibited. Such actions would result in increased risk to employees from unnecessary exposure to airborne Cr(VI) as well as possible dermal contact.

The standard requires that the employer inform any person who launders or cleans protective clothing or equipment contaminated with Cr(VI) of the potentially harmful effects of exposure to Cr(VI), and the need to launder or clean contaminated clothing and equipment in a manner that effectively prevents skin or eye contact with Cr(VI) or the release of airborne Cr(VI) in excess of the PEL. As with the provision reminding employers of their obligation for labeling under the HCS, this requirement is intended to ensure that persons who clean or launder Cr(VI)-contaminated items are aware of the associated hazards so they can take appropriate protective measures. Where laundry or cleaning services are performed by third parties, the information transmitted need not be extensive to accomplish this goal. Appropriate hazard warnings, as required on labels by the HCS, will be sufficient to indicate the potentially harmful effects of exposure to Cr(VI). In addition, the language used in this provision (i.e., the clothing and equipment should be laundered or cleaned in a manner that minimizes skin or eye contact with Cr(VI) and effectively prevents the release of airborne Cr(VI) in excess of the PEL) could be put on a label, thereby fulfilling the requirements of the provision. The employer is not expected to specify particular work practices that third parties must follow to accomplish these objectives.

(i) Hygiene Areas and Practices

Paragraph (i) of the final rule (paragraph (h) for construction and shipyards) requires employers to provide hygiene facilities and to assure employee compliance with basic hygiene practices that serve to minimize exposure to Cr(VI). The rule includes requirements for change rooms and washing facilities, ensuring that Cr(VI) exposure in eating and drinking areas is minimized, and a prohibition on certain practices that may contribute to Cr(VI) exposure. OSHA believes that strict compliance with these provisions will substantially reduce employee exposure to Cr(VI).

Several of these provisions are presently required under other OSHA standards. For example, OSHA's current standard addressing sanitation in general industry (29 CFR 1910.141) requires that whenever employees are required by a particular standard to wear protective clothing because of the possibility of contamination with toxic materials, change rooms equipped with storage facilities for street clothes and separate storage facilities for protective clothing shall be provided.

The sanitation standard also includes provisions for washing facilities, and prohibits storage or consumption of food or beverages in any area exposed to a toxic material. Similar provisions are in place for construction (29 CFR 1926.51). The hygiene provisions of this paragraph are intended to augment the requirements established under these other standards with additional provisions applicable specifically to Cr(VI) exposure.

In workplaces where employees must change their clothes to use protective clothing and equipment, OSHA believes it is essential to have change rooms with separate storage facilities for street and work clothing to prevent contamination of employees' street clothes. This provision will minimize employee exposure to Cr(VI) after the work shift ends, because it reduces the duration of time they may be exposed to contaminated work clothes. Potential exposure resulting from contamination of the homes or cars of employees is also avoided. Change rooms also provide employees with privacy while changing their clothes. OSHA intends the requirement for change rooms to apply to all covered workplaces where employees must change their clothes (i.e., take off their street clothes) to use protective clothing and equipment. In those situations where removal of street clothes is not necessary (e.g., in a workplace where only gloves are used as protective clothing), change rooms are not required.

This provision reiterates the current requirements for change rooms found in 29 CFR 1910.141(e) (for general industry and shipyards) and 29 CFR 1926.51(i) (for construction). Several commenters appeared to interpret this provision to indicate a new obligation for employers to provide change rooms that were not previously required (Tr. 557–558, 923–924, 1702, Exs. 38–205; 38–218; 38–233). The Agency's intent in including this provision in the final rule is to provide a consolidated reference of certain requirements for employers, rather than to establish new and different requirements for change rooms. Change rooms that meet the requirements of 29 CFR 1910.141(e) or 29 CFR 1926.51(i) fulfill the change room requirements of this final Cr(VI) rule.

Paragraph (i)(3) (paragraph (h)(3) of the construction and shipyard standards) contains requirements for washing facilities. The employer must provide readily accessible washing facilities capable of removing Cr(VI) from the skin and ensure that affected employees use these facilities when necessary. Also, the employer must ensure that employees who have skin contact with Cr(VI) wash their hands and faces at the end of the work shift and prior to eating, drinking, smoking, chewing tobacco or gum, applying cosmetics, or using the toilet. The value

and importance of washing facilities was recognized and supported by a number of commenters (Tr. 1457, Exs. 38–244; 39–40; 39–41; 40–10–2; 47–26).

Washing reduces exposure by diminishing the period of time that Cr(VI) is in contact with the skin. Although use of appropriate protective clothing and equipment is intended to prevent hazardous skin and eye contact with Cr(VI) from occurring, OSHA realizes that in some circumstances these exposures will occur. For example, a worker who wears gloves to protect against hand contact with Cr(VI) may inadvertently touch his face with the contaminated glove during the course of the day. The intent of this provision is to have employees wash in order to mitigate the adverse effects when skin and eye contact does occur. At a minimum, employees are to wash their hands and faces at the end of the shift because washing is needed to remove any residual Cr(VI) contamination. Likewise, washing prior to eating, drinking, smoking, chewing tobacco or gum, applying cosmetics or using the toilet also protects against further Cr(VI) exposure.

The requirements of the final rule for washing facilities are consistent with existing requirements for washing facilities found in 29 CFR 1910.141(d) (for general industry and shipyards) and 29 CFR 1926.51(f) (for construction). One commenter believed the requirement for washing facilities to be ''vague and subject to interpretation'' (Ex. 38–233). OSHA disagrees. The existing requirements contain sufficient detail to guide any employer in setting up his or her washing facilities. Washing facilities that meet the requirements of 29 CFR 1910.141(d) or 29 CFR 1926.51(f) are sufficient to meet these requirements in this final Cr(VI) rule. In addition, both washing facility requirements address the traditional stationary workplace and worksites that are temporary or serviced by mobile crews. Because these requirements already apply to workplaces covered by the Cr(VI) rule, interpretation of a requirement for washing facilities should not be an issue; the facilities should already be provided. Because several comments on the proposal indicated apparent non-compliance with existing requirements (e.g., Tr. 1241–1242, 1453–1454), the final rule reiterates these requirements for washing facilities in order to clarify the issue and to educate employers and provide a comprehensive reference of requirements. In addition, the final Cr(VI) rule supplements the general requirements for provision of washing facilities with relatively simple, common-sense requirements that the facilities be used when appropriate to minimize Cr(VI) exposures.

OSHA has not included a requirement for shower facilities in the final rule. In the preamble to the proposed rule, the Agency requested comment on the issue of whether or not provisions for showers should be included in a final Cr(VI) standard. Some comments supported shower requirements (Exs. 39–71; 40–10–2). NIOSH, for example, indicated a preference for showers after anything more than limited, minor contact with Cr(VI) (Ex. 40–10–2). Other commenters did not believe showers were necessary (Exs. 38–267; 39–52; 39–19; 39–48; 39–40; 39–47; 38–235; 38–244; 38–220; 39–60; 38–214; 38–228; 39–20). OSHA agrees with the latter group that a requirement for showers is not reasonably necessary in the final Cr(VI) rule.

OSHA expects that hazardous skin and eye exposures will occur infrequently with the proper use of appropriate protective clothing and equipment. In these situations, the Agency believes that washing facilities will generally be sufficient to allow employees to remove any Cr(VI) contamination that may occur. Showers may in some situations be an appropriate industrial hygiene control measure. Wayne Pigment Corporation, for example, indicated that showers are currently used in its facility (Ex. 38–204). However, OSHA does not believe that showers are necessary in all circumstances, and has therefore not included a requirement for showers in the final rule.

To minimize the possibility of food contamination and to reduce the likelihood of additional exposure to Cr(VI) through inhalation or ingestion, OSHA believes it is imperative that employees have a clean place to eat. Where the employer chooses to allow employees to eat at the worksite, the final rule requires the employer to ensure that eating and drinking areas and surfaces are maintained as free as practicable of Cr(VI). Employers also are required to assure that employees do not enter eating or drinking areas wearing protective clothing, unless the protective clothing is properly cleaned beforehand. This is to further minimize the possibility of contamination and reduce the likelihood of additional Cr(VI) exposure from contaminated food or beverages. Employers are given discretion to choose any method for removing surface Cr(VI) from clothing and equipment that does not disperse the dust into the air or onto the employee's body. For example, if a worker is wearing coveralls for protection against Cr(VI) exposure, thorough HEPA vacuuming of the coveralls could be performed prior to entry into a lunchroom.

The employer is not required to provide eating and drinking facilities to employees. Employers may allow employees to consume food or beverages on or off the worksite. However, where the employer chooses to allow employees to consume food or beverages at a worksite where Cr(VI) is present, OSHA intends for the employees to be protected from Cr(VI) exposures in these areas. To this end OSHA is requiring the employer to ensure that eating and drinking areas are as free as practicable of Cr(VI). These provisions are consistent with the current requirements addressing consumption of food and beverages in the workplace found at 29 CFR 1910.141(g) and (h) (for general industry and shipyards) and 29 CFR 1926.51(g) (for construction).

Paragraph (i)(5) (paragraph (h)(5) in the construction and shipyard standards) specifies certain activities that are prohibited. These activities include eating, drinking, smoking, chewing tobacco or gum, or applying cosmetics in regulated areas, or in areas where skin or eye contact with Cr(VI) occurs. Products associated with these activities, such as food and beverages, cannot be carried or stored in these areas. Because the construction and shipyard standards do not include requirements for regulated areas, reference to regulated areas is omitted in the regulatory text for these standards. This provision in the final standard is necessary and appropriate to protect employees from additional sources of exposure to Cr(VI) not necessary to job performance.

(j) Housekeeping

The final standard includes housekeeping provisions that require general industry employers to maintain surfaces as free as practicable of Cr(VI), promptly clean Cr(VI) spills and leaks, use appropriate cleaning methods, and properly dispose of Cr(VI)-contaminated waste. These provisions are important because they minimize additional sources of exposure that engineering controls generally are not designed to address. Good housekeeping is a cost effective way to control employee exposures by removing accumulated Cr(VI) that can become entrained by physical disturbances or air currents and carried into an employee's breathing zone, thereby increasing employee exposure. Contact with contaminated surfaces may also result in dermal exposure to Cr(VI). The final

provisions are generally consistent with housekeeping requirements for general industry in other OSHA standards, such as those for cadmium (29 CFR 1910.1027) and lead (29 CFR 1910.1025).

Cr(VI) deposited on ledges, equipment, floors, and other surfaces should be removed as soon as practicable, to prevent it from becoming airborne and to minimize the likelihood that skin contact will occur. When Cr(VI) is released into the workplace as a result of a leak or spill, the standard requires the employer to promptly clean up the spill. Measures for clean-up of liquids should provide for the rapid containment of the leak or spill to minimize potential exposures. Clean-up procedures for dusts must not disperse the dust into the workplace air. These work practices aid in minimizing the number of employees exposed, as well as the extent of any potential Cr(VI) exposure.

The standard requires that, where possible, surfaces contaminated with Cr(VI) be cleaned by vacuuming or other methods that minimize the likelihood of Cr(VI) exposure. OSHA believes vacuuming to be a reliable method of cleaning surfaces on which dust accumulates, but other effective methods may be used. These methods may include wet methods, such as wet sweeping or use of wet scrubbers. Dry shoveling, dry sweeping, and dry brushing are permitted only if the employer can show that vacuuming or other methods that are usually as efficient as vacuuming have been tried and found not to be effective under the particular circumstances in the workplace. The standard also requires that vacuum cleaners be equipped with HEPA filters to prevent the dispersal of Cr(VI) into the workplace.

Paragraph (j)(2)(ii) of the final rule differs somewhat from the proposal in that it differentiates between wet and dry cleaning methods, indicating that *dry* shoveling, sweeping, and brushing can be used only where the employer shows that HEPA-vacuuming or other methods that minimize the likelihood of exposure to Cr(VI) had been tried and found not to be effective. The North American Insulation Manufacturers Association (NAIMA) requested that OSHA recognize wet sweeping as an acceptable alternative to HEPA-filtered vacuuming (Exs. 38–228–1, p. 21; 47–30, p. 40). The Color Pigments Manufacturers Association (CPMA) also argued that wet cleaning methods may be more efficient and produce lower exposures than dry vacuuming (Ex. 38–205, p. 60). OSHA agrees that wet methods can serve to minimize exposure to Cr(VI), and has modified the language of the provision to allow wet methods to be permitted.

The use of compressed air for cleaning is only allowed when used in conjunction with a ventilation system designed to capture the dust cloud created by the compressed air, or when no alternative cleaning method is feasible. This provision is intended to prevent the dispersal of Cr(VI) into the workplace. The United Auto Workers, International Brotherhood of Teamsters and the Building Construction Trades Department, AFL–CIO supported restrictions on the use of compressed air as a means of minimizing employee exposures to Cr(VI)(Exs. 39–73–2, p. 20; 38–199–1, pp. 41, 46; 38–219–1, p.24).

An allowance for use of compressed air when no alternative method is feasible was not included in the proposal. This provision was added in response to arguments by NAIMA that, in some circumstances, no other cleaning method was available. Specifically, NAIMA indicated that during furnace rebuilds, tight spaces and hard to reach crevices can only be effectively cleaned with compressed air (Ex. 38–228–1, p. 21). In an active furnace area, it was contended that extreme heat limits use of methods such as vacuuming (Tr. 1207, Ex. 47–30–1, p. 40). Other examples were also cited (Ex. 47–30–1, p. 40).

Although OSHA agrees that in certain circumstances no alternative to use of compressed air may be feasible, the Agency anticipates that these circumstances will be extremely limited. The vast majority of operations are expected to use preferred methods, such as HEPA-vacuuming, to remove Cr(VI) contamination from workplace surfaces. Where compressed air is used without a ventilation system designed to capture the dust cloud created, the employer must be able to demonstrate that no alternative cleaning method is feasible.

Cleaning equipment is to be handled in a manner that minimizes the reentry of Cr(VI) into the workplace. For example, cleaning and maintenance of HEPA-filtered vacuum equipment must be done carefully to avoid exposures to Cr(VI). Filters need to be changed as appropriate and the contents of bags disposed of properly to avoid unnecessary Cr(VI) exposures.

The final rule requires that items contaminated with Cr(VI) and consigned for disposal be collected and disposed of in sealed impermeable bags or other closed impermeable containers. This provision is intended to prevent dispersal of Cr(VI) into the air or dermal contact with Cr(VI)-contaminated items during the disposal process.

Some commenters expressed concern about the proposed provision, indicating that sealed, impermeable bags are impractical for large, heavy items such as refractory brick (Tr. 1215–1216, Exs. 38–228–1, p. 22; 47–30, pp. 39–40; 47–32). OSHA intends this provision to be performance-oriented, to allow use of any container so long as that container prevents release of or contact with Cr(VI). Sealed barrels could be used to serve this purpose. Other methods, such as palletizing items and wrapping the pallet in plastic so as to create an impermeable barrier between workers and the Cr(VI)-contaminated waste, scrap or debris would also be acceptable.

OSHA proposed that bags or containers of waste, scrap, debris, and other materials contaminated with Cr(VI) that are consigned for disposal be labeled, and included specific language in paragraph (l) of the proposed standard to be included on labels. The purpose of this provision was to inform individuals who handle these items of the potential hazards involved. OSHA has retained this requirement in the final rule, but has modified the provision to require labeling in accordance with the Agency's Hazard Communication Standard (HCS)(29 CFR 1910.1200). As discussed with regard to paragraph (l), OSHA believes that it is critically important that employees be made aware of the hazards associated with potential Cr(VI) exposures. By alerting employers and employees who are involved in disposal to the potential hazards of Cr(VI) exposure, they will be better able to implement protective measures. However, the Agency has determined that the information required on labels by the HCS, including the chemical identity and appropriate hazard warnings, is sufficient to make employees aware of potential Cr(VI) hazards. The specific language for labels included in paragraph (l) of the proposal, and the reference to that language in this provision, have therefore been deleted from the final rule. Reference to the HCS has been added to ensure that employers are aware of their obligations under the HCS for labeling of containers containing Cr(VI) contaminated waste.

No housekeeping requirements are included in the final rule for construction or shipyards. OSHA has determined that the housekeeping provisions in the general industry standard are not appropriate for these sectors because of the difficulties of complying with such requirements in

construction and shipyard environments.

OSHA's decision not to include housekeeping requirements in these industries was supported by a number of commenters (Exs. 38–214, p. 21; 38–244, p. 13; 39–19; 39–20, p. 23; 39–60; 40–1–2, p. 33). The AFL–CIO, on the other hand, argued that housekeeping requirements should apply to construction and shipyard workplaces as well as those in general industry (Ex. 47–28, p. 7). The AFL–CIO maintained that housekeeping requirements are important measures for protecting worker health, and noted that housekeeping requirements have been included in previous OSHA health standards covering construction and shipyards (Ex. 47–28, p. 7). However in the previous rulemakings that covered substantial numbers of construction and shipyard workers, such as lead in construction (29 CFR 1926.62) and asbestos in construction (29 CFR 1926.1101) and shipyards (29 CFR 1915.1001), OSHA did not find housekeeping provisions to present the difficulties anticipated with regard to Cr(VI) that are discussed below. OSHA believes these standards address operations that are generally more amenable to housekeeping measures. For example, the standards for asbestos in construction and shipyards include requirements for the use of dropcloths and barriers to prevent the migration of asbestos from many areas where asbestos removal operations are performed. These requirements simplify compliance with housekeeping provisions by confining asbestos contamination in many cases to discrete and easily identified areas. Similarly, lead operations in construction are often enclosed to prevent environmental contamination, easing the burden of complying with housekeeping requirements.

In previous rulemakings, the issue of excluding these industries was not specifically raised for comment; here three pertinent questions were included in the proposal and a record developed. In addition to two general questions on modifications to the standards that would better account for the workplace conditions in construction and shipyards while still providing appropriate protection (Questions 31 and 32), the Agency specifically requested information on its preliminary determination that housekeeping requirements would likely be difficult to implement in construction and shipyard environments (69 FR 59310, 59311). OSHA received a number of comments in response and, although there was not general agreement among them, sufficient information was presented to allow OSHA to make its conclusions.

OSHA has concluded that there are compelling reasons to exclude specific requirements for housekeeping for construction and shipyard worksites in this final rule. In construction and shipyard settings, operations involving Cr(VI) exposure are often of short duration, commonly performed outdoors under variable environmental conditions, and in locations that vary from day to day or even hour to hour within a shift. Under these circumstances, it is often difficult to distinguish Cr(VI)-contaminated dusts from other dirt and dusts commonly found at the worksite (Ex. 39–19). Welding operations present particular problems in construction and shipyards. Welding is the predominant source of Cr(VI) exposures in these sectors (*see* section VIII). Due to the small particle size of the fumes generated, welding operations may result in the deposition of Cr(VI) over wide areas when the welding is performed outdoors. In addition, the deposition may be highly dependent on environmental conditions (e.g., wind direction and speed).

These deposited fumes may not be visible to the naked eye, and they can become intermingled with other dusts commonly found on construction and shipyard worksites so that they are unrecognizable. Therefore, it is unreasonable to believe that employers will be able to consistently and accurately identify Cr(VI)-contamination at construction and shipyard worksites, or distinguish Cr(VI)-contaminated dusts from soil or other dusts found at the worksite. For example, if a pipe fitter welds a section of stainless steel pipe outdoors over open ground, it is unclear how large an area, if any, would need to be cleaned. In addition, as noted above, construction and shipyard operations are often of relatively short duration, and work is often performed at non-fixed workstations or worksites. These changes in workplace conditions add to the difficulty of complying with the specific housekeeping requirements set forth in the final rule for general industry.

The housekeeping measures that apply to general industry are also impractical on many construction and shipyard worksites. HEPA-filtered vacuums would likely gather disproportionately large volumes of non-Cr(IV) dust and debris relative to the volume of Cr(VI) captured, particularly on open ground. This would result in the continued need to unclog or replace filters designed for the collection of fine particulates. Wet or dry sweeping would be unlikely to produce better results. Disposal of waste, scrap, and debris would be subject to similar difficulties. For these reasons, OSHA has concluded that housekeeping requirements are highly impracticable for control of Cr(VI) exposures in construction and shipyard workplaces and therefore has not included housekeeping requirements for these industry sectors.

Several commenters expressed the view that many activities in general industry workplaces are similar to those in construction and shipyard workplaces, and therefore these activities, or general industry as a whole, should not be subject to housekeeping requirements either (Exs. 38–203; 39–47; 39–51, p. 15; 39–56; 40–1–2). Some argued that housekeeping requirements are inappropriate for welding and cutting operations (Exs. 38–203; 38–254; 39–47; 39–48; 39–56, 40–1–2). Some commenters claimed that regardless of whether welding is performed in construction or general industry, the quantity of settled fume is insignificant and difficult to identify for housekeeping purposes (Ex. 38–203; 38–254; 39–47; 39–48; 39–56, 40–1–2). Others claimed that steel mills, rolling mills, and forging operations generate substantial amounts of dusts that do not contain Cr(VI) (Ex. 38–233, p. 40). These employers argued that they could not comply with housekeeping requirements because they would be unable to identify Cr(VI)-contaminated dusts or keep the facility entirely dust-free (Ex. 38–233, p. 41). Edison Electric Institute (EEI) alleged that coal-burning power plants would face similar difficulties with fly ash (Tr. 436, Ex. 40–1–2, pp. 15–16). ORC Worldwide noted that many general industry work operations take place in dusty outdoor environments (Ex. 39–51, p. 15).

OSHA has concluded that the housekeeping requirements of the final rule for general industry are reasonable and appropriate. A large proportion of the workers covered by the general industry standard are exposed in operations other than welding. In these operations, Cr(VI) contamination is generally more easily identified, and housekeeping measures are more practical and effective. Moreover, in general industry, welding operations are usually performed in controlled environments where Cr(VI) contamination can be identified and cleaned up consistent with the requirements of the housekeeping provisions.

The Agency recognizes that in some cases general industry work operations and work environments may be

comparable to those found in construction and shipyards. However, certain work conditions and factors commonly present in construction and shipyard environments differ from those typically found in general industry. Construction and shipyard tasks are often relatively short in duration; operations are commonly performed outdoors, sometimes under adverse environmental conditions (*e.g.*, wind, rain); and work is often performed at non-fixed workstations or work sites (Exs. 39–19; 39–60; 38–214). Collectively, these factors make compliance with the specific housekeeping requirements of the final rule impractical for typical construction and shipyard operations. OSHA has thus made a finding, based on the rulemaking record, that for the majority of construction and shipyard settings, compliance with housekeeping provisions is impracticable. In contrast, OSHA believes that compliance with these housekeeping requirements usually does not involve the same practical difficulties in general industry operations. For the reasons discussed above, OSHA has determined that it is appropriate to include housekeeping requirements in the final rule for general industry. Moreover, paragraph (j)(1)(i) of the final rule only requires surfaces to be maintained free of the accumulation of Cr(VI) ''as practicable''. Thus, the final rule gives sufficient flexibility for the few general industry situations where the housekeeping provisions are particularly difficult to implement.

Also, construction and shipyard employers will still need to comply with the general housekeeping requirements found at 29 CFR 1926.25 (for construction) for 29 CFR 1915.91 (for shipyards). These standards include general provision for keeping workplaces clear of debris, but do not contain the more specific requirements found in the Cr(VI) standard for general industry (*e.g.*, the obligation to use preferred cleaning methods).

EEI also cited the Administrative Law Judge (ALJ) decision in *Cincinnati Gas & Elec. Co. Beckjord Station,* 2002 CCH OSHD P32,622 (No. 01–711)(ALJ), *aff'd on other grounds,* 21 BNA OSHC 1057 (2005), that ''the general industry housekeeping standard, 29 CFR 1910.22(a), does not apply to coal-fired power plants' (Ex. 39–52, p. 13). This is not correct. The ALJ did not hold that the general housekeeping standard, 29 CFR 1910.22(a), categorically does not apply to coal-fired power plants; rather, the ALJ found that the Secretary could not cite an employer under the housekeeping standard at 1910.22 *for an explosion hazard* caused by the accumulation of combustible coal dust because this type of explosion hazard is specifically addressed by 1910.269(v)(11) of the Electric Power Generation, Transmission, and Distribution standard. In affirming the decision for different reasons, the Occupational Safety and Health Review Commission would not '' * * * exclude the possibility that the Secretary could make * * * a showing'' that the general housekeeping standard would not be preempted even with respect to an explosion hazard by virtue of that standard providing meaningful protection beyond that afforded by the specific standard. The Commission concluded, however, that the record before it was not sufficient to make such a finding. *Cincinnati Gas & Elec. Co.*, 21 BNA OSHC 1057, 1058 (No.01–0711, 2005). Regardless, the housekeeping requirements in this section do not protect against explosion hazards; they protect workers from exposure to a toxic chemical and known carcinogen and therefore would not be preempted by 1910.269(v)(11).

EEI also claimed that the proposed housekeeping requirements conflict with the requirements under 1910.269(v)(11) of the Electric Power Generation, Transmission, and Distribution standard (Ex. 39–52, p. 22). OSHA does not foresee such a conflict because an employer can comply with both standards. Section 1910.269(v)(11) requires controlling ignition sources to abate the explosion hazard, which does not conflict with the housekeeping provisions of this section that require all surfaces to be kept as free as practicable from accumulation of Cr(VI). The housekeeping provisions of this section are intended to minimize worker exposure to Cr(VI), and nothing suggests that controlling ignition sources would limit exposures. Thus, the housekeeping provisions in this standard are necessary to protect workers.

EEI also believed that housekeeping requirements would conflict with OSHA's standard addressing occupational exposure to inorganic arsenic, 29 CFR 1910.1018 (Exs. 39–52, p. 22; 47–25, p. 10). OSHA does not foresee a conflict between the housekeeping provisions of this rule and those of the arsenic rule. When housekeeping is performed in environments where provisions of both standards apply, the employer may choose methods that comply with both requirements. For example, the arsenic standard prohibits use of compressed air for cleaning, while this rule allows use of compressed air for cleaning in extremely limited circumstances; the arsenic rule does not require HEPA filters on vacuums used for cleaning, while this rule does. Where both standards apply, the employer could comply by avoiding the use of compressed air for cleaning and using HEPA-filtered vacuums.

(k) Medical Surveillance

Paragraph (k) of the final standard (paragraph (i) for construction and shipyards) sets forth requirements for the provision of medical surveillance for employees in general industry, construction and shipyards. This paragraph specifies which employees are to be offered medical surveillance and at what times. It also specifies the content of required examinations and material to be provided to and obtained from the licensed health care professional administering the program.

The purpose of medical surveillance for Cr(VI) is, where reasonably possible, to determine if an individual can be exposed to the Cr(VI) present in his or her workplace without experiencing adverse health effects; to identify Cr(VI)-related adverse health effects so that appropriate intervention measures can be taken; and to determine the employee's fitness to use personal protective equipment such as respirators. This final standard is consistent with Section 6(b)(7) of the OSH Act which requires that, where appropriate, medical surveillance programs be included in OSHA health standards to aid in determining whether the health of workers is adversely affected by exposure to toxic substances. Almost all other OSHA health standards have also included medical surveillance requirements.

The final standard requires that each employer covered by this rule make medical surveillance available at no cost, and at a reasonable time and place, for all employees meeting the requirements of this paragraph. As in previous OSHA standards, this final standard is intended to encourage participation by requiring that medical examinations be provided by the employer without cost to employees (also required by section 6(b)(7) of the Act), and at a reasonable time and place. If participation requires travel away from the worksite, the employer would be required to bear the cost. Employees would have to be paid for time spent taking medical examinations, including travel time.

Some commenters questioned the utility of medical surveillance at construction worksites and recommended that medical surveillance not be required in the final Cr(VI) standard covering construction. For example, several commenters

representing construction employers noted a number of particular difficulties in providing medical surveillance on construction work sites such as the frequent movement of construction workers from job-to-job and from one employer to another and the difficulty in finding health care professionals familiar with signs and symptoms of Cr(VI) exposure (*e.g.*, Exs. 38–236; 38–244; 39–36; and 39–65). More specifically, the Associated Builders and Contractors (ABC) testified that ''no rationale exists showing such surveillance would likely show causation or would be feasible'' (Ex. 39–65), adding that it was not possible to demonstrate a cause and effect through exposure monitoring and medical surveillance (Tr. 1272–1277). Such impracticalities, they imply, would render medical surveillance in construction settings of little utility since one would not be able to determine if an exposure at a particular job site was responsible for the observed signs or symptoms.

OSHA continues to believe that despite the challenges posed by the changing nature of work and the mobility of construction workers, medical surveillance in construction settings serves an important role just as it does in general industry and shipyard settings. OSHA has included medical surveillance in other OSHA health standards where construction has been a primary industry impacted by those rules (*e.g.*, lead, asbestos and cadmium) and finds no reason why the Cr(VI) final standard should be an exception. OSHA disagrees that it will be difficult to find health care professionals with expertise in Cr(VI) toxicity. The major effects associated with Cr(VI) exposures include common ailments such as asthma and dermatitis that would not require any exceptional expertise in Cr(VI) per se. OSHA believes that it is important for health care professionals to be familiar with an employee's work duties and Cr(VI) exposures in order to aid them in addressing any reported signs or symptoms, and as discussed below requires important occupational information to be provided to the selected health care professional. As to ABC's concern about showing causality, OSHA does not believe that the inability to link a specific exposure to an individual worker's particular outcome is sufficient cause not to provide medical surveillance. Cr(VI) exposure, as discussed previously in the health effects section of this preamble, may cause non-malignant respiratory effects such as asthma, nasal ulcerations and perforations, as well as allergic and irritant contact dermatitis. The fact that an employer may not be able to identify the specific exposure that caused a particular observed effect does not negate the value of identifying such effects and making sure that the affected employee gets the proper medical attention. Moreover, by questioning the affected employee about his or her work practices and likely exposures, it may be possible to identify lapses in the employer's exposure control measures or the employee's work practices that contributed to the observed effect. Such information will help to prevent future adverse events for this employee as well as other employees at the worksite or perhaps even other construction job sites that have similar types of exposures and operations.

In the proposed standard, OSHA specified that medical surveillance be provided to those employees who are experiencing signs or symptoms of the adverse health effects associated with Cr(VI) exposure, or who are exposed in an emergency. In addition, OSHA proposed that general industry (but not construction or shipyard) employers be required to provide medical surveillance for all employees exposed to Cr(VI) at or above the PEL for 30 or more days a year.

OSHA received a variety of comments regarding the proposed triggers for determining which employees should be provided medical surveillance. Some commenters did not support the use of signs and symptoms to trigger medical surveillance, stating that OSHA had not provided any definition for what it meant by signs and symptoms and that symptoms associated with adverse Cr(VI) health effects such as asthma and dermatitis could also be caused by various other workplace chemicals, allergies, or sources outside the work environment (*e.g.*, Tr. 985–988; Exs. 38–124; 38–205; 47–16; 39–65). In particular, the Color Pigment Manufacturers Association (CPMA) voiced concern that employees could simply assert that a symptom had occurred and the employer, who has no medical expertise to determine if symptoms are a result of Cr(VI) exposure, would have no choice but to incur the cost of the medical examination even though that symptom may not have been the result of a workplace exposure (Ex. 38–205, p. 64). Another commenter suggested that OSHA use a narrow definition of adverse heath effects to avoid difficulties with commonplace health effects unrelated to Cr(VI) exposure (Ex. 39–20).

Others supported the use of signs and symptoms to trigger medical surveillance (*e.g.*, Exs. 39–20; 38–220; 39–51; 39–71; 39–19; 39–48; 47–26) but some objected to the sole use of signs and symptoms to trigger medical surveillance in construction and shipyard settings and felt that the same triggers required in general industry should be applied to construction and shipyard settings (*e.g.*, Exs. 38–199; 38–220; 39–51; 38–219; 40–10–2). Organization Resource Counselors noted that many workers are reluctant to report medical problems for a variety of reasons and if medical surveillance is solely dependent on workers reporting signs and symptoms to their employers, cases may go undetected until it is too late to take effective action (Ex. 39–51). NIOSH agreed and voiced concern that shifting the sole responsibility of medical surveillance to employees to report signs and symptoms of worker exposure, as they believed the proposal did, was a departure from long-established public health practice (Tr. 300–301; Ex. 40–10–2).

While supporting the need to include an airborne exposure trigger for routine medical surveillance, many commenters did not support OSHA's use of the PEL as the airborne trigger and argued that OSHA should use the action level as it has in most of its past health standards (*e.g.*, Tr. 1117–1118; Exs. 39–73; 39–71; 47–26; 47–23; 40–18–1; 38–199). NIOSH and the United Auto Workers (UAW) reasoned that given the remaining significant risk at the PEL, the action level would be a more appropriate trigger for medical surveillance (Exs. 40–10–2; 39–73). The UAW also recommended that OSHA remove from the medical surveillance provisions the 30 day exemption for exposures above the PEL, arguing that exposures of fewer than 30 days could contribute to kidney toxicity. Others advocated task-based or hazard assessment-based approaches, either in conjunction with other triggers or alone, for determining when employees should be offered medical surveillance (*e.g.*, Tr. 1442–1443; Exs. 38–199; 38–214; 40–10–2; 38–220). Such task-based or hazard-assessment approaches could be used, they argued, to identify high exposure or high risk operations where medical surveillance might be useful.

Several groups supported triggering medical surveillance after emergencies (*e.g.*, Exs. 40–10–2; 38–233; 38–219) while some questioned the value of offering medical surveillance after an emergency event given that a substance such as Cr(VI) presents chronic hazards (Exs. 39–19, 39–47, 40–1–2). Finally, while some groups were supportive of OSHA's proposal not to include eye and skin contact as a trigger for medical

surveillance (Exs. 39–72–1, 38–233), NIOSH recommended that OSHA consider a dermal exposure trigger such as the one OSHA used for its final standard for methylenedianiline, where medical surveillance was triggered after dermal exposures of 15 days or more.

OSHA continues to believe, despite the comments offered, that the observation of signs and symptoms known to be caused by Cr(VI) exposure serves as a valuable complement to the use of airborne exposure triggers as a mechanism for initiating medical surveillance. Some employees may exhibit signs and symptoms of the adverse health effects associated with Cr(VI) exposure even when not exposed above a specified air limit for 30 or more days per year. These employees could be especially sensitive, may have been unknowingly exposed, or may have been exposed to greater amounts than the exposure assessment suggests. Therefore in the final rule OSHA has required that employees who experience signs or symptoms of the adverse health effects associated with Cr(VI) exposure be included in medical surveillance. OSHA recognizes that signs and symptoms associated with adverse health effects such as dermatitis, asthma, and skin ulcerations may be non-specific (*i.e.*, they may be caused by factors other than Cr(IV)). However, it is important to realize the context in which signs and symptoms are expected to be used in medical surveillance. Signs and symptoms are generally expected to be self-reported by employees and as such are not intended to serve as a means for diagnosing adverse health effects or determining their causality. Rather, they serve as a useful signal that an employee may be suffering from a Cr(VI) exposure-related health effect or are at the beginning stages of suffering a Cr(VI)-related adverse health effect. Once these signals are recognized, the employee can be referred to a PLHCP who can, with sufficient information about the employee's duties, potential exposures, and medical and work histories (as required by this standard and discussed later), make determinations about the Cr(VI)'related effects, provide medical treatment and recommend work restrictions where necessary. OSHA believes that employees can be trained, through the required hazard communication training, to identify signs and symptoms consistent with Cr(VI) toxicity such as blistering lesions, redness or itchiness of the skin's exposed areas, shortness of breath and wheezing that worsens at work, nose bleeds, and whistling during inspiration or expiration. Viewed in this context, OSHA believes that the inclusion of signs and symptoms is an important part of the overall medical surveillance program. Thus, the final standard would protect employees exposed to Cr(VI) in unusual circumstances even if they don't meet the other criteria for routine medical surveillance. OSHA acknowledges CPMA's concern that an employee can simply assert a symptom has occurred and the employer would be forced to provide medical surveillance and bear the cost. However, OSHA believes that the overriding concern should be that appropriate medical attention be provided for workers experiencing signs and symptoms of effects known to be caused by Cr(VI). By properly training employees about the signs and symptoms associated with Cr(VI) and providing appropriate work-related exposure information to the PHLCP, Cr(VI) work-related health effects can be distinguished from other non-occupational effects. Once identified as occupationally-related, many of these outcomes are likely to be subject to state worker compensation benefits and defray the employer's costs of providing medical surveillance. Under such a system, OSHA believes employees will be unlikely to abuse medical surveillance. Nevertheless, even the possibility that a few bad actors may act irresponsibly should not be reason to deny worker protection where it is appropriate to evaluate the employee's condition to determine if exposure to Cr(VI) is the cause of the condition, and to determine if protective measures are necessary. In addition, the Agency has found in past rulemakings that employees generally do not unnecessarily avail themselves of medical surveillance.

OSHA proposed that in construction and shipyard settings that signs and symptoms and exposure in emergencies be the sole criteria for determining which employees to provide with medical surveillance. In the proposal, only general industry employers were required to use an airborne trigger for initiating medical surveillance. OSHA is convinced by comments submitted to the record that it is important that the triggers for medical surveillance for all industries be the same. Specifically, OSHA agrees with NIOSH and ORC that having medical surveillance triggered only by signs and symptoms may miss important opportunities for detecting adverse effects that may go undetected by employees. For those reasons, OSHA believes it is appropriate to make the triggers and the medical surveillance provisions identical across the general industry, construction and shipyard standards. Even in situations where the performance-oriented option for exposure determination is used, OSHA believes that employers using historical or objective data to characterize airborne exposures will be able to effectively use that data to determine when to provide routine medical surveillance.

OSHA had originally proposed that the PEL be used to trigger medical surveillance. However, based on the comments received on this issue and the fact that the action level is now higher than the proposed PEL, OSHA agrees with those urging the action level be used to trigger medical surveillance. Given the remaining risk at the final PEL, it is more appropriate to use the action level as the trigger rather than the PEL. However, OSHA continues to believe that having a 30 day exposure requirement in conjunction with the action level is a reasonable approach for determining which employees to provide with medical surveillance. OSHA agrees with the UAW that Cr(VI) metabolizes differently than cadmium but notes that OSHA has included a similar 30 day exemption for other regulated substances that have different metabolic half-lives compared to cadmium (*e.g.*, methlyene chloride, 1,3-butadiene, ethylene oxide). OSHA disagrees with the UAW that Cr(VI) presents a kidney toxicity risk that necessitates medical surveillance for exposures less than 30 days above the action level. As discussed in the health effects section of this preamble, OSHA does not believe that the available scientific studies show a strong correlation between kidney dysfunction and Cr(VI) exposure. OSHA thus continues to believe the 30 day trigger is a reasonable benchmark to apply to Cr(VI) for focusing the provision of medical surveillance to capture effects that may be strongly influenced by repeated exposure. In cases where adverse effects occur among workers exposed less than 30 days over the action level, OSHA believes that these effects will generally present themselves as signs or symptoms that employees can be trained to observe and report. Such instances, as discussed above, are covered by this final rule.

While some commenters recommended that OSHA require a task-based or hazard-based approach for determining when to provide routine medical surveillance, OSHA believes that a trigger, based both on the action level and the number of days an employee is exposed to Cr(VI), is a reasonable and administratively convenient basis for providing medical

surveillance benefits to Cr(VI)-exposed workers. In addition, it is consistent with previous OSHA standards. This final standard would not prohibit employers from augmenting their medical surveillance programs to include hazard or risk-based approaches where they feel it is helpful to identify employees who may benefit from medical surveillance. OSHA always encourages employers to go beyond the minimum requirements set forth in OSHA standards.

OSHA disagrees with commenters who question the value of requiring medical surveillance shortly after an emergency has occurred (Exs. 39–19; 39–47; 40–1–2). While there are chronic effects associated with Cr(VI) exposure, there are also short term effects such as skin ulcerations and dermatitis that might result from high exposures occurring during an emergency. Emergency situations (as defined in the standard) involve uncontrolled releases of Cr(VI), and OSHA believes the high exposures that may occur in these situations justify a requirement for medical surveillance. Thus, OSHA has made a final determination that medical surveillance must be made available to employees exposed in an emergency regardless of the airborne concentrations of Cr(VI) normally found in the workplace. This requirement for medical examinations after exposure in an emergency in the final rule is consistent with the provisions of several other OSHA health standards, including the standards for methylenedianiline (29 CFR 1910.1050), 1,3-butadiene (29 CFR 1910.1051), and methylene chloride (29 CFR 1910.1052).

OSHA has also made a final determination not to include eye or skin contact as a basis for medical surveillance. NIOSH suggested that OSHA use a trigger similar to the one the Agency used in its standard on methylenedianiline (MDA; 29 CFR 1910.1050). However, it is important to note that, as discussed in the preamble for the final MDA standard, MDA is readily absorbed through the skin and contributes to the dose causing systemic effects from MDA (57 FR 35630, 8/10/92). The Agency estimated in the final MDA risk assessment that ''a 20 fold increase in risk could be prevented by not allowing dermal exposure to MDA'' (57 FR at 35648). Therefore, using a dermal component to trigger medical surveillance for MDA was deemed appropriate. This is not the case, however, for Cr(VI) which is not absorbed into the body but rather causes its effects by surface contact. Thus, OSHA believes that the MDA standard does not serve as a useful model for a dermal trigger for medical surveillance and is not appropriate in the final Cr(VI) standard. In addition, in previous OSHA standards where the substance being addressed also caused dermal irritation or sensitization (*e.g.*, formaldehyde; 29 CFR 1910.1048 and methylene chloride; 29 CFR 1910.1052), OSHA did not use skin or eye contact in itself with the substance to trigger medical surveillance. OSHA believes that compliance with the provisions for protective work clothing and equipment, hygiene areas and practices, and other protective measures will minimize the potential for adverse eye and skin effects. When such health effects occur, OSHA believes that trained employees will be able to detect these conditions, report them to their employer, and obtain medical assistance. In such situations, affected employees would be provided medical surveillance on the basis that they are experiencing signs or symptoms of Cr(VI)-related health effects.

The required medical surveillance must be performed by or under the supervision of a physician or other licensed health care professional (PLHCP). The Agency considers it appropriate to permit any health care professional to perform medical examinations and procedures provided under the standard when they are allowed by state law to do so. This provision provides flexibility to the employer, and reduces cost and compliance burdens. This requirement is consistent with the approach of other recent OSHA standards, such as those for methylene chloride (29 CFR 1910.1052), bloodborne pathogens (29 CFR 1910.1030), and respiratory protection (29 CFR 1910.134). OSHA received comments from 3M that asked the Agency to broaden its application of this provision to allow a PLHCP who is licensed in one state to be able to provide medical surveillance in other states where the employer has employees covered by the rule (Ex. 47–36). As discussed in detail previously in this summary and explanation section on paragraph (b) definitions, OSHA has made a final determination not to broaden the definition of a PHLCP. OSHA continues to believe that issues regarding a PHCLP's scope of legal practice reside most appropriately with state licensing boards.

In the proposed standard, OSHA also specified how frequently medical examinations were to be offered to those employees covered by the medical surveillance program. OSHA proposed that all employers be required to provide all covered employees with medical examinations whenever an employee shows signs or symptoms of Cr(VI) exposure; within 30 days after an emergency resulting in an uncontrolled release of Cr(VI); and within 30 days after a PLHCP's written medical opinion recommends an additional examination. In addition, employers in general industry were to provide covered employees with examinations within 30 days after initial assignment unless the employee has received a medical examination provided in accordance with the standard within the past 12 months; annually; and at the termination of employment, unless an examination has been given less than six months prior to the date of termination.

OSHA received few comments on the frequency of medical exams. Those offering comment focused on OSHA's proposed provision for annual medical exams. Some commenters reported that general medical surveillance programs were already being offered annually by some employers (Exs. 38–204; 39–71) implying that an annual requirement for Cr(VI) medical exams might not be that burdensome. NIOSH supported OSHA's general approach towards annual medical surveillance but also recommended that certain tests be done at earlier stages after an initial baseline assessment (*e.g.*, 3 months after an initial assessment for a spirometric test, 3 to 6 months after initial assessment for a chest X-ray) (Ex. 40–10–2). As discussed above, some commenters expressed concern with the requirement to provide exams within 30 days after an emergency (Exs. 39–19; 39–47; 40–1–2) and after employees report signs or symptoms (*e.g.*, Exs. 38–124; 38–205; 47–16; 39–65).

Having received no comments to the contrary, OSHA is maintaining its requirement for an initial medical exam within 30 days of assignment to a job with Cr(VI) exposure. The requirement that a medical examination be offered at the time of initial assignment is intended to achieve the objective of determining if an individual will be able to work in the job involving Cr(VI) exposure without adverse effects. It also serves the useful function of establishing a health baseline for future reference. Where an examination that complies with the requirements of the standard has been provided in the past 12 months, that previous examination would serve these purposes, and an additional examination would not be needed. In keeping with its final decision to have the triggers for providing medical surveillance consistent across general industry, construction and shipyard settings, OSHA is also expanding the

requirement for initial medical exams to construction and shipyard settings.

Similarly, OSHA has made a final determination to expand the requirement for annual medical exams to construction and shipyard settings. OSHA believes that the provision of medical surveillance on an annual basis is an appropriate frequency for screening employees for Cr(VI)-related diseases. The main goal of periodic medical surveillance for workers is to detect adverse health effects at an early and potentially reversible stage. The requirement for annual examinations is consistent with other OSHA health standards, including those for cadmium (29 CFR 1910.1027), formaldehyde (29 CFR 1910.1048), and methylene chloride (29 CFR 1910.1052). Based on the Agency's experience, OSHA believes that annual medical surveillance would strike a reasonable balance between the need to diagnose health effects at an early stage, and the limited number of cases likely to be identified through surveillance.

Although NIOSH suggested that there are other more frequent intervals where tests such as spirometric examinations or X-rays might be useful, OSHA believes that the final Cr(VI) standard's requirement for employers to provide additional tests when recommended by the PLHCP is sufficient to address situations where additional procedures might be useful. OSHA continues to believe that a PLHCP is in the best position to recommend more frequent evaluations in order to follow developments in a worker's condition, or to allow for specialized evaluation. Therefore, OSHA is maintaining in the final standard, the requirement for the provision of medical examinations within 30 days after a PLHCP recommends additional testing.

OSHA is also retaining its requirements for medical examinations within 30 days after an emergency and whenever an employee shows signs or symptoms of the adverse health effects associated with Cr(VI) exposure. As discussed earlier in this section, OSHA believes that despite the non-specificity of some signs and symptoms associated with Cr(VI)-related effects, it is important to provide an opportunity for evaluation by a PHLCP after an employee reports signs or symptoms. The PHLCP can, with work and medical history information, make determinations as to whether an employee's reported signs and symptoms are associated with Cr(VI) exposure and recommend appropriate remedies. Also as discussed previously, OSHA believes that medical examinations after an emergency also serve an important role because of the nature of exposures likely to occur in an emergency event and thus retains this provision in the final standard.

Similar to OSHA's final determination to expand initial and annual medical examinations to construction and shipyard settings, OSHA is also extending the requirement for medical examination at the termination of employment to these sectors. The requirement that the employer offer a medical examination at the termination of employment is intended to assure that no employee terminates employment while carrying an active, but undiagnosed, disease. In situations where a previous examination, meeting the requirements of paragraph (k), (paragraph (i) for construction and shipyards) had been provided with 6 months prior to termination, that previous examination would suffice for this purpose.

In the proposed standard, OSHA specified that the examination to be provided by the PLHCP was to consist of a medical and work history; a physical examination of the skin and respiratory tract; and any additional tests considered appropriate by the PLHCP. Special emphasis was to be placed on the portions of the medical and work history focusing on Cr(VI) exposure, health effects associated with Cr(VI) exposure, and smoking. OSHA did not indicate specific tests that must be included in the medical examination. This was based on the Agency's belief that there were not any particular tests generally applicable to all employees covered by the medical surveillance requirements. Instead, the proposal required that determinations about the need for any additional tests be left to the discretion of the PLHCP.

While some commenters agreed that specific tests such as urine testing should not be included in the content of the required medical exam (Tr. 2330, Exs. 40–10–2; 38–220; 38–228; 38–235), others recommended that OSHA include spirometric evaluations, X-rays, and helical computerized tomography (CT) scans. For example, NIOSH recommended the addition of baseline and periodic spirometry and baseline chest X-rays, stating that these are commonly recommended by various occupational health organizations such as the American Thoracic Society and the American College of Occupational and Environmental Medicine and can be useful tools to exclude preexisting abnormalities when subsequent evaluations are conducted (Tr. 355–360, Ex. 40–10–2) The AFL–CIO and PACE recommended that OSHA consider adding a requirement for helical (CT) scans for the purpose of early lung cancer detection (Tr. 2309, 2317–2333, 2376–2381; Exs. 8–222; 39–71; 44–41.). Such tests, they stated, have been shown to effectively find early stage lung cancer that has been curable through surgical intervention. While PACE acknowledged that the helical CT scan is not yet accepted medical practice and should be contingent upon employee informed consent, they argued that the test can be used for high risk factors based on the results of lung function tests and chest X-rays. Others, however, supported OSHA's proposal that such tests be provided only when a licensed health care professional recommends that certain additional medical tests are necessary. (Exs. 38–203; 38–228; 39–47; 39–56; 39–60). CPMA cautioned that in the ''current malpractice environment'', a requirement for any additional examination deemed necessary by the PLHCP would result in licensed health care professionals ordering a battery of tests in order to prevent the possibility of malpractice claims, and the employer would be required to pay for them (Ex. 38–205).

OSHA acknowledges the value of many of the tests suggested by the various groups commenting on this issue. However, OSHA continues to believe that it is more effective to allow the PLHCP the flexibility to determine when such specific tests might be most useful rather than requiring them for all employees in the medical surveillance program on a routine basis. With the basic information gained from the required medical histories, work histories and a physical examination focusing on the skin and respiratory tract (the two main targets for Cr(VI) toxicity), the PLHCPs can use their medical expertise to best determine what, if any, additional testing is appropriate for any individual employee. This is especially true for tests such as the helical CT scan, which although promising, has not been generally proven to be appropriate on a routine basis. As pointed out by PACE, the helical CT can be effectively used after identifying high-risk factors. For these reasons, the final standard does not include any specific tests but rather includes a physical exam focusing on the skin and respiratory tract. The physical exam focuses on organs and systems known to be susceptible to Cr(VI) toxicity. The information obtained will allow the PLHCP to assess the employee's health status, identify adverse health effects related to Cr(VI) exposures, and determine if limitations should be placed on the employee's

exposure to Cr(VI). The examining PLHCP then has the flexibility to determine any additional tests that might be appropriate for an individual employee.

The proposed standard required the employer to ensure the PLHCP has a copy of the standard, and to provide a description of the affected employee's former and current duties as they relate to Cr(VI) exposure; the employee's former, current, and anticipated exposure level; a description of any personal protective equipment used or to be used by the employee, including when and for how long the employee has used that equipment; and information from records of employment-related medical examinations previously provided to the affected employee, currently within the control of the employer.

OSHA received few comments regarding information to be supplied to the PLHCP. CPMA felt that providing the required information to the PLHCP would be burdensome and would be of little relevance to the medical professional and OSHA should instead require that employers only provide information as warranted by the health care professional (Ex. 38–205). Ameren Corporation also expressed concerns about the burden of providing results from previous examinations and suggested that information gained from the medical and work histories required by the Cr(VI) standard would suffice (Ex. 39–47).

OSHA disagrees. OSHA believes that making the required information available to the PLHCP will aid in the evaluation of the employee's health and have extreme relevance to the medical professional. Especially in the case where the PLHCP is evaluating the signs and symptoms of potential Cr(VI)-related health effects, information on the employee's exposures to Cr(VI), the employee's use of personal protective equipment and the results of previous examinations, where possible, will provide important information that can be used in conjunction with information gained from the required medical and work histories, in determining whether the observed symptoms are a result of Cr(VI) exposure. This information will also aid in the PLHCP's evaluation of the employee's health in relation to assigned duties and fitness to use personal protective equipment, when necessary. OSHA does not believe that providing such information to the PLHCP would be unduly burdensome. Much of this information is already being collected by the employer for other reasons and therefore the employer is not likely to have to expend additional energies in providing such information to the PLHCP. With regard to providing the PLHCP results of previous examinations, one commenter appears to believe that extraordinary efforts would be necessary to locate and provide such information to the PLHCP (Ex. 39–47). However, OSHA has made it explicit in this provision that it is only requiring those records that are currently within the control of the employer to be made available to the PLHCP. Given that they are in control of the employer, this information should not be overly burdensome to produce. For these reasons, OSHA is retaining the proposed provisions detailing information to be provided to the PLHCP in the final standard.

In addition to providing certain information to the PLHCP, the proposed standard also would have required employers to obtain from the examining PLHCP a written opinion containing the results of the medical examination with regard to Cr(VI) exposure, the PLHCP's opinion as to whether the employee would be placed at increased risk of material health impairment as a result of exposure to Cr(VI), and any recommended limitations on the employee's exposure or use of personal protective equipment. The PLHCP would also need to state in the written opinion that these findings were explained to the employee.

Few comments were received regarding information to be provided to the employer by the PLHCP. The UAW argued that OSHA should prohibit the PLHCP from revealing any information to the employer, and that the written opinion should only go to the employee or the designated employee representative (Ex. 39–73–2, Tr. 793–795). Ameren Corporation objected to limiting the written opinion to only diagnoses related to Cr(VI) exposure and argued that the PLHCP will likely be evaluating exposure to other OSHA regulated substances such as lead, asbestos, cadmium and arsenic and it would be burdensome to have the PLHCP write separate opinions for each substance for any individual employee (Ex. 39–47). They suggested the following language: ''The PLHCP shall not reveal to the employer specific findings or diagnosis unrelated to exposure to occupational contaminants''.

The purpose of requiring the PLHCP to supply a written opinion to the employer is to provide the employer with a medical basis to aid in the determination of placement of employees and to assess the employee's ability to use protective clothing and equipment. If OSHA were to deny this information to the employer, as requested by the UAW, this would diminish one of the main benefits of the medical surveillance requirements of this standard. Employers must be aware of this information to effectively place employees and select appropriate protective equipment. Medical findings unrelated to Cr(VI) exposure, however, are not necessary information for the employer. Under the final standard, the PLHCP would not be allowed to include findings or diagnoses which are unrelated to Cr(VI) exposure in the written opinion provided to the employer. OSHA has included this provision to reassure employees participating in medical surveillance that they will not be penalized or embarrassed by the employer's obtaining information about them not directly pertinent to Cr(VI) exposure. The employee would be informed directly by the PLHCP of all results of his or her medical examination, including conditions of non-occupational origin, but the employer would only receive information necessary to make decisions regarding employee placement and protective equipment selection relative to Cr(VI) exposures. OSHA recognizes that some employees who are exposed to Cr(VI) may also be exposed to other OSHA regulated substances where a written opinion is required (*e.g.*, exposures to lead chromate). It is not the Agency's intent to have the PLHCP write separate written opinions for an employee who is exposed to more than one OSHA regulated substance. If the employer has an ongoing medical surveillance program where a PLHCP is providing a written opinion on other OSHA regulated substances, the PLHCP can combine the written opinion for an individual employee for all covered substances. The intent of this requirement is to assure that personal medical information not necessary for making determinations about employee placement and selection of personal protective equipment is not shared with the employer. Sharing personal medical information unrelated to workplace Cr(VI) exposures is prohibited by the final standard. OSHA does not believe that it is necessary to change the language of this requirement as suggested by Ameren Corporation to convey this message.

The employer is also required to provide a copy of the PLHCP's written opinion to the employee within two weeks after receiving it, to ensure that the employee has been informed of the result of the examination in a timely manner. The employer must obtain the

written opinion within 30 days of the examination; OSHA believes this will provide the PLHCP sufficient time to receive and consider the results of any tests included in the examination, and allow the employer to take any necessary protective measures in a timely manner. The requirement that the opinion be in written form is intended to ensure that employers and employees have the benefit of this information.

The proposed rule did not include a provision for medical removal protection (MRP) because OSHA made a preliminary determination that MRP was not reasonably necessary or appropriate for Cr(VI)-related health effects. The Supreme Court has held that OSHA does not have authority to adopt wage and benefit guarantee provisions unless it can make a finding that such a requirement is ''related to the achievement of a safe and healthful work environment.'' *American Textile Mfr. Inst., Inc.* v. *Donovan,* 452 U.S. 490, 538 (1981). Consistent with this decision, OSHA has taken the position that it ''must always ascertain that MRP is needed for health reasons'' before adopting provisions for medical removal wage and benefit protection (52 FR 34460, 34557 (Sept. 11, 1987)).

The need for MRP can vary from health standard to health standard and is dependent on the nature of the hazard, health effects, and medical surveillance program involved, and the record evidence obtained during each rulemaking. Although virtually every previous OSHA health standard includes provisions for medical surveillance, OSHA has found MRP necessary for only six of those standards. They are lead, 1910.1025; cadmium, 1910.1027; benzene, 1910.1028; formaldehyde, 1910.1048; methylenedianiline (MDA), 1910.1050; and methylene chloride, 1910.1052.

Upon consideration of this rulemaking record, relevant court decisions, and the criteria OSHA has previously applied to determine when MRP is necessary, OSHA is unable to find that an MRP provision is reasonably necessary or appropriate for the Cr(VI) standard.

The purpose of the medical removal protection OSHA has included in some health standards is to assure employees they will not suffer wage or benefit loss if they are temporarily removed from further exposure as a result of findings made in the course of medical surveillance, and thereby to encourage the employees to participate in the medical surveillance program. As discussed below, OSHA has determined not to include MRP in the Cr(VI) standard for the principal reason that the agency does not anticipate that a significant number of employees will need to be temporarily removed from their jobs as a result of medical surveillance. In addition, the Cr(VI) standard's medical surveillance program is less dependent on employee action than the programs in some other health standards that include MRP, such as lead and formaldehyde, and other considerations that have led OSHA to use MRP in the past are inapplicable in the context of Cr(VI).

Most of the comments OSHA received regarding MRP were about the pros and cons of MRP provisions generally, and not about the specific need, or lack thereof, for MRP in the context of the proposed Cr(VI) standard. Some of the groups representing workers advocated the inclusion of MRP with provisions for multiple physician review on the basis that MRP is generally necessary to encourage worker participation in medical surveillance programs (Tr. 793–795, 803–806, 2314–2315, 2345, Exs. 38–219–1; 39–71; 39–73–2; 40–10–2; 40–19–1; 47–28;). Some comments came out against the need for MRP, suggesting, for example, that MRP was unnecessary in this standard because there are few instances in which temporary removal from Cr(VI) exposures would be beneficial. Those commenters noted the permanent nature of the adverse health effects of Cr(VI) exposure, such as allergic asthma, allergic dermatitis, and lung cancer (Tr. 629, Exs. 38–220–1; 39–228–1; 39–235; 39–19; 39–47; 40–1–2).

In its proposal, OSHA preliminarily concluded that MRP appeared unnecessary because it did not anticipate many circumstances in which employees would be removed from their jobs under the new standard. The Agency reasoned that an MRP provision was unnecessary because Cr(VI)-related health effects generally fall into one of two categories: either they are chronic conditions that temporary removal from exposure will not improve or remedy (*e.g.*, lung cancer, respiratory or dermal sensitization), or they are conditions that can be addressed through proper application of control measures and do not require removal from exposure (*e.g.*, irritant dermatitis). The evidence submitted during the rulemaking has led OSHA to conclude that its preliminary reasoning was correct and that for the reasons stated in the proposal there will be few, if any, instances where temporary removal from Cr(VI) exposures would improve employee health (Tr. 629, Exs. 38–220–1; 39–228–1; 39–235; 39–19; 39–47; 40–1–2)

OSHA has declined to adopt MRP provisions in other health standards under similar circumstances. In the final standard for Ethylene Oxide (EtO), for example, OSHA did not include MRP provisions, concluding that ''the effects of exposure to EtO are not highly reversible, as evidenced by the persistence of chromosomal aberrations after the cessation of exposure, and the record contains insufficient evidence to indicate that temporary removal would provide long-term employee health benefits'' (49 FR at 25788, 6/22/1984). Similarly, the more recent 1,3 butadiene standard, which primarily addresses irreversible effects such as cancer, does not include MRP provisions (61 FR 56746, 11/4/96).

OSHA expects that the overall number of medical removals under the new standard will be very low. OSHA recognizes that a small number of employees may be removed from their jobs due to the health effects of Cr(VI) exposure, but the health effects evidence suggests many of the Cr(VI)-related effects are permanent and thus any such removals are likely to be permanent, not temporary. OSHA has historically viewed MRP as a tool for dealing with temporary removals only, as reflected in the agency's decisions not to adopt MRP in the EtO and 1,3 butadiene standards discussed above. Workers' compensation is the appropriate remedy when permanent removal from exposures is required.

When the D.C. Circuit reviewed OSHA's initial decision not to include MRP in its formaldehyde standard, it remanded the case for OSHA to consider the appropriateness of MRP for permanently removed workers. *UAW* v. *Pendergrass*, 878 F.2d 389, 400 (D.C. Cir. 1989). OSHA ultimately decided to adopt an MRP provision for formaldehyde. However, the agency did not rely on a need to protect workers permanently unable to return to their jobs. Indeed, OSHA expressly rejected that rationale for MRP, noting that ''[t]he MRP provisions [were] not designed to cover employees * * * determined to be permanently sensitized to formaldehyde'' (see 57 FR 22290, 22295 (May 27, 1992)).

Permanent wage and benefit protection would be extremely costly and is far beyond the scope of the MRP programs OSHA has required. Given that MRP provides benefits only for a temporary period, it is logical that eligibility be limited to those who have only a temporary need for removal. (See, *e.g.*, 1910.1027(l)(12) (MRP benefits available for up to a maximum of eighteen (18) months); 1910.1028(i)(9) (capping MRP benefits at six (6)

months); 1910.1052(j)(12) (MRP benefits limited to a maximum of six (6) months)). The purpose of MRP—to alleviate fear of economic loss—can only be fulfilled for employees who are concerned about being removed temporarily. An employee worried that he may be permanently removed from his job if he participates in medical surveillance is unlikely to be persuaded by the prospect of a few months protection. In addition, an important objective of MRP is to prevent permanent health effects from developing by facilitating employee removal from exposure at a point when the effects are reversible, and that objective has no application where the effects are already permanent.

The evidence in the record does not demonstrate that affected employees are unlikely to participate in medical surveillance absent wage and benefit protection. In fact, given the small number of removals anticipated under the new standard, any economic disincentive to participate would likely be minimal. In any event, the medical surveillance programs required under the new Cr(VI) standard are less dependent on employee action than are the medical surveillance programs required under some of OSHA's other health standards. For example, OSHA adopted an MRP provision in the formaldehyde standard because that standard ''does not provide for periodic medical examinations for employees exposed at or above the action level'' and instead relies on ''the completion of annual medical questionnaires, coupled with * * * employees' reports of signs and symptoms''—an approach completely dependent ''on a high degree of employee participation and cooperation'' (see 57 FR at 22293). Unlike under the formaldehyde standard, Cr(VI) medical surveillance programs are not entirely dependent on employee reports of signs and symptoms. The Cr(VI) standard requires regular medical examinations and mandates that those exams include an evaluation of the employee's skin and respiratory tract. OSHA expects that independent of any subjective symptoms that may or may not be reported by the employee, practitioners conducting these examinations can make necessary medical findings based on the required objective evaluations of the employee's physical condition.

In the lead standard, OSHA adopted an MRP provision in part due to evidence that employees were ''desperate * * * to avoid economic loss no matter what the consequences to * * * [their] health'' and were therefore using chelating agents to ''effect a rapid, short term reduction in blood lead levels.'' (see 43 FR 54354, 54446 (Nov. 21, 1978)). In that case ''[t]he success of periodic blood level biological monitoring depend[ed] * * * on workers refraining from efforts to alter their blood lead levels.'' *Id.* Unlike in the case of lead, OSHA is unaware of any steps employees can take to mask and prevent the detection of Cr(VI) related health effects. Therefore, OSHA is not concerned about economic considerations resulting in employees intentionally sabotaging their examinations in a way that would undermine the success of the required medical surveillance programs.

Other reasons OSHA has cited for needing to include MRP in its health standards are similarly inapplicable to Cr(VI). In lead, for example, OSHA explained that the new blood lead level removal criteria for the final lead standard were much more stringent than criteria currently being used by industry and therefore many more temporary removals would be expected under the new standard '' thereby increasing the utility of MRP (see 43 FR at 54445–54446). There is insufficient evidence in the Cr(VI) rulemaking record to indicate that this would be the case for Cr(VI). As stated above, OSHA anticipates few circumstances where medical removal will be needed. Furthermore, there are no criteria in the new standard that are likely to increase the small number of medical removals that may be occurring.

Finally, one reason OSHA adopted MRP in the lead standard was because it ''anticipate[d] that MRP w[ould] hasten the pace by which employers compl[ied] with the new lead standard'' (43 FR at 54450). OSHA reasoned that the greater the degree of noncompliance, the more employees would suffer health effects necessitating temporary medical removal and the more MRP costs the employer would be forced to incur. Thus, in that case OSHA thought that MRP would serve as an economic stimulus for employers to protect workers by complying with the standard. With respect to Cr(VI), however, there is no evidence in the record that employees suffering from the health effects of Cr(VI) exposure need to be removed from their jobs now—when the PEL and exposures are significantly higher than they will be under the new standard; OSHA therefore has no reason to believe that so many employees would need to be removed once the PEL is lowered that employers' concerns about the costs of MRP would induce more rapid compliance on the part of employers. In fact, as stated earlier, OSHA believes that the health effects of Cr(VI) exposures will result in only a small number of medical removals. MRP is thus unlikely to work as a financial compliance incentive in this case.

OSHA also notes that there are two health standards that provide limited medical removal protection under their requirements for respiratory protection. They are asbestos, 1910.1001(g)(2)(iii); and cotton dust, 1910.1043(f)(2)(ii). These standards require MRP when a medical determination is made that an employee who is required to wear a respirator is not medically able to wear the respirator and must be transferred to a position below the PEL where respiratory protection is not required. OSHA has determined that such a provision is unnecessary for the Cr(VI) standard because OSHA has since promulgated a revised respiratory protection standard that specifically deals with the problem of employees who are medically unable to wear negative pressure respirators (29 CFR 1910.134(e)(6)). The respirator standard addresses the problem, not through MRP, but by requiring the employer to provide a powered air-purifying respirator instead of a negative pressure respirator. In the Cr(VI) standard, OSHA requires employers to comply with the requirements of 1910.134, including medical evaluations required under that standard. As discussed earlier in the section of the preamble addressing respiratory protection, there was much support for referring all aspects of respiratory protection to OSHA's revised respiratory protection standard. OSHA sees no reason to supersede 1910.134 in the final Cr(VI) standard.

In sum, OSHA does not expect Cr(VI)-related health exposures to result in a large number of medical removals, either temporary or permanent, and because the record shows that any removals that do occur are likely to be permanent, OSHA concludes that the evidence does not support a finding that MRP is reasonably necessary or appropriate for the final Cr(VI) standard. This decision is based on the evidence obtained during this rulemaking, and is not intended to preclude OSHA from adopting MRP provisions in the future when it believes that such a provision would contribute to the well-being of employees.

(1) Communication of Hazards to Employees

Paragraph (1) of the final rule (paragraph (j) for construction and shipyards) sets forth requirements intended to ensure that the dangers of Cr(VI) exposure are communicated to employees in accordance with existing requirements of OSHA's Hazard

Communication standard (HCS) (29 CFR 1910.1200).

In the proposed standard, requirements for communication of hazards were designed to be substantively as consistent as possible with OSHA's existing HCS in order to avoid a duplicative administrative burden on employers who would need to comply with the requirements of both standards. However, despite this effort, a number of commenters expressed the view that OSHA's existing HCS requirements are sufficient, and that hazard communication provisions in this rule are not warranted (*e.g.*, Exs. 38–203; 38–244; 38–254; 39–19; 39–40; 39–47; 39–48; 39–51; 39–56; 39–64; 39–72–1; 40–1–2). The Color Pigments Manufacturers Association supported this position, adding that additional requirements only serve to increase the complexity of an already complex and lengthy standard (Ex. 38–205). The North American Insulation Manufacturers Association (NAIMA) claimed that additional requirements deprive employers of necessary discretion, conflict with efforts to streamline and simplify hazard communication requirements, and increase the burden on employers while providing no apparent benefit (Exs. 38–228; 47–30). Moreover, NAIMA added that relying on the HCS will, in time, have the added benefit of simplifying implementation of the Globally Harmonized System of Classification Labeling of Chemicals (GHS).

Several other commenters supported OSHA's proposed requirements for communication of hazards (*e.g.*, Exs. 38–199–1; 38–219–1; 40–10–2). For example, NIOSH considered that the general requirements of the HCS are useful for all workplace hazards, but Cr(VI)-specific requirements provide focused and enhanced protection of workers (Ex. 40–10–2). The Building and Construction Trades Department, AFL–CIO maintained that the information and training requirements contained in the standard allow employers to go to a single reference to ensure they are in compliance, helping employers understand their obligations and assisting compliance officers assess employer compliance (Ex. 38–219–1).

In viewing the comments submitted to the record, it is clear that there is widespread support for the communication of hazards to employees. OSHA continues to believe, as stated in the proposal, that informing employees of the hazards to which they are exposed and associated protective measures is essential to provide employees with the necessary understanding of the degree to which they themselves can minimize potential health hazards. As part of an overall hazard communication program, training serves to explain and reinforce the information presented on labels and in material safety data sheets. These written forms of communication will be successful and relevant only when employees understand the information presented and are aware of the actions to be taken to avoid or minimize exposures, thereby reducing the possibility of experiencing adverse health effects.

However, OSHA also continues to believe that it is important for the requirements for communicating Cr(VI) hazards to be consistent with the requirements in its existing HCS. To better assure this consistency, OSHA has made a final determination to remove items from the final rule that duplicate requirements in the HCS. While certain proposed items are not being retained in the final Cr(VI) standard, the obligations to provide communication and training on the issues addressed in these items are required by the HCS. Thus, their removal does not represent a lessening in worker protection. OSHA believes such streamlining will provide better consistency and reduce confusion between the communication of hazards obligations under the final Cr(VI) rule and the HCS. OSHA acknowledges the comments of the Building and Construction Trades Department who felt that retaining these items allows employers to go to a single reference to ensure they are in compliance. However, since OSHA requires the HCS to be followed and has not repeated that standard in its entirety in the Cr(VI) standard, employers would not be able to rely solely on the Cr(VI) standard as a single reference for complying with the HCS even if such elements were retained. Moreover, it is a very rare workplace that has only Cr(VI) and no other hazardous chemicals. Thus, the vast majority of employers would have to consult the HCS anyway.

OSHA has retained the proposed provisions requiring that employees be trained about the contents of the new Cr(VI) final rule and the purpose and description of the medical surveillance program required under the final Cr(VI) standard. The final standard also requires that the employer make a copy of the standard readily available to employees without cost. These elements are not required to be communicated by the HCS. However, OSHA believes that it is important for employees to be familiar with and have access to the final Cr(VI) standard and the employer's obligations to comply with it. Specifically, with regard to the purpose and description of the medical surveillance program, OSHA intends that employees be trained about the signs and symptoms of Cr(VI)-related adverse health effects. This information, in conjunction with the training on Cr(VI) hazards required by the HCS, will help to assure that employees are able to adequately report signs and symptoms of Cr(VI)-related adverse health effects in order to receive medical attention from a licensed health care professional (as required by the medical surveillance section of the final standard and previously discussed in the preamble).

Like the HCS, OSHA intends that the required training be performance-oriented. The standard lists the subjects, in addition to those that are already covered by the HCS, that must be addressed in training, but not the specific ways that this is to be accomplished. Hands-on training, videotapes, slide presentations, classroom instruction, informal discussions during safety meetings, written materials, or any combination of these methods may be appropriate. Such performance-oriented requirements are intended to encourage employers to tailor training to the needs of their workplaces, thereby resulting in the most effective training program in each specific workplace.

OSHA believes that the employer is in the best position to determine how the training can most effectively be accomplished. The Agency has therefore laid out the objectives to be met to ensure that employees are made aware of the hazards associated with Cr(VI) in their workplace and how they can help to protect themselves. The specifics regarding how this is to be achieved are left up to the employer.

The communication of hazards elements proposed, but not included the final rule, are requirements for:

- Warning signs for regulated areas;
- Warning labels for Cr(VI)-contaminated work clothing and equipment and Cr(VI) wastes and debris;
- Employees to be provided training and training records;
- Initial training;
- Training that is understandable;
- Certain topics for training; and
- Additional training.

As discussed below, OSHA believes that these requirements either duplicate or are inconsistent with requirements in the HCS and are therefore not necessary in the final Cr(VI) standard.

Under the proposed standards, OSHA included requirements for specific language on signs and labels (e.g.,

DANGER; CHROMIUM (VI); CANCER HAZARD; CAN DAMAGE SKIN, EYES, NASAL PASSAGES, AND LUNGS; AUTHORIZED PERSONNEL ONLY; RESPIRATORS MAY BE REQUIRED IN THIS AREA.) OSHA is deleting the requirement for specific language on signs for regulated areas and on labels for containers of contaminated clothing and equipment and containers of Cr(VI) contaminated waste and debris consigned for disposal. By deleting these requirements OSHA is only deleting requirements for special signage. As discussed earlier in this preamble for paragraph (e), regulated areas, OSHA maintains in the final Cr(VI) standard requirements that regulated areas in general industry be demarcated but allows them to be demarcated in any manner that adequately establishes and alerts employees of the boundaries of the regulated area. OSHA believes that it is not necessary to require a prescribed sign in order to adequately demarcate a regulated area. Any manner of demarcation may suffice to achieve this goal. Similarly, OSHA has removed the requirements for specific language for warning labels. As discussed earlier in this preamble for paragraph (h), protective clothing and equipment (paragraph (g) for construction and shipyards) and paragraph (j), housekeeping, labels are still required for containers of Cr(VI)-contaminated work clothing and equipment and containers of Cr(VI) waste and debris. However, instead of specific mandated signage, OSHA is only requiring that those containers be labeled in accordance with OSHA's HCS. OSHA believes this achieves the same primary goal while providing flexibility for the employer. Moreover, as pointed out by the NAIMA, prescribed language may interfere with hazard communication harmonization under the GHS (Ex. 38–228).

In the proposed rule, OSHA required that training be provided for all employees who are exposed to airborne Cr(VI) or who have eye or skin contact with Cr(VI), that employers maintain a record of that training, and that the training be provided at the time of initial assignment to a job with potential exposure to Cr(IV). OSHA believes that these issues are already adequately addressed by the HCS. For example, paragraph (c) of the HCS defines employee as a worker who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies. Such a definition would encompass those employees who are exposed to airborne Cr(VI) or who have skin or eye contact with Cr(VI). In addition, paragraph (e)(1) of the HCS requires that employers develop and implement a written hazard communication program that provides for employee training. Finally, paragraph (h)(1) of the HCS requires that employers provide training at the time of initial assignment.

The HCS does not require training records to be kept. OSHA finds no evidence in this record to support requiring training records in the final Cr(VI) standard or to justify this inconsistency with the HCS. This issue is discussed in further detail later in this preamble under paragraph (m), recordkeeping.

The proposed standard required that the employer provide training that is understandable to the employee. Because the HCS requires training to be ''comprehensible'' to employees (see 4/10/88 letter of interpretation; *http://www.osha.gov/pls/ oshaweb/owadisp.show_ document?p_table=INTERPRETATIONS&p_id=19651),* OSHA does not believe it is necessary to include this provision in the final Cr(VI) standard. Nevertheless, OSHA emphasizes that in order for the training to be effective, the employer must ensure that it is provided in a manner that the employee is able to understand. Employees have varying educational levels, literacy, and language skills, and the training must be presented in a language and at a level of understanding that accounts for these differences in order to meet the requirement that individuals being trained understand the specified elements. This may mean, for example, providing materials, instruction, or assistance in Spanish rather than English if the workers being trained are Spanish-speaking and do not understand English. The employer is not required to provide training in the employee's preferred language if the employee understands both languages; as long as the employee is able to understand the language used, the intent of the standard will be met.

OSHA has also removed certain elements addressing topics to be covered under employee information and training. OSHA believes that the HCS requires training on such items. The items removed address: the health hazards associated with Cr(VI) exposure; the location, manner of use and release of Cr(VI); engineering controls and work practices associated with the employee's job assignment; the purpose, selection and use of respirators and protective clothing; emergency procedures; and measures employees can take to protect themselves. Paragraphs (h)(2)(ii) and (h)(3)(ii-iii) of the HCS cover these topic areas. Therefore, OSHA believes that removing these elements from the final Cr(VI) standard neither removes any employer training requirements nor diminishes worker protection.

OSHA has also removed the proposed element for training employees on their rights to access records under 29 CFR 1910.1020(g). Such information on employees' rights is already required to be transmitted to employees under paragraph (g)(1) of OSHA's Access to Employee Medical and Exposure Records standard, 29 CFR 1910.1020. Therefore, OSHA sees no need to duplicate that requirement in the final Cr(VI) standard.

Finally, OSHA has removed elements addressing additional training. The proposed rule would have required that additional training be provided when necessary to ensure that each employee maintains an understanding of the safe use and handling of Cr(VI) and when workplace changes result in an increase in employee exposures. While the HCS does not have a provision requiring periodic retraining, it has been interpreted to require that employees ''must be aware of the hazards to which they are exposed . . . and know and follow appropriate work practice'' (see OSHA Compliance Directive, CPL 2–2.38D, Inspection Procedures for the Hazard Communication Standard) OSHA believes that since employees are required to be aware of the hazards to which they are exposed, this would mandate that as new exposures occur because of changes in the workplace employees must be made aware of them. Similarly, it would mandate additional training as necessary to maintain employees' understanding of the safe use and handling of Cr(VI) as this is critically linked to their awareness of hazards to which they are exposed.

In summary, although OSHA has removed a number of items under the communication of hazards in the final rule, the training obligations imposed by this final standard have not meaningfully changed. OSHA has only removed those items that are duplicative or inconsistent with the HCS, while retaining items not covered by the HCS that the Agency believes are necessary to ensure employees understand this final Cr(VI) standard and thereby protect employee health.

(m) Recordkeeping

Paragraph (m) of the final rule (paragraph (k) for construction and shipyards) requires employers to maintain exposure and medical surveillance records. OSHA proposed a requirement for employers to maintain

records of employees' Cr(VI)-related training. This requirement has not been included in the final rule. As indicated in the discussion of paragraph (l) of the standard, OSHA believes that the provisions of the Agency's Hazard Communication standard (HCS) provide appropriate and sufficient requirements for training employees who are potentially exposed to Cr(VI). The HCS does not require retention of training records, and the addition of such a requirement in this rule would involve substantial additional paperwork burdens for employers. OSHA believes that the performance-oriented requirements of the HCS, along with the requirements of paragraph (l) that employees be able to demonstrate knowledge of both the Cr(VI) standard and the medical surveillance program it requires, will be sufficient to ensure that employees are adequately trained with regard to Cr(VI) hazards and protective measures. The absence of a requirement for retention of training records is also consistent with OSHA's two most recent substance-specific health standards, addressing exposure to methylene chloride (29 CFR 1910.1052) and 1,3 butadiene (29 CFR 1910.1051).

Relatively few comments addressed the proposed recordkeeping requirements. However, the final rule's requirements for maintenance of exposure records have been modified to reflect changes to paragraph (d) of this section addressing exposure determination. Specifically, requirements for maintaining exposure data have been added to the construction and shipyard standards. The requirements for retention of medical surveillance records are unchanged from the proposal.

The final recordkeeping requirements are in accordance with section 8(c) of the OSH Act, which authorizes OSHA to require employers to keep and make available records as necessary or appropriate for the enforcement of the Act or for developing information regarding the causes and prevention of occupational injuries and illnesses. The recordkeeping provisions are also consistent with OSHA's access to employee exposure and medical records rule (29 CFR 1910.1020).

Where the employer performs air monitoring to determine employee Cr(VI) exposures, records must be kept that identify the monitored employee and all other employees whose exposure the monitoring represents, and accurately reflect those exposures. The employer is required to keep records for each exposure measurement taken. Specifically, records must include the following information: The date of measurement for each sample taken; the operation involving exposure to Cr(VI) that was monitored; sampling and analytical methods used and evidence of their accuracy; the number, duration, and results of samples taken; the type of personal protective equipment used; and the name, social security number, and job classification of all employees represented by the monitoring, indicating which employees were actually monitored.

The final rule allows employers the option of relying on historical monitoring data or objective data to determine employee exposures to Cr(VI) where appropriate. Historical monitoring data are Cr(VI) monitoring results obtained prior to the effective date of the standard that were obtained during work operations conducted under workplace conditions closely resembling the employer's current operations. Objective data are information such as air monitoring data from industry-wide surveys or calculations based on the composition or chemical and physical properties of a substance demonstrating the employee exposure to Cr(VI) associated with a particular product or material or a specific process, operation, or activity. Use of historical monitoring data and objective data under this final rule is described in greater detail in the discussion of paragraph (d) above addressing exposure determination.

Where historical monitoring data are relied upon to meet the exposure determination requirements of this standard, records of these data must be maintained. The records of historical monitoring data must demonstrate that the data were obtained using a method sufficiently accurate to be allowed under paragraph (d)(5) of the standard. The records must also show that the work being performed, the Cr(VI)-containing material being handled, and the environmental conditions at the time the historical monitoring data were obtained are the same as those on the job for which exposure is being determined. Other data relevant to operations, materials, processing, or employee exposures must also be included in records.

Where objective data are used to satisfy the exposure determination requirement, the employer must establish and maintain an accurate record of the objective data upon which he or she relied. This record must include: The chromium-containing material in question; the source of the objective data; the testing protocol and results of testing, or analysis of the material for the release of chromium (VI); a description of the process, operation, or activity involved and how the data support the determination; and other data relevant to the process, operation, activity, material, or employee exposures.

Since historical monitoring data and objective data may be used to exempt the employer from provisions of the standard or provide a basis for selection of respirators, it is critical that this determination be carefully documented. Reliance on historical monitoring data and objective data is intended to provide the same degree of assurance that employee exposures have been correctly characterized as air monitoring would, and records must demonstrate a reasonable basis for the exposure determination.

These records are also available to employees so that they can examine the determination made by the employer and assure themselves they are being protected by the employer. Moreover, compliance with the requirement to maintain records of exposure data enables the employer to easily show at least for the duration of the retention of records that the exposure determination was accurate and conducted in an appropriate manner.

In addition to records relating to employee exposures to Cr(VI), the employer must establish and maintain an accurate medical surveillance record for each employee subject to the medical surveillance requirements of the standard. OSHA believes that medical records, like exposure records, are necessary and appropriate for the protection of employee health, the enforcement of the standard, and to the development of information regarding the causes and prevention of occupational illnesses. Good medical records, including the record of the examination at termination of employment, are important to the employee in that this information will assist the employee and his or her PLHCP in making the best health care decisions. Medical records are necessary for the proper evaluation of the employee's health. The employer will benefit from knowing when his or her employees have Cr(VI) health related problems. The employer can then act to address workplace conditions that have been associated with Cr(VI) exposure. Finally the records can be useful to the Agency and others in enumerating illnesses and deaths attributable to Cr(VI), in evaluating compliance programs, and in assessing the efficacy of the standard.

Medical surveillance records are required to include the following information: The name, social security number, and job classification of the

employee; a copy of the PLHCP's written opinions; and a copy of the information provided to the PLHCP. This information includes the employee's duties as they relate to Cr(VI) exposure, Cr(VI) exposure levels, and descriptions of personal protective equipment used by the employee (see paragraph (k)(4) in general industry, paragraph (i)(4) in shipyards and construction).

Several commenters expressed the view that requiring a copy of the information provided to the PLHCP would entail creating and maintaining an unnecessary duplicate copy of medical records (e.g., Exs. 38–203; 38–254; 39–47; 39–56). OSHA believes it is important for the employer to maintain medical records, even if duplicate information is maintained by the PLHCP. As mentioned previously, this information is useful in evaluating health outcomes, and retention by the employer ensures that complete records are available from a single source even if different PLHCPs provide examinations.

OSHA does not intend for this provision to be interpreted to require an employer to maintain multiple copies of records. If records of previous medical exams are within the control of the employer, that record is sufficient and does not need to be reproduced. For instance, where an employer maintains a record of medical exams provided to an employee, a duplicate record does not need to be created in order to fulfill recordkeeping requirements for a copy of the information provided to the PLHCP.

The final rule requires that exposure monitoring and medical surveillance records include the employee's social security number. The Color Pigments Manufacturers Association suggested that an employee identification number be permitted in lieu of a social security number (Ex. 38–205). OSHA examined alternative forms of identification in Phase II of the Agency's Standards Improvement Project (70 FR 1112 (1/5/05)) and did not take any action in that rulemaking concerning the use of social security numbers, indicating that further investigation was required.

For purposes of this rule, OSHA does not believe that alternative forms of identification, such as employee identification numbers, represent an acceptable alternative to social security numbers. The Agency understands the privacy concerns raised by this requirement. However, social security numbers have much wider application, and are correlated to employee identity in many other types of records. Social security numbers are therefore a more useful tool since each number is unique to an individual for a lifetime and does not change as an employee changes employers. This requirement is consistent with previous OSHA substance-specific health standards.

The final rule also incorporates the requirement that employers maintain and provide access to records in accordance with OSHA's standard addressing access to employee exposure and medical records (29 CFR 1910.1020). The medical and exposure records standard requires that exposure records be kept for at least 30 years and that medical records be kept for the duration of employment plus thirty years. It is necessary to keep these records for extended periods because of the long latency period commonly associated with cancer. Cancer often cannot be detected until 20 or more years after first exposure. The extended record retention period is therefore needed because causality of disease in employees is assisted by, and in some cases can only be made by, having present and past exposure data as well as the results of present and past medical examinations.

(n) Dates

Paragraph (n) of the standard (paragraph (l) for construction and shipyards) establishes start-up dates for requirements of the standard. OSHA has extended the effective date from that proposed and provided more time for employers to comply with most provisions of the final rule, based on information submitted to the record indicating that compliance may require additional time (*e.g.*, Exs. 39–19; 39–40; 39–47; 38–202; 38–205; 47–32; 38–233). The dates included in this final rule are also based on the Agency's experience with other standards concerning the amount of time required for employers to comply with similar requirements.

The standard will become effective on May 30, 2006. This date is 90 days from the date of publication in the **Federal Register**. The proposed standard had provided that the final rule would become effective 60 days after publication in the **Federal Register**. The extension of the interval between the publication date and the effective date of the standard is in response to comments indicating that some employers will need more time to comply than the proposed rule would have allowed (e.g., Exs. 38–214; 38–218; 38–220; 38–235; 38–254; 39–19; 39–40; 39–47; 39–48; 39–56; 39–60; 40–1–2).

The Agency sets the effective date to allow sufficient time for employers to obtain the standard, read and understand its requirements, and undertake the necessary planning and preparation for compliance. Section 6(b)(4) of the OSH Act provides that the effective date of a standard may be delayed for up to 90 days from the date of publication in the **Federal Register**. Given the concerns expressed by commenters, OSHA's interest in having employers implement effective compliance efforts, and the minimal effect of the additional 30 day delay, the Agency has decided that it is appropriate to set the effective date at 90 days from publication, rather than at 60 days.

The dates for employer compliance with obligations of the final rule have also been extended from those proposed. Special provision has been made to account for the needs of small businesses in meeting the requirements of the new standards. OSHA proposed a requirement that all employers comply with provisions of the final rule (except those for engineering controls) 90 days after the effective date. The final rule requires employers with 20 or more employees to comply with most requirements 180 days after the effective date. Employers with 19 or fewer employees must comply with most requirements of the final rule one year after the effective date. This extension is intended to allow employers sufficient time to complete initial exposure assessments, establish regulated areas where required, obtain appropriate protective work clothing and equipment, and comply with other provisions of the rule. Several commenters expressed concerns that 90 days did not allow sufficient time for employers to come into compliance with these provisions (e.g., Exs. 39–19; 39–40; 39–47; 39–48; 39–51; 39–56; 39–60; 40–1–2). ORC Worldwide expressed this opinion, stating:

> OSHA's proposal that all obligations of the standard except the engineering control requirement would be fulfilled within 90 days after its effective date is not enough time for the industries that have not determined their Cr(VI) sources and characterized their exposures to complete those tasks and be in compliance. Many are large companies with extensive operations, and finding all potential Cr(VI) sources will take time. Once these sources are identified, the task of characterizing exposures will require additional time. OSHA should allow a start-up date that is at least six months from the effective date (Ex. 39–51).

The Society for the Plastics Industry (SPI) concurred with the view that 90 days was an insufficient amount of time for employers to come into compliance with the rule, claiming in particular that employers who do not currently have respiratory protection programs in place

will require more than 90 days to develop a respiratory protection program, obtain respirators, conduct medical evaluations and fit testing, and provide training. SPI advocated allowing 180 days after the effective date before respirator use would be required (Ex. 38–218).

The potential difficulties faced by small businesses in meeting the requirements of the rule were also noted by SPI and others, who urged OSHA to allow additional time for employers to comply with the requirements of the final rule (Exs. 38–218, pp. 34–35; 38–233, pp. 33–34). SPI stated:

> * * * small employers should receive more time to meet the requirements of the new rule when it becomes effective. Many small employers in the plastics industry do not have the resources to provide respirators and implement respirator programs, exposure monitoring, training and education programs, provide other forms of protective work clothing and PPE, install warning signs and regulated areas, and implement medical surveillance programs all within 90 days of the effective date of the new rule (Ex. 38–218, p. 35).

OSHA believes these concerns regarding the proposed compliance timetable are reasonable, so the Agency is providing additional time in order to give employers the ability to comply with these obligations. Given the large number of small employers covered by the requirements, and the special problems of many of those employers in identifying and implementing appropriate control measures, OSHA has decided to permit these employers a longer time period in which to comply with most requirements of the standard. OSHA has chosen to specify employment of 19 or fewer employers as the threshold size for allowing additional time for compliance under the final rule. The Agency believes this is a reasonable threshold, and is consistent with the threshold applied for similar requirements in the Methylene Chloride standard (29 CFR 1910.1052). OSHA believes the extended compliance times will allow affected employers sufficient time to comply with the requirements of the standard.

In the proposal, OSHA indicated that change rooms would be required no later than one year after the effective date of the standard. As explained in the discussion of paragraph (i), this standard does not impose new requirements for change rooms beyond those found in 29 CFR 1910.141(e) (for general industry and shipyards) and 29 CFR 1926.51(i) (for construction). Therefore, because change rooms should already be established, no effective date is necessary and reference to change rooms in this paragraph has been deleted to avoid potential confusion.

Feasible engineering controls must be in place within four years after the effective date. This is to ensure that employers are provided sufficient time to complete the process of designing, obtaining, and installing the necessary control equipment. This represents an extension of two years beyond that proposed for engineering controls. Several commenters contended that substantially more time was needed to implement engineering controls than had been proposed (e.g., Exs. 38–202; 38–204; 38–205; 38–228–1; 38–233; 39–49; 39–51; 47–32). For example, Engelhard Corporation indicated that OSHA had underestimated the complexity involved in meeting the requirements of the standard, such as testing of new equipment, obtaining building permits for process changes, and air permit changes (Ex. 38–202). Steel industry representatives argued that, in addition to time needed to install adequate engineering controls, additional time should be provided for the steel industry and other significantly affected industries to absorb the costs associated with compliance (Ex. 38–233).

OSHA agrees that additional time may be needed to come into full compliance with the engineering control requirements of the final rule. In particular, the Agency is aware that in some cases employers may be required to reevaluate modified ventilation systems for compliance with regulations governing discharges of Cr(VI) into the environment (e.g., EPA's Emission Standards for Hazardous Air Pollutants (NESHAP) regulations (40 CFR 63)). OSHA has taken into consideration the need of many affected employers to coordinate their OSHA compliance efforts with their other regulatory compliance obligations. The Agency believes it appropriate to allow sufficient time for modification and reevaluation of ventilation systems to generally be accomplished during normal permitting cycles in order to lessen the impact of the standard.

Other employers who may also need additional time for implementing engineering controls include employers with certain electroplating operations and welding operations. For example, in electroplating there are new fume suppressant technologies that can be used to reduce airborne exposures created in electroplating baths. However, some of these technologies have not been fully tested in the variety of electroplating operations that exist and employers must be careful in applying this technology for a particular operation so that the fume suppressant does not adversely affect the quality of the item being electroplated. Additional time for implementing such an engineering control would allow employers to gain experience with this technology and learn more effective ways to control exposures for their particular plating operations.

In addition, as discussed previously in this preamble, many welders will be able to reduce Cr(VI) exposures by switching from shielded metal arc welding (SMAW) to gas metal arc welding (GMAW). This switch is not a simple matter. The employer must first research conditions where such a switch might be possible taking into account the configuration of the areas where the welding might take place, the substrate to be welded and the desired quality of the weld. Since specifications for the desired weld are important, tests of the new welding technique may be necessary to make sure those specifications are met. Additionally, extra time is likely to be needed to buy the necessary equipment and train the employees who will be required to perform the new welding method. The final rule thus allows four years from the effective date for employers to institute engineering controls to comply with the standard. During the period in which employers are implementing these controls, respirators may be used to comply with the new PEL.

The extension of the compliance deadline for implementation of engineering controls will allow those firms that need extensive engineering controls time to adequately plan for and implement these controls. This modification will thus help to ensure adequate protection for workers. OSHA also believes that the extension will have the ancillary benefit of limiting the economic impact of the rule by allowing employers additional time to plan for and absorb the costs associated with compliance. Based on its review of the rulemaking record, the Agency has reached the conclusion that employers will be able to implement engineering controls within the time frame established in the final rule.

Appendices

OSHA did not include appendices in the proposed standard. While some of OSHA's previous standards have included non-mandatory appendices on topics such as the hazards associated with the regulated substance, health screening considerations, and sampling and analytical methods, OSHA made a preliminary determination that topics typically included in appendices could

be better addressed with guidance materials.

Various commenters supported guidance materials in conjunction with the standard (Tr. 1307, 1308, 1309–1312, Exs. 38–214, p. 24; 38–220–1, p. 35; 39–20, p. 26; 39–60). One commenter noted the utility of OSHA's compliance assistance tools and preferred the accessibility of those guidance documents and e-tools to appendices (Ex. 39–60). Others, however, felt that including appendices as a part of the standard would make them more directly available for review and determining actions (Tr. 1099–1100, Exs. 38–218, p. 35; 39–19; 39–60; 40–1–2).

After consideration of these comments, OSHA has made a final determination not to include non-mandatory appendices in the Cr(VI) final rule. First, many of the appendices OSHA has included in the past such as sampling and analytical methods and respiratory protection fit-testing procedures are already readily available. For example, fit-testing procedures are an appendix to the respiratory protection standard (29 CFR 1910.134), and employers using respirators to comply with OSHA PELs must consult that standard. OSHA's analytical methods are also available through OSHA's website. Secondly, OSHA believes that guidance materials in the form of compliance assistance and outreach tools are a more flexible means for disseminating current information to employees and employers than appendices due to the fixed nature of an appendix as a part of the promulgated standard. For example, OSHA analytical methods are often updated and thus an appendix with such a method included might easily become outdated. Appendices on medical surveillance guidance could also become outdated as advancements in medical science occur. Guidance documents separate from the standard, however, could be more easily updated. Finally, guidance materials can be disseminated in several ways and take several forms. OSHA's experience with its outreach and compliance assistance tools has shown these methods are very effective in disseminating information and are well received by both employers and employees. Thus, the final Cr(VI) standard will not contain appendices, but OSHA will issue compliance assistance information to cover areas useful to the implementation of this final rule.

XVI. Authority and Signature

This document was prepared under the direction of Jonathan L. Snare, Acting Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, 200 Constitution Avenue, NW., Washington, DC 20210. The Agency issues the final sections under the following authorities: Sections 4, 6(b), 8(c), and 8(g) of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); section 107 of the Contract Work Hours and Safety Standards Act (the Construction Safety Act) (40 U.S.C. 333); section 41, the Longshore and Harbor Worker's Compensation Act (33 U.S.C. 941); Secretary of Labor's Order No. 5–2002 (67 FR 65008); and 29 CFR Part 1911.

List of Subjects in 29 CFR Parts 1910, 1915, 1917, 1918, and 1926

Cancer, Chemicals, Hazardous substances, Health, Occupational safety and health, Reporting and recordkeeping requirements.

Signed at Washington, DC., this 16th day of February, 2006.

Jonathan L. Snare,

Acting Assistant Secretary of Labor.

XVII. Final Standards

■ Chapter XVII of Title 29 of the Code of Federal Regulations is to be amended as follows:

PART 1910—[AMENDED]

Subpart Z—[Amended]

■ 1. The authority citation for Subpart Z of Part 1910 is revised to read as follows:

Authority: Sections 4, 6, 8 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657: Secretary of Labor's Order No. 12–71 (36 FR 8754), 8–76 (41 FR 25059), 9–83 (48 FR 35736), 1–90 (55 FR 9033), 6–96 (62 FR 111), 3–2000 (65 FR 50017), or 5–2002 (67 FR 65008), as applicable; and 29 CFR part 1911.

All of subpart Z issued under section 6(b) of the Occupational Safety and Health Act, except those substances that have exposure limits listed in Tables Z–1, Z–2, and Z–3 of 29 CFR 1910.1000. The latter were issued under section 6(a) (29 U.S.C. 655(a)).

Section 1910.1000, Tables Z–1, Z–2 and Z–3 also issued under 5 U.S.C. 553, Section 1910.1000 Tables Z–1, Z–2, and Z–3 but not under 29 CFR part 1911 except for the arsenic (organic compounds), benzene, cotton dust, and chromium (VI) listings.

Section 1910.1001 also issued under section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704) and 5 U.S.C. 553.

Section 1910.1002 also issued under 5 U.S.C. 553 but not under 29 U.S.C. 655 or 29 CFR part 1911.

Sections 1910.1018, 1910.1029 and 1910.1200 also issued under 29 U.S.C. 653.

Section 1910.1030 also issued under Pub. L. 106–430, 114 Stat. 1901.

■ 2–3. In § 1910.1000:

■ a. Table Z-1 is amended by revising ''tert-Butyl chromate (as CrO_3)''; by removing ''Chromic acid and chromates (as CrO_3)''; and by adding ''Chromium (VI) compounds'' and new footnote 5;

■ b. Table Z–2, the entry ''Chromic acid and chromates (Z37.7–1971)'' is revised, and a new footnote ''c'' is added.

The revisions and additions read as follows:

§ 1910.1000 Air contaminants.

* * * * *

TABLE Z–1.—LIMITS FOR AIR CONTAMINANTS

Substance	CAS No. (c)	ppm(a) [1]	mg/m³ (b)[1]	Skin designation
* * * * * * *				
tert-Butyl chromate (as CrO_3); see 1910.1026.	1189–85–1			
* * * * * * *				
Chromium (VI) compounds; See 1910.1026 [5].				
* * * * * * *				

[5] See Table Z–2 for the exposure limits for any operations or sectors where the exposure limits in § 1910.1026 are stayed or are otherwise not in effect.''

TABLE Z–2

Substance	8-hour time weighted average	Acceptable ceiling concentration	Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift	
			Concentration	Maximum duration
*	*	*	*	*	*	*
Chromic acid and chromates (Z37.7–1971) (as CrO_3)[c].	.....	1 mg/10m^3.				
*	*	*	*	*	*	*

[c] This standard applies to any operations or sectors for which the Hexavalent Chromium standard, 1910.1026, is stayed or otherwise is not in effect."

* * * * *

■ 4. A new Section 1910.1026 is added, to read as follows:

§ 1910.1026 Chromium (VI).

(a) *Scope.* (1) This standard applies to occupational exposures to chromium (VI) in all forms and compounds in general industry, except:

(2) Exposures that occur in the application of pesticides regulated by the Environmental Protection Agency or another Federal government agency (*e.g.*, the treatment of wood with preservatives);

(3) Exposures to portland cement; or

(4) Where the employer has objective data demonstrating that a material containing chromium or a specific process, operation, or activity involving chromium cannot release dusts, fumes, or mists of chromium (VI) in concentrations at or above 0.5 μg/m^3 as an 8-hour time-weighted average (TWA) under any expected conditions of use.

(b) *Definitions.* For the purposes of this section the following definitions apply:

Action level means a concentration of airborne chromium (VI) of 2.5 micrograms per cubic meter of air (2.5 μg/m^3) calculated as an 8-hour time-weighted average (TWA).

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

Chromium (VI) [hexavalent chromium or Cr(VI)] means chromium with a valence of positive six, in any form and in any compound.

Director means the Director of the National Institute for Occupational Safety and Health (NIOSH), U.S. Department of Health and Human Services, or designee.

Emergency means any occurrence that results, or is likely to result, in an uncontrolled release of chromium (VI). If an incidental release of chromium (VI) can be controlled at the time of release by employees in the immediate release area, or by maintenance personnel, it is not an emergency.

Employee exposure means the exposure to airborne chromium (VI) that would occur if the employee were not using a respirator.

High-efficiency particulate air [HEPA] filter means a filter that is at least 99.97 percent efficient in removing mono-dispersed particles of 0.3 micrometers in diameter or larger.

Historical monitoring data means data from chromium (VI) monitoring conducted prior to May 30, 2006, obtained during work operations conducted under workplace conditions closely resembling the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

Objective data means information such as air monitoring data from industry-wide surveys or calculations based on the composition or chemical and physical properties of a substance demonstrating the employee exposure to chromium (VI) associated with a particular product or material or a specific process, operation, or activity. The data must reflect workplace conditions closely resembling the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

Physician or other licensed health care professional [PLHCP] is an individual whose legally permitted scope of practice (*i.e.*, license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the particular health care services required by paragraph (k) of this section.

Regulated area means an area, demarcated by the employer, where an employee's exposure to airborne concentrations of chromium (VI) exceeds, or can reasonably be expected to exceed, the PEL.

This section means this § 1910.1026 chromium (VI) standard.

(c) *Permissible exposure limit (PEL).* The employer shall ensure that no employee is exposed to an airborne concentration of chromium (VI) in excess of 5 micrograms per cubic meter of air (5 μg/m^3), calculated as an 8-hour time-weighted average (TWA).

(d) *Exposure determination.* (1) *General.* Each employer who has a workplace or work operation covered by this section shall determine the 8-hour TWA exposure for each employee exposed to chromium (VI). This determination shall be made in accordance with either paragraph (d)(2) or paragraph (d)(3) of this section.

(2) *Scheduled monitoring option.* (i) The employer shall perform initial monitoring to determine the 8-hour TWA exposure for each employee on the basis of a sufficient number of personal breathing zone air samples to accurately characterize full shift exposure on each shift, for each job classification, in each work area. Where an employer does representative sampling instead of sampling all employees in order to meet this requirement, the employer shall sample the employee(s) expected to have the highest chromium (VI) exposures.

(ii) If initial monitoring indicates that employee exposures are below the action level, the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring.

(iii) If monitoring reveals employee exposures to be at or above the action level, the employer shall perform periodic monitoring at least every six months.

(iv) If monitoring reveals employee exposures to be above the PEL, the employer shall perform periodic monitoring at least every three months.

(v) If periodic monitoring indicates that employee exposures are below the action level, and the result is confirmed by the result of another monitoring

taken at least seven days later, the employer may discontinue the monitoring for those employees whose exposures are represented by such monitoring.

(vi) The employer shall perform additional monitoring when there has been any change in the production process, raw materials, equipment, personnel, work practices, or control methods that may result in new or additional exposures to chromium (VI), or when the employer has any reason to believe that new or additional exposures have occurred.

(3) *Performance-oriented option.* The employer shall determine the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data, historical monitoring data, or objective data sufficient to accurately characterize employee exposure to chromium (VI).

(4) *Employee notification of determination results.* (i) Where the exposure determination indicates that employee exposure exceeds the PEL, within 15 working days the employer shall either post the results in an appropriate location that is accessible to all affected employees or shall notify each affected employee individually in writing of the results.

(ii) Whenever the exposure determination indicates that employee exposure is above the PEL, the employer shall describe in the written notification the corrective action being taken to reduce employee exposure to or below the PEL.

(5) *Accuracy of measurement.* Where air monitoring is performed to comply with the requirements of this section, the employer shall use a method of monitoring and analysis that can measure chromium (VI) to within an accuracy of plus or minus 25 percent (+/− 25%) and can produce accurate measurements to within a statistical confidence level of 95 percent for airborne concentrations at or above the action level.

(6) *Observation of monitoring.* (i) Where air monitoring is performed to comply with the requirements of this section, the employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to chromium (VI).

(ii) When observation of monitoring requires entry into an area where the use of protective clothing or equipment is required, the employer shall provide the observer with clothing and equipment and shall assure that the observer uses such clothing and equipment and complies with all other applicable safety and health procedures.

(e) *Regulated areas.* (1) *Establishment.* The employer shall establish a regulated area wherever an employee's exposure to airborne concentrations of chromium (VI) is, or can reasonably be expected to be, in excess of the PEL.

(2) *Demarcation.* The employer shall ensure that regulated areas are demarcated from the rest of the workplace in a manner that adequately establishes and alerts employees of the boundaries of the regulated area.

(3) *Access.* The employer shall limit access to regulated areas to:

(i) Persons authorized by the employer and required by work duties to be present in the regulated area;

(ii) Any person entering such an area as a designated representative of employees for the purpose of exercising the right to observe monitoring procedures under paragraph (d) of this section; or

(iii) Any person authorized by the Occupational Safety and Health Act or regulations issued under it to be in a regulated area.

(f) *Methods of compliance.* (1) *Engineering and work practice controls.* (i) Except as permitted in paragraph (f)(1)(ii) and paragraph (f)(1)(iii) of this section, the employer shall use engineering and work practice controls to reduce and maintain employee exposure to chromium (VI) to or below the PEL unless the employer can demonstrate that such controls are not feasible. Wherever feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, the employer shall use them to reduce employee exposure to the lowest levels achievable, and shall supplement them by the use of respiratory protection that complies with the requirements of paragraph (g) of this section.

(ii) Where painting of aircraft or large aircraft parts is performed in the aerospace industry, the employer shall use engineering and work practice controls to reduce and maintain employee exposure to chromium (VI) to or below 25 $\mu g/m^3$ unless the employer can demonstrate that such controls are not feasible. The employer shall supplement such engineering and work practice controls with the use of respiratory protection that complies with the requirements of paragraph (g) of this section to achieve the PEL.

(iii) Where the employer can demonstrate that a process or task does not result in any employee exposure to chromium (VI) above the PEL for 30 or more days per year (12 consecutive months), the requirement to implement engineering and work practice controls to achieve the PEL does not apply to that process or task.

(2) *Prohibition of rotation.* The employer shall not rotate employees to different jobs to achieve compliance with the PEL.

(g) *Respiratory protection.* (1) *General.* The employer shall provide respiratory protection for employees during:

(i) Periods necessary to install or implement feasible engineering and work practice controls;

(ii) Work operations, such as maintenance and repair activities, for which engineering and work practice controls are not feasible;

(iii) Work operations for which an employer has implemented all feasible engineering and work practice controls and such controls are not sufficient to reduce exposures to or below the PEL;

(iv) Work operations where employees are exposed above the PEL for fewer than 30 days per year, and the employer has elected not to implement engineering and work practice controls to achieve the PEL; or

(v) Emergencies.

(2) *Respiratory protection program.* Where respirator use is required by this section, the employer shall institute a respiratory protection program in accordance with 29 CFR 1910.134.

(h) *Protective work clothing and equipment.* (1) *Provision and use.* Where a hazard is present or is likely to be present from skin or eye contact with chromium (VI), the employer shall provide appropriate personal protective clothing and equipment at no cost to employees, and shall ensure that employees use such clothing and equipment.

(2) *Removal and storage.* (i) The employer shall ensure that employees remove all protective clothing and equipment contaminated with chromium (VI) at the end of the work shift or at the completion of their tasks involving chromium (VI) exposure, whichever comes first.

(ii) The employer shall ensure that no employee removes chromium (VI)-contaminated protective clothing or equipment from the workplace, except for those employees whose job it is to launder, clean, maintain, or dispose of such clothing or equipment.

(iii) When contaminated protective clothing or equipment is removed for laundering, cleaning, maintenance, or disposal, the employer shall ensure that it is stored and transported in sealed, impermeable bags or other closed, impermeable containers.

(iv) Bags or containers of contaminated protective clothing or equipment that are removed from change rooms for laundering, cleaning,

maintenance, or disposal shall be labeled in accordance with the requirements of the Hazard Communication Standard, 29 CFR 1910.1200.

(3) *Cleaning and replacement.* (i) The employer shall clean, launder, repair and replace all protective clothing and equipment required by this section as needed to maintain its effectiveness.

(ii) The employer shall prohibit the removal of chromium (VI) from protective clothing and equipment by blowing, shaking, or any other means that disperses chromium (VI) into the air or onto an employee's body.

(iii) The employer shall inform any person who launders or cleans protective clothing or equipment contaminated with chromium (VI) of the potentially harmful effects of exposure to chromium (VI) and that the clothing and equipment should be laundered or cleaned in a manner that minimizes skin or eye contact with chromium (VI) and effectively prevents the release of airborne chromium (VI) in excess of the PEL.

(i) *Hygiene areas and practices.* (1) *General.* Where protective clothing and equipment is required, the employer shall provide change rooms in conformance with 29 CFR 1910.141. Where skin contact with chromium (VI) occurs, the employer shall provide washing facilities in conformance with 29 CFR 1910.141. Eating and drinking areas provided by the employer shall also be in conformance with § 1910.141.

(2) *Change rooms.* The employer shall assure that change rooms are equipped with separate storage facilities for protective clothing and equipment and for street clothes, and that these facilities prevent cross-contamination.

(3) *Washing facilities.* (i) The employer shall provide readily accessible washing facilities capable of removing chromium (VI) from the skin, and shall ensure that affected employees use these facilities when necessary.

(ii) The employer shall ensure that employees who have skin contact with chromium (VI) wash their hands and faces at the end of the work shift and prior to eating, drinking, smoking, chewing tobacco or gum, applying cosmetics, or using the toilet.

(4) *Eating and drinking areas.* (i) Whenever the employer allows employees to consume food or beverages at a worksite where chromium (VI) is present, the employer shall ensure that eating and drinking areas and surfaces are maintained as free as practicable of chromium (VI).

(ii) The employer shall ensure that employees do not enter eating and drinking areas with protective work clothing or equipment unless surface chromium (VI) has been removed from the clothing and equipment by methods that do not disperse chromium (VI) into the air or onto an employee's body.

(5) *Prohibited activities.* The employer shall ensure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in regulated areas, or in areas where skin or eye contact with chromium (VI) occurs; or carry the products associated with these activities, or store such products in these areas.

(j) *Housekeeping.* (1) *General.* The employer shall ensure that:

(i) All surfaces are maintained as free as practicable of accumulations of chromium (VI).

(ii) All spills and releases of chromium (VI) containing material are cleaned up promptly.

(2) *Cleaning methods.* (i) The employer shall ensure that surfaces contaminated with chromium (VI) are cleaned by HEPA-filter vacuuming or other methods that minimize the likelihood of exposure to chromium (VI).

(ii) Dry shoveling, dry sweeping, and dry brushing may be used only where HEPA-filtered vacuuming or other methods that minimize the likelihood of exposure to chromium (VI) have been tried and found not to be effective.

(iii) The employer shall not allow compressed air to be used to remove chromium (VI) from any surface unless:

(A) The compressed air is used in conjunction with a ventilation system designed to capture the dust cloud created by the compressed air; or

(B) No alternative method is feasible.

(iv) The employer shall ensure that cleaning equipment is handled in a manner that minimizes the reentry of chromium (VI) into the workplace.

(3) *Disposal.* The employer shall ensure that:

(i) Waste, scrap, debris, and any other materials contaminated with chromium (VI) and consigned for disposal are collected and disposed of in sealed, impermeable bags or other closed, impermeable containers.

(ii) Bags or containers of waste, scrap, debris, and any other materials contaminated with chromium (VI) that are consigned for disposal are labeled in accordance with the requirements of the Hazard Communication Standard, 29 CFR 1910.1200.

(k) *Medical surveillance.* (1) *General.* (i) The employer shall make medical surveillance available at no cost to the employee, and at a reasonable time and place, for all employees:

(A) Who are or may be occupationally exposed to chromium (VI) at or above the action level for 30 or more days a year;

(B) Experiencing signs or symptoms of the adverse health effects associated with chromium (VI) exposure; or

(C) Exposed in an emergency.

(ii) The employer shall assure that all medical examinations and procedures required by this section are performed by or under the supervision of a PLHCP.

(2) *Frequency.* The employer shall provide a medical examination:

(i) Within 30 days after initial assignment, unless the employee has received a chromium (VI) related medical examination that meets the requirements of this paragraph within the last twelve months;

(ii) Annually;

(iii) Within 30 days after a PLHCP's written medical opinion recommends an additional examination;

(iv) Whenever an employee shows signs or symptoms of the adverse health effects associated with chromium (VI) exposure;

(v) Within 30 days after exposure during an emergency which results in an uncontrolled release of chromium (VI); or

(vi) At the termination of employment, unless the last examination that satisfied the requirements of paragraph (k) of this section was less than six months prior to the date of termination.

(3) *Contents of examination.* A medical examination consists of:

(i) A medical and work history, with emphasis on: Past, present, and anticipated future exposure to chromium (VI); any history of respiratory system dysfunction; any history of asthma, dermatitis, skin ulceration, or nasal septum perforation; and smoking status and history;

(ii) A physical examination of the skin and respiratory tract; and

(iii) Any additional tests deemed appropriate by the examining PLHCP.

(4) *Information provided to the PLHCP.* The employer shall ensure that the examining PLHCP has a copy of this standard, and shall provide the following information:

(i) A description of the affected employee's former, current, and anticipated duties as they relate to the employee's occupational exposure to chromium (VI);

(ii) The employee's former, current, and anticipated levels of occupational exposure to chromium (VI);

(iii) A description of any personal protective equipment used or to be used by the employee, including when and for how long the employee has used that equipment; and

(iv) Information from records of employment-related medical

examinations previously provided to the affected employee, currently within the control of the employer.

(5) *PLHCP's written medical opinion.* (i) The employer shall obtain a written medical opinion from the PLHCP, within 30 days for each medical examination performed on each employee, which contains:

(A) The PLHCP's opinion as to whether the employee has any detected medical condition(s) that would place the employee at increased risk of material impairment to health from further exposure to chromium (VI);

(B) Any recommended limitations upon the employee's exposure to chromium (VI) or upon the use of personal protective equipment such as respirators;

(C) A statement that the PLHCP has explained to the employee the results of the medical examination, including any medical conditions related to chromium (VI) exposure that require further evaluation or treatment, and any special provisions for use of protective clothing or equipment.

(ii) The PLHCP shall not reveal to the employer specific findings or diagnoses unrelated to occupational exposure to chromium (VI).

(iii) The employer shall provide a copy of the PLHCP's written medical opinion to the examined employee within two weeks after receiving it.

(l) *Communication of chromium (VI) hazards to employees.*

(1) *General.* In addition to the requirements of the Hazard Communication Standard, 29 CFR 1910.1200, employers shall comply with the following requirements.

(2) *Employee information and training.* (i) The employer shall ensure that each employee can demonstrate knowledge of at least the following:

(A) The contents of this section; and

(B) The purpose and a description of the medical surveillance program required by paragraph (k) of this section.

(ii) The employer shall make a copy of this section readily available without cost to all affected employees.

(m) *Recordkeeping.* (1) *Air monitoring data.* (i) The employer shall maintain an accurate record of all air monitoring conducted to comply with the requirements of this section.

(ii) This record shall include at least the following information:

(A) The date of measurement for each sample taken;

(B) The operation involving exposure to chromium (VI) that is being monitored;

(C) Sampling and analytical methods used and evidence of their accuracy;

(D) Number, duration, and the results of samples taken;

(E) Type of personal protective equipment, such as respirators worn; and

(F) Name, social security number, and job classification of all employees represented by the monitoring, indicating which employees were actually monitored.

(iii) The employer shall ensure that exposure records are maintained and made available in accordance with 29 CFR 1910.1020.

(2) *Historical monitoring data.* (i) Where the employer has relied on historical monitoring data to determine exposure to chromium (VI), the employer shall establish and maintain an accurate record of the historical monitoring data relied upon.

(ii) The record shall include information that reflects the following conditions:

(A) The data were collected using methods that meet the accuracy requirements of paragraph (d)(5) of this section;

(B) The processes and work practices that were in use when the historical monitoring data were obtained are essentially the same as those to be used during the job for which exposure is being determined;

(C) The characteristics of the chromium (VI) containing material being handled when the historical monitoring data were obtained are the same as those on the job for which exposure is being determined;

(D) Environmental conditions prevailing when the historical monitoring data were obtained are the same as those on the job for which exposure is being determined; and

(E) Other data relevant to the operations, materials, processing, or employee exposures covered by the exception.

(iii) The employer shall ensure that historical exposure records are maintained and made available in accordance with 29 CFR 1910.1020.

(3) *Objective data.* (i) The employer shall maintain an accurate record of all objective data relied upon to comply with the requirements of this section.

(ii) This record shall include at least the following information:

(A) The chromium containing material in question;

(B) The source of the objective data;

(C) The testing protocol and results of testing, or analysis of the material for the release of chromium (VI);

(D) A description of the process, operation, or activity and how the data support the determination; and

(E) Other data relevant to the process, operation, activity, material, or employee exposures.

(iii) The employer shall ensure that objective data are maintained and made available in accordance with 29 CFR 1910.1020.

(4) *Medical surveillance.* (i) The employer shall establish and maintain an accurate record for each employee covered by medical surveillance under paragraph (k) of this section.

(ii) The record shall include the following information about the employee:

(A) Name and social security number;

(B) A copy of the PLHCP's written opinions;

(C) A copy of the information provided to the PLHCP as required by paragraph (k)(4) of this section.

(iii) The employer shall ensure that medical records are maintained and made available in accordance with 29 CFR 1910.1020.

(n) *Dates.* (1) For employers with 20 or more employees, all obligations of this section, except engineering controls required by paragraph (f) of this section, commence November 27, 2006.

(2) For employers with 19 or fewer employees, all obligations of this section, except engineering controls required by paragraph (f) of this section, commence May 30, 2007.

(3) For all employers, engineering controls required by paragraph (f) of this section shall be implemented no later than May 31, 2010.

PART 1915—[AMENDED]

■ 5. The authority citation for 29 CFR part 1915 is revised to read as follows:

Authority: Section 41, Longshore and Harbor Workers' Compensation Act (33 U.S.C. 941); sections 4, 6, 8, Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); Secretary of Labor's Order No. 12–71 (36 FR 8754), 8–76 (41 FR 25059), 9–83 (48 FR 35736), 1–90 (55 FR 9033), 6–96 (62 FR 111), 3–2000 (65 FR 50017) or 5–2002 (67 FR 65008), as applicable.

Sections 1915.120, 1915.152 and 1915.1026 also issued under 29 CFR part 1911.

Section 1915.1001 also issued under 5 U.S.C. 553. 1915.1000 Air contaminants.

* * * * *

■ 6. In § 1915.1000, Table Z, the entries for ''tert-Butyl chromate (as CrO_3)'', and ''Chromic acid and chromates (as CrO_3)'' are revised to read as follows:

§ 1915.1000 Air contaminants.

* * * * *

TABLE Z.—SHIPYARDS

Substance	CAS No.[d]	ppm[a*]		mg/m³ [b*]		Skin designation
*	*	*	*	*	*	*
tert-Butyl chromate (as CrO_3); see 1915.1026[n].	1189–85–1					
1						
*	*	*	*	*	*	*
Chromium (VI) Compounds; see 1915.1026[o].						
*	*	*	*	*	*	*
*	*	*	*	*	*	*
*	*	*	*	*	*	*

[3] Use Asbestos Limit § 1915.1001.
[*] The PELS are 8-hour TWAs unless otherwise noted; a (C) designation denotes a ceiling limit. They are to be determined from breathing-zone air samples.
[a] Parts of vapor or gas per million parts of contaminated air by volume at 25° C and 760 torr.
[b] Milligrams of substance per cubic meter of air. When entry is in this column only, the value is exact; when listed with a ppm entry, it is approximate.
[d] The CAS number is for information only. Enforcement is based on the substance name. For an entry covering more than one metal compound, measured as the metal, the CAS number for the metal is given—not CAS numbers for the individual compounds.
[n] If the exposure limit in 1915.1026 is stayed or is not otherwise in effect, the TLV is a ceiling of 0.1 μg/m³ (as CrO_3).
[o] If the exposure limit in 1915.1026 is stayed or is otherwise not in effect, the TLV is 0.1 μg/m³ (as CrO_3) as an 8-hour TWA.

■ 7. A new § 1915.1026 is added, to read as follows:

§ 1915.1026 Chromium (VI).

(a) *Scope.* (1) This standard applies to occupational exposures to chromium (VI) in all forms and compounds in shipyards, marine terminals, and longshoring, except:

(2) Exposures that occur in the application of pesticides regulated by the Environmental Protection Agency or another Federal government agency (e.g., the treatment of wood with preservatives);

(3) Exposures to portland cement; or

(4) Where the employer has objective data demonstrating that a material containing chromium or a specific process, operation, or activity involving chromium cannot release dusts, fumes, or mists of chromium (VI) in concentrations at or above 0.5 μg/m³ as an 8-hour time-weighted average (TWA) under any expected conditions of use.

(b) *Definitions.* For the purposes of this section the following definitions apply:

Action level means a concentration of airborne chromium (VI) of 2.5 micrograms per cubic meter of air (2.5 μg/m³) calculated as an 8-hour time-weighted average (TWA).

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

Chromium (VI) [hexavalent chromium or Cr(VI)] means chromium with a valence of positive six, in any form and in any compound.

Director means the Director of the National Institute for Occupational Safety and Health (NIOSH), U.S. Department of Health and Human Services, or designee.

Emergency means any occurrence that results, or is likely to result, in an uncontrolled release of chromium (VI). If an incidental release of chromium (VI) can be controlled at the time of release by employees in the immediate release area, or by maintenance personnel, it is not an emergency.

Employee exposure means the exposure to airborne chromium (VI) that would occur if the employee were not using a respirator.

High-efficiency particulate air [HEPA] filter means a filter that is at least 99.97 percent efficient in removing mono-dispersed particles of 0.3 micrometers in diameter or larger.

Historical monitoring data means data from chromium (VI) monitoring conducted prior to May 30, 2006, obtained during work operations conducted under workplace conditions closely resembling the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

Objective data means information such as air monitoring data from industry-wide surveys or calculations based on the composition or chemical and physical properties of a substance demonstrating the employee exposure to chromium (VI) associated with a particular product or material or a specific process, operation, or activity. The data must reflect workplace conditions closely resembling the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

Physician or other licensed health care professional [PLHCP] is an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the particular health care services required by paragraph (i) of this section.

This section means this § 1915.1026 chromium (VI) standard.

(c) *Permissible exposure limit (PEL).* The employer shall ensure that no employee is exposed to an airborne concentration of chromium (VI) in excess of 5 micrograms per cubic meter of air (5 μg/m³), calculated as an 8-hour time-weighted average (TWA).

(d) *Exposure determination.* (1) *General.* Each employer who has a workplace or work operation covered by this section shall determine the 8-hour TWA exposure for each employee exposed to chromium (VI). This determination shall be made in accordance with either paragraph (d)(2) or paragraph (d)(3) of this section.

(2) *Scheduled monitoring option.* (i) The employer shall perform initial monitoring to determine the 8-hour TWA exposure for each employee on the basis of a sufficient number of personal breathing zone air samples to accurately characterize full shift exposure on each shift, for each job classification, in each work area. Where an employer does representative

sampling instead of sampling all employees in order to meet this requirement, the employer shall sample the employee(s) expected to have the highest chromium (VI) exposures.

(ii) If initial monitoring indicates that employee exposures are below the action level, the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring.

(iii) If monitoring reveals employee exposures to be at or above the action level, the employer shall perform periodic monitoring at least every six months.

(iv) If monitoring reveals employee exposures to be above the PEL, the employer shall perform periodic monitoring at least every three months.

(v) If periodic monitoring indicates that employee exposures are below the action level, and the result is confirmed by the result of another monitoring taken at least seven days later, the employer may discontinue the monitoring for those employees whose exposures are represented by such monitoring.

(vi) The employer shall perform additional monitoring when there has been any change in the production process, raw materials, equipment, personnel, work practices, or control methods that may result in new or additional exposures to chromium (VI), or when the employer has any reason to believe that new or additional exposures have occurred.

(3) *Performance-oriented option.* The employer shall determine the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data, historical monitoring data, or objective data sufficient to accurately characterize employee exposure to chromium (VI).

(4) *Employee notification of determination results.* (i) Where the exposure determination indicates that employee exposure exceeds the PEL, as soon as possible but not more than 5 working days later the employer shall either post the results in an appropriate location that is accessible to all affected employees or shall notify each affected employee individually in writing of the results.

(ii) Whenever the exposure determination indicates that employee exposure is above the PEL, the employer shall describe in the written notification the corrective action being taken to reduce employee exposure to or below the PEL.

(5) *Accuracy of measurement.* Where air monitoring is performed to comply with the requirements of this section, the employer shall use a method of monitoring and analysis that can measure chromium (VI) to within an accuracy of plus or minus 25 percent (+/−25%) and can produce accurate measurements to within a statistical confidence level of 95 percent for airborne concentrations at or above the action level.

(6) *Observation of monitoring.* (i) Where air monitoring is performed to comply with the requirements of this section, the employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to chromium (VI).

(ii) When observation of monitoring requires entry into an area where the use of protective clothing or equipment is required, the employer shall provide the observer with clothing and equipment and shall assure that the observer uses such clothing and equipment and complies with all other applicable safety and health procedures.

(e) *Methods of compliance.* (1) *Engineering and work practice controls.* (i) Except as permitted in paragraph (e)(1)(ii) of this section, the employer shall use engineering and work practice controls to reduce and maintain employee exposure to chromium (VI) to or below the PEL unless the employer can demonstrate that such controls are not feasible. Wherever feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, the employer shall use them to reduce employee exposure to the lowest levels achievable, and shall supplement them by the use of respiratory protection that complies with the requirements of paragraph (f) of this section.

(ii) Where the employer can demonstrate that a process or task does not result in any employee exposure to chromium (VI) above the PEL for 30 or more days per year (12 consecutive months), the requirement to implement engineering and work practice controls to achieve the PEL does not apply to that process or task.

(2) *Prohibition of rotation.* The employer shall not rotate employees to different jobs to achieve compliance with the PEL.

(f) *Respiratory protection.* (1) *General.* The employer shall provide respiratory protection for employees during:

(i) Periods necessary to install or implement feasible engineering and work practice controls;

(ii) Work operations, such as maintenance and repair activities, for which engineering and work practice controls are not feasible;

(iii) Work operations for which an employer has implemented all feasible engineering and work practice controls and such controls are not sufficient to reduce exposures to or below the PEL;

(iv) Work operations where employees are exposed above the PEL for fewer than 30 days per year, and the employer has elected not to implement engineering and work practice controls to achieve the PEL; or

(v) Emergencies.

(2) *Respiratory protection program.* Where respirator use is required by this section, the employer shall institute a respiratory protection program in accordance with 29 CFR 1910.134.

(g) *Protective work clothing and equipment.* (1) *Provision and use.* Where a hazard is present or is likely to be present from skin or eye contact with chromium (VI), the employer shall provide appropriate personal protective clothing and equipment at no cost to employees, and shall ensure that employees use such clothing and equipment.

(2) *Removal and storage.* (i) The employer shall ensure that employees remove all protective clothing and equipment contaminated with chromium (VI) at the end of the work shift or at the completion of their tasks involving chromium (VI) exposure, whichever comes first.

(ii) The employer shall ensure that no employee removes chromium (VI)-contaminated protective clothing or equipment from the workplace, except for those employees whose job it is to launder, clean, maintain, or dispose of such clothing or equipment.

(iii) When contaminated protective clothing or equipment is removed for laundering, cleaning, maintenance, or disposal, the employer shall ensure that it is stored and transported in sealed, impermeable bags or other closed, impermeable containers.

(iv) Bags or containers of contaminated protective clothing or equipment that are removed from change rooms for laundering, cleaning, maintenance, or disposal shall be labeled in accordance with the requirements of the Hazard Communication Standard, 29 CFR 1910.1200.

(3) *Cleaning and replacement.* (i) The employer shall clean, launder, repair and replace all protective clothing and equipment required by this section as needed to maintain its effectiveness.

(ii) The employer shall prohibit the removal of chromium (VI) from protective clothing and equipment by blowing, shaking, or any other means that disperses chromium (VI) into the air or onto an employee's body.

(iii) The employer shall inform any person who launders or cleans

protective clothing or equipment contaminated with chromium (VI) of the potentially harmful effects of exposure to chromium (VI) and that the clothing and equipment should be laundered or cleaned in a manner that minimizes skin or eye contact with chromium (VI) and effectively prevents the release of airborne chromium (VI) in excess of the PEL.

(h) *Hygiene areas and practices.* (1) *General.* Where protective clothing and equipment is required, the employer shall provide change rooms in conformance with 29 CFR 1910.141. Where skin contact with chromium (VI) occurs, the employer shall provide washing facilities in conformance with 29 CFR 1915.97. Eating and drinking areas provided by the employer shall also be in conformance with § 1915.97.

(2) *Change rooms.* The employer shall assure that change rooms are equipped with separate storage facilities for protective clothing and equipment and for street clothes, and that these facilities prevent cross-contamination.

(3) *Washing facilities.* (i) The employer shall provide readily accessible washing facilities capable of removing chromium (VI) from the skin, and shall ensure that affected employees use these facilities when necessary.

(ii) The employer shall ensure that employees who have skin contact with chromium (VI) wash their hands and faces at the end of the work shift and prior to eating, drinking, smoking, chewing tobacco or gum, applying cosmetics, or using the toilet.

(4) *Eating and drinking areas.* (i) Whenever the employer allows employees to consume food or beverages at a worksite where chromium (VI) is present, the employer shall ensure that eating and drinking areas and surfaces are maintained as free as practicable of chromium (VI).

(ii) The employer shall ensure that employees do not enter eating and drinking areas with protective work clothing or equipment unless surface chromium (VI) has been removed from the clothing and equipment by methods that do not disperse chromium (VI) into the air or onto an employee's body.

(5) *Prohibited activities.* The employer shall ensure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in areas where skin or eye contact with chromium (VI) occurs; or carry the products associated with these activities, or store such products in these areas.

(i) *Medical surveillance.* (1) *General.* (i) The employer shall make medical surveillance available at no cost to the employee, and at a reasonable time and place, for all employees:

(A) Who are or may be occupationally exposed to chromium (VI) at or above the action level for 30 or more days a year;

(B) Experiencing signs or symptoms of the adverse health effects associated with chromium (VI) exposure; or

(C) Exposed in an emergency.

(ii) The employer shall assure that all medical examinations and procedures required by this section are performed by or under the supervision of a PLHCP.

(2) *Frequency.* The employer shall provide a medical examination:

(i) Within 30 days after initial assignment, unless the employee has received a chromium (VI) related medical examination that meets the requirements of this paragraph within the last twelve months;

(ii) Annually;

(iii) Within 30 days after a PLHCP's written medical opinion recommends an additional examination;

(iv) Whenever an employee shows signs or symptoms of the adverse health effects associated with chromium (VI) exposure;

(v) Within 30 days after exposure during an emergency which results in an uncontrolled release of chromium (VI); or

(vi) At the termination of employment, unless the last examination that satisfied the requirements of paragraph (i) of this section was less than six months prior to the date of termination.

(3) *Contents of examination.* A medical examination consists of:

(i) A medical and work history, with emphasis on: past, present, and anticipated future exposure to chromium (VI); any history of respiratory system dysfunction; any history of asthma, dermatitis, skin ulceration, or nasal septum perforation; and smoking status and history;

(ii) A physical examination of the skin and respiratory tract; and

(iii) Any additional tests deemed appropriate by the examining PLHCP.

(4) *Information provided to the PLHCP.* The employer shall ensure that the examining PLHCP has a copy of this standard, and shall provide the following information:

(i) A description of the affected employee's former, current, and anticipated duties as they relate to the employee's occupational exposure to chromium (VI);

(ii) The employee's former, current, and anticipated levels of occupational exposure to chromium (VI);

(iii) A description of any personal protective equipment used or to be used by the employee, including when and for how long the employee has used that equipment; and

(iv) Information from records of employment-related medical examinations previously provided to the affected employee, currently within the control of the employer.

(5) *PLHCP's written medical opinion.* (i) The employer shall obtain a written medical opinion from the PLHCP, within 30 days for each medical examination performed on each employee, which contains:

(A) The PLHCP's opinion as to whether the employee has any detected medical condition(s) that would place the employee at increased risk of material impairment to health from further exposure to chromium (VI);

(B) Any recommended limitations upon the employee's exposure to chromium (VI) or upon the use of personal protective equipment such as respirators;

(C) A statement that the PLHCP has explained to the employee the results of the medical examination, including any medical conditions related to chromium (VI) exposure that require further evaluation or treatment, and any special provisions for use of protective clothing or equipment.

(ii) The PLHCP shall not reveal to the employer specific findings or diagnoses unrelated to occupational exposure to chromium (VI).

(iii) The employer shall provide a copy of the PLHCP's written medical opinion to the examined employee within two weeks after receiving it.

(j) *Communication of chromium (VI) hazards to employees.* (1) *General.* In addition to the requirements of the Hazard Communication Standard, 29 CFR 1910.1200, employers shall comply with the following requirements.

(2) *Employee information and training.* (i) The employer shall ensure that each employee can demonstrate knowledge of at least the following:

(A) The contents of this section; and

(B) The purpose and a description of the medical surveillance program required by paragraph (i) of this section.

(ii) The employer shall make a copy of this section readily available without cost to all affected employees.

(k) *Recordkeeping.* (1) *Air monitoring data.* (i) The employer shall maintain an accurate record of all air monitoring conducted to comply with the requirements of this section.

(ii) This record shall include at least the following information:

(A) The date of measurement for each sample taken;

(B) The operation involving exposure to chromium (VI) that is being monitored;

(C) Sampling and analytical methods used and evidence of their accuracy;

(D) Number, duration, and the results of samples taken;

(E) Type of personal protective equipment, such as respirators worn; and

(F) Name, social security number, and job classification of all employees represented by the monitoring, indicating which employees were actually monitored.

(iii) The employer shall ensure that exposure records are maintained and made available in accordance with 29 CFR 1910.1020.

(2) *Historical monitoring data.* (i) Where the employer has relied on historical monitoring data to determine exposure to chromium (VI), the employer shall establish and maintain an accurate record of the historical monitoring data relied upon.

(ii) The record shall include information that reflects the following conditions:

(A) The data were collected using methods that meet the accuracy requirements of paragraph (d)(5) of this section;

(B) The processes and work practices that were in use when the historical monitoring data were obtained are essentially the same as those to be used during the job for which exposure is being determined;

(C) The characteristics of the chromium (VI) containing material being handled when the historical monitoring data were obtained are the same as those on the job for which exposure is being determined;

(D) Environmental conditions prevailing when the historical monitoring data were obtained are the same as those on the job for which exposure is being determined; and

(E) Other data relevant to the operations, materials, processing, or employee exposures covered by the exception.

(iii) The employer shall ensure that historical exposure records are maintained and made available in accordance with 29 CFR 1910.1020.

(3) *Objective data.* (i) The employer shall maintain an accurate record of all objective data relied upon to comply with the requirements of this section.

(ii) This record shall include at least the following information:

(A) The chromium containing material in question;

(B) The source of the objective data;

(C) The testing protocol and results of testing, or analysis of the material for the release of chromium (VI);

(D) A description of the process, operation, or activity and how the data support the determination; and

(E) Other data relevant to the process, operation, activity, material, or employee exposures.

(iii) The employer shall ensure that objective data are maintained and made available in accordance with 29 CFR 1910.1020.

(4) *Medical surveillance.* (i) The employer shall establish and maintain an accurate record for each employee covered by medical surveillance under paragraph (i) of this section.

(ii) The record shall include the following information about the employee:

(A) Name and social security number;

(B) A copy of the PLHCP's written opinions;

(C) A copy of the information provided to the PLHCP as required by paragraph (i)(4) of this section.

(iii) The employer shall ensure that medical records are maintained and made available in accordance with 29 CFR 1910.1020.

(l) *Dates.* (1) For employers with 20 or more employees, all obligations of this section, except engineering controls required by paragraph (e) of this section, commence November 27, 2006.

(2) For employers with 19 or fewer employees, all obligations of this section, except engineering controls required by paragraph (e) of this section, commence May 30, 2007.

(3) For all employers, engineering controls required by paragraph (e) of this section shall be implemented no later than May 31, 2010.

PART 1917—[AMENDED]

■ 8. The authority citation for 29 CFR Part 1917 is revised to read as follows:

Authority: Section 41, Longshore and Harbor Workers' Compensation Act (33 U.S.C. 941); sections 4, 6, 8, Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); Secretary of Labor's Order Nos. 12–71 (36 FR 8754), 8–76 (41 FR 25059), 9–83 (48 FR 35736), 6–96 (62 FR 111), or 5–2002 (67 FR 65008), as applicable; and 29 CFR part 1911.

Section 1917.28 also issued under 5 U.S.C. 553.

Section 1917.29 also issued under Sec.29, Hazardous Materials Transportation Uniform Safety Act of 1990 (49 U.S.C. 1801–1819 and 5 U.S.C. 553).

■ 9. New paragraphs (a)(2)(xiii)(E) and (b) are added to § 1917.1, to read as follows:

§ 1917.1 Scope and applicability.

(a) * * *

(2) * * *

(xiii) * * *

(E) Hexavalent chromium § 1910.1026 (See § 1915.1026)

* * * * *

(b) Section 1915.1026 applies to any occupational exposures to hexavalent chromium in workplaces covered by this Part.

PART 1918—[AMENDED]

■ 10. The authority citation for 29 CFR part 1918 is revised to read as follows:

Authority: Sections 4, 6, 8, Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); section 41, Longshore and Harbor Workers' Compensation Act (33 U.S.C. 941); Secretary of Labor's Order Nos. 12–71 (36 FR 8754); 8–76 (41 FR 25059), 9–83 (48 FR 35736); 6–96 (62 FR 111) or 5–2002 (67 FR 65008), as applicable; and 29 CFR part 1911.

Section 1918.90 also issued under 5 U.S.C. 553

Section 1918.100 also issued under Sec. 29, Hazardous Materials Transportation Uniform Safety Act of 1990 (49 U.S.C. 1801–1819 and 5 U.S.C. 553).

■ 11. New paragraphs (b)(9)(v) and (c) are added to § 1918.1 to read as follows:

§ 1918.1 Scope and application.

* * * * *

(b) * * *

(9) * * *

(v) Hexavalent chromium § 1910.1026 (See § 1915.1026)

* * * * *

(c) Section 1915.1026 applies to any occupational exposures to hexavalent chromium in workplaces covered by this part.

PART 1926—[AMENDED]

Subpart D—[Amended]

■ 12. The authority citation for subpart D of 29 CFR part 1926 is revised to read as follows:

Authority: Section 107, Contract Work Hours and Safety Standards Act (40 U.S.C. 333); sections 4, 6, 8, Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657);5 U.S.C. 553; Secretary of Labor's Order Nos. 12–71 (36 FR 8754), 8–76 (41 FR 25059), 9–83 (48 FR 35736), 1–90 (55 FR 9033), 6–96 (62 FR 111), 3–2000 (65 FR 50017), or 5–2002 (67 FR 65008), as applicable; and 29 CFR part 1911.

■ 13. In Appendix A to § 1926.55, the entries for ''tert-Butyl chromate (as CrO_3)'' and ''Chromic acid and chromates (as CrO_3)'' are revised to read as follows:

§ 1926.55 Gases, vapors, fumes, dusts, and mists.

* * * * *

APPENDIX A TO § 1926.55.—1970 AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS' THRESHOLD LIMIT VALUES OF AIRBORNE CONTAMINANTS

[Threshold limit values of airborne contaminants for construction]

Substance	CAS No.[d]	ppm [a]	mg/m³ [b]	Skin designation
* * *	*	*	*	*
tert-Butyl chromate (as CrO_3); see 1926.1126[n].	1189–85–1			
* * *	*	*	*	*
Chromium (VI) Compounds; See 1926.1126[o].				
* * *	*	*	*	*

* * * * * * *

[3] Use Asbestos Limit § 1915.1001

[a] Parts of vapor or gas per million parts of contaminated air by volume at 25° C and 760 torr.

[b] Milligrams of substance per cubic meter of air. When entry is in this column only, the value is exact; when listed with a ppm entry, it is approximate.

[d] The CAS number is for information only. Enforcement is based on the substance name. For an entry covering more than one metal compound, measured as the metal, the CAS number for the metal is given—not CAS numbers for the individual compounds.

[n] If the exposure limit in 1926.1026 is stayed or is not otherwise in effect, the TLV is a ceiling of 0.1 mg/m³ (as CrO_3).

[o] If the exposure limit in 1926.1026 is stayed or is not otherwise in effect, the TLV is 0.1 mg/m³ (as CrO_3) as an 8-hour TWA.

Subpart Z—[Amended]

■ 14. The authority citation for subpart Z of 29 CFR part 1926 is revised to read as follows:

Authority: Section 107, Contract Work Hours and Safety Standards Act (40 U.S.C. 333); Sections 4, 6, 8, Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); Secretary of Labor's Order Nos. 12–71 (36 FR 8754), 8–76 (41 FR 25059), 9–83 (48 FR 35736), 1–90 (55 FR 9033), 6–96 (62 FR 111), 3–2000 (65 FR 50017) or 5–2002 (67 FR 65008), as applicable; and 29 CFR part 1911.

Sections 1926.1101 and 1926.1127 also issued under 5 U.S.C. 553.

Section 1926.1102 not issued under 29 U. S. C. 655 or 29 CFR part 1911; also issued under 5 U.S.C. 553.

■ 16. A new section 1926.1126 is added to subpart Z of 29 CFR part 1926 to read as follows:

§ 1926.1126 Chromium (VI).

(a) *Scope.* (1) This standard applies to occupational exposures to chromium (VI) in all forms and compounds in construction, except:

(2) Exposures that occur in the application of pesticides regulated by the Environmental Protection Agency or another Federal government agency (*e.g.*, the treatment of wood with preservatives);

(3) Exposures to portland cement; or

(4) Where the employer has objective data demonstrating that a material containing chromium or a specific process, operation, or activity involving chromium cannot release dusts, fumes, or mists of chromium (VI) in concentrations at or above 0.5 μg/m³ as an 8-hour time-weighted average (TWA) under any expected conditions of use.

(b) *Definitions.* For the purposes of this section the following definitions apply:

Action level means a concentration of airborne chromium (VI) of 2.5 micrograms per cubic meter of air (2.5 μg/m³) calculated as an 8-hour time-weighted average (TWA).

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

Chromium (VI) [hexavalent chromium or Cr(VI)] means chromium with a valence of positive six, in any form and in any compound.

Director means the Director of the National Institute for Occupational Safety and Health (NIOSH), U.S. Department of Health and Human Services, or designee.

Emergency means any occurrence that results, or is likely to result, in an uncontrolled release of chromium (VI). If an incidental release of chromium (VI) can be controlled at the time of release by employees in the immediate release area, or by maintenance personnel, it is not an emergency.

Employee exposure means the exposure to airborne chromium (VI) that would occur if the employee were not using a respirator.

High-efficiency particulate air [HEPA] filter means a filter that is at least 99.97 percent efficient in removing mono-dispersed particles of 0.3 micrometers in diameter or larger.

Historical monitoring data means data from chromium (VI) monitoring conducted prior to May 30, 2006, obtained during work operations conducted under workplace conditions closely resembling the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

Objective data means information such as air monitoring data from industry-wide surveys or calculations based on the composition or chemical and physical properties of a substance demonstrating the employee exposure to chromium (VI) associated with a particular product or material or a specific process, operation, or activity. The data must reflect workplace conditions closely resembling the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

Physician or other licensed health care professional [PLHCP] is an individual whose legally permitted scope of practice (*i.e.*, license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the particular health care services required by paragraph (i) of this section.

This section means this § 1926.1126 chromium (VI) standard.

(c) *Permissible exposure limit (PEL).* The employer shall ensure that no employee is exposed to an airborne concentration of chromium (VI) in excess of 5 micrograms per cubic meter of air (5 μg/m³), calculated as an 8-hour time-weighted average (TWA).

(d) *Exposure determination.* (1) *General.* Each employer who has a workplace or work operation covered by this section shall determine the 8-hour TWA exposure for each employee exposed to chromium (VI). This determination shall be made in

accordance with either paragraph (d)(2) or paragraph (d)(3) of this section.

(2) *Scheduled monitoring option.* (i) The employer shall perform initial monitoring to determine the 8-hour TWA exposure for each employee on the basis of a sufficient number of personal breathing zone air samples to accurately characterize full shift exposure on each shift, for each job classification, in each work area. Where an employer does representative sampling instead of sampling all employees in order to meet this requirement, the employer shall sample the employee(s) expected to have the highest chromium (VI) exposures.

(ii) If initial monitoring indicates that employee exposures are below the action level, the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring.

(iii) If monitoring reveals employee exposures to be at or above the action level, the employer shall perform periodic monitoring at least every six months.

(iv) If monitoring reveals employee exposures to be above the PEL, the employer shall perform periodic monitoring at least every three months.

(v) If periodic monitoring indicates that employee exposures are below the action level, and the result is confirmed by the result of another monitoring taken at least seven days later, the employer may discontinue the monitoring for those employees whose exposures are represented by such monitoring.

(vi) The employer shall perform additional monitoring when there has been any change in the production process, raw materials, equipment, personnel, work practices, or control methods that may result in new or additional exposures to chromium (VI), or when the employer has any reason to believe that new or additional exposures have occurred.

(3) *Performance-oriented option.* The employer shall determine the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data, historical monitoring data, or objective data sufficient to accurately characterize employee exposure to chromium (VI).

(4) *Employee notification of determination results.* (i) Where the exposure determination indicates that employee exposure exceeds the PEL, as soon as possible but not more than 5 working days later the employer shall either post the results in an appropriate location that is accessible to all affected employees or shall notify each affected employee individually in writing of the results.

(ii) Whenever the exposure determination indicates that employee exposure is above the PEL, the employer shall describe in the written notification the corrective action being taken to reduce employee exposure to or below the PEL.

(5) *Accuracy of measurement.* Where air monitoring is performed to comply with the requirements of this section, the employer shall use a method of monitoring and analysis that can measure chromium (VI) to within an accuracy of plus or minus 25 percent (±25%) and can produce accurate measurements to within a statistical confidence level of 95 percent for airborne concentrations at or above the action level.

(6) *Observation of monitoring.* (i) Where air monitoring is performed to comply with the requirements of this section, the employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to chromium (VI).

(ii) When observation of monitoring requires entry into an area where the use of protective clothing or equipment is required, the employer shall provide the observer with clothing and equipment and shall assure that the observer uses such clothing and equipment and complies with all other applicable safety and health procedures.

(e) *Methods of compliance.* (1) *Engineering and work practice controls.* (i) Except as permitted in paragraph (e)(1)(ii) of this section, the employer shall use engineering and work practice controls to reduce and maintain employee exposure to chromium (VI) to or below the PEL unless the employer can demonstrate that such controls are not feasible. Wherever feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, the employer shall use them to reduce employee exposure to the lowest levels achievable, and shall supplement them by the use of respiratory protection that complies with the requirements of paragraph (f) of this section.

(ii) Where the employer can demonstrate that a process or task does not result in any employee exposure to chromium (VI) above the PEL for 30 or more days per year (12 consecutive months), the requirement to implement engineering and work practice controls to achieve the PEL does not apply to that process or task.

(2) *Prohibition of rotation.* The employer shall not rotate employees to different jobs to achieve compliance with the PEL.

(f) *Respiratory protection.* (1) *General.* The employer shall provide respiratory protection for employees during:

(i) Periods necessary to install or implement feasible engineering and work practice controls;

(ii) Work operations, such as maintenance and repair activities, for which engineering and work practice controls are not feasible;

(iii) Work operations for which an employer has implemented all feasible engineering and work practice controls and such controls are not sufficient to reduce exposures to or below the PEL;

(iv) Work operations where employees are exposed above the PEL for fewer than 30 days per year, and the employer has elected not to implement engineering and work practice controls to achieve the PEL; or

(v) Emergencies.

(2) *Respiratory protection program.* Where respirator use is required by this section, the employer shall institute a respiratory protection program in accordance with 29 CFR 1910.134.

(g) *Protective work clothing and equipment.* (1) *Provision and use.* Where a hazard is present or is likely to be present from skin or eye contact with chromium (VI), the employer shall provide appropriate personal protective clothing and equipment at no cost to employees, and shall ensure that employees use such clothing and equipment.

(2) *Removal and storage.* (i) The employer shall ensure that employees remove all protective clothing and equipment contaminated with chromium (VI) at the end of the work shift or at the completion of their tasks involving chromium (VI) exposure, whichever comes first.

(ii) The employer shall ensure that no employee removes chromium (VI)-contaminated protective clothing or equipment from the workplace, except for those employees whose job it is to launder, clean, maintain, or dispose of such clothing or equipment.

(iii) When contaminated protective clothing or equipment is removed for laundering, cleaning, maintenance, or disposal, the employer shall ensure that it is stored and transported in sealed, impermeable bags or other closed, impermeable containers.

(iv) Bags or containers of contaminated protective clothing or equipment that are removed from change rooms for laundering, cleaning, maintenance, or disposal shall be labeled in accordance with the requirements of the Hazard

Communication Standard, 29 CFR 1910.1200.

(3) *Cleaning and replacement.* (i) The employer shall clean, launder, repair and replace all protective clothing and equipment required by this section as needed to maintain its effectiveness.

(ii) The employer shall prohibit the removal of chromium (VI) from protective clothing and equipment by blowing, shaking, or any other means that disperses chromium (VI) into the air or onto an employee's body.

(iii) The employer shall inform any person who launders or cleans protective clothing or equipment contaminated with chromium (VI) of the potentially harmful effects of exposure to chromium (VI) and that the clothing and equipment should be laundered or cleaned in a manner that minimizes skin or eye contact with chromium (VI) and effectively prevents the release of airborne chromium (VI) in excess of the PEL.

(h) *Hygiene areas and practices.* (1) *General.* Where protective clothing and equipment is required, the employer shall provide change rooms in conformance with 29 CFR 1926.51 Where skin contact with chromium (VI) occurs, the employer shall provide washing facilities in conformance with 29 CFR 1926.51. Eating and drinking areas provided by the employer shall also be in conformance with § 1926.51.

(2) *Change rooms.* The employer shall assure that change rooms are equipped with separate storage facilities for protective clothing and equipment and for street clothes, and that these facilities prevent cross-contamination.

(3) *Washing facilities.* (i) The employer shall provide readily accessible washing facilities capable of removing chromium (VI) from the skin, and shall ensure that affected employees use these facilities when necessary.

(ii) The employer shall ensure that employees who have skin contact with chromium (VI) wash their hands and faces at the end of the work shift and prior to eating, drinking, smoking, chewing tobacco or gum, applying cosmetics, or using the toilet.

(4) *Eating and drinking areas.* (i) Whenever the employer allows employees to consume food or beverages at a worksite where chromium (VI) is present, the employer shall ensure that eating and drinking areas and surfaces are maintained as free as practicable of chromium (VI).

(ii) The employer shall ensure that employees do not enter eating and drinking areas with protective work clothing or equipment unless surface chromium (VI) has been removed from the clothing and equipment by methods that do not disperse chromium (VI) into the air or onto an employee's body.

(5) *Prohibited activities.* The employer shall ensure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in areas where skin or eye contact with chromium (VI) occurs; or carry the products associated with these activities, or store such products in these areas.

(i) *Medical surveillance.* (1) *General.* (i) The employer shall make medical surveillance available at no cost to the employee, and at a reasonable time and place, for all employees:

(A) Who are or may be occupationally exposed to chromium (VI) at or above the action level for 30 or more days a year;

(B) Experiencing signs or symptoms of the adverse health effects associated with chromium (VI) exposure; or

(C) Exposed in an emergency.

(ii) The employer shall assure that all medical examinations and procedures required by this section are performed by or under the supervision of a PLHCP.

(2) *Frequency.* The employer shall provide a medical examination:

(i) Within 30 days after initial assignment, unless the employee has received a chromium (VI) related medical examination that meets the requirements of this paragraph within the last twelve months;

(ii) Annually;

(iii) Within 30 days after a PLHCP's written medical opinion recommends an additional examination;

(iv) Whenever an employee shows signs or symptoms of the adverse health effects associated with chromium (VI) exposure;

(v) Within 30 days after exposure during an emergency which results in an uncontrolled release of chromium (VI); or

(vi) At the termination of employment, unless the last examination that satisfied the requirements of paragraph (i) of this section was less than six months prior to the date of termination.

(3) *Contents of examination.* A medical examination consists of:

(i) A medical and work history, with emphasis on: past, present, and anticipated future exposure to chromium (VI); any history of respiratory system dysfunction; any history of asthma, dermatitis, skin ulceration, or nasal septum perforation; and smoking status and history;

(ii) A physical examination of the skin and respiratory tract; and

(iii) Any additional tests deemed appropriate by the examining PLHCP.

(4) *Information provided to the PLHCP.* The employer shall ensure that the examining PLHCP has a copy of this standard, and shall provide the following information:

(i) A description of the affected employee's former, current, and anticipated duties as they relate to the employee's occupational exposure to chromium (VI);

(ii) The employee's former, current, and anticipated levels of occupational exposure to chromium (VI);

(iii) A description of any personal protective equipment used or to be used by the employee, including when and for how long the employee has used that equipment; and

(iv) Information from records of employment-related medical examinations previously provided to the affected employee, currently within the control of the employer.

(5) *PLHCP's written medical opinion.* (i) The employer shall obtain a written medical opinion from the PLHCP, within 30 days for each medical examination performed on each employee, which contains:

(A) The PLHCP's opinion as to whether the employee has any detected medical condition(s) that would place the employee at increased risk of material impairment to health from further exposure to chromium (VI);

(B) Any recommended limitations upon the employee's exposure to chromium (VI) or upon the use of personal protective equipment such as respirators;

(C) A statement that the PLHCP has explained to the employee the results of the medical examination, including any medical conditions related to chromium (VI) exposure that require further evaluation or treatment, and any special provisions for use of protective clothing or equipment.

(ii) The PLHCP shall not reveal to the employer specific findings or diagnoses unrelated to occupational exposure to chromium (VI).

(iii) The employer shall provide a copy of the PLHCP's written medical opinion to the examined employee within two weeks after receiving it.

(j) *Communication of chromium (VI) hazards to employees.* (1) *General.* In addition to the requirements of the Hazard Communication Standard, 29 CFR 1910.1200, employers shall comply with the following requirements.

(2) *Employee information and training.* (i) The employer shall ensure that each employee can demonstrate knowledge of at least the following:

(A) The contents of this section; and

(B) The purpose and a description of the medical surveillance program required by paragraph (i) of this section.

(ii) The employer shall make a copy of this section readily available without cost to all affected employees.

(k) *Recordkeeping.* (1) *Air monitoring data.* (i) The employer shall maintain an accurate record of all air monitoring conducted to comply with the requirements of this section.

(ii) This record shall include at least the following information:

(A) The date of measurement for each sample taken;

(B) The operation involving exposure to chromium (VI) that is being monitored;

(C) Sampling and analytical methods used and evidence of their accuracy;

(D) Number, duration, and the results of samples taken;

(E) Type of personal protective equipment, such as respirators worn; and

(F) Name, social security number, and job classification of all employees represented by the monitoring, indicating which employees were actually monitored.

(iii) The employer shall ensure that exposure records are maintained and made available in accordance with 29 CFR 1910.1020.

(2) *Historical monitoring data.* (i) Where the employer has relied on historical monitoring data to determine exposure to chromium (VI), the employer shall establish and maintain an accurate record of the historical monitoring data relied upon.

(ii) The record shall include information that reflects the following conditions:

(A) The data were collected using methods that meet the accuracy requirements of paragraph (d)(5) of this section;

(B) The processes and work practices that were in use when the historical monitoring data were obtained are essentially the same as those to be used during the job for which exposure is being determined;

(C) The characteristics of the chromium (VI) containing material being handled when the historical monitoring data were obtained are the same as those on the job for which exposure is being determined;

(D) Environmental conditions prevailing when the historical monitoring data were obtained are the same as those on the job for which exposure is being determined; and

(E) Other data relevant to the operations, materials, processing, or employee exposures covered by the exception.

(iii) The employer shall ensure that historical exposure records are maintained and made available in accordance with 29 CFR 1910.1020.

(3) *Objective data.* (i) The employer shall maintain an accurate record of all objective data relied upon to comply with the requirements of this section.

(ii) This record shall include at least the following information:

(A) The chromium containing material in question;

(B) The source of the objective data;

(C) The testing protocol and results of testing, or analysis of the material for the release of chromium (VI);

(D) A description of the process, operation, or activity and how the data support the determination; and

(E) Other data relevant to the process, operation, activity, material, or employee exposures.

(iii) The employer shall ensure that objective data are maintained and made available in accordance with 29 CFR 1910.1020.

(4) *Medical surveillance.* (i) The employer shall establish and maintain an accurate record for each employee covered by medical surveillance under paragraph (i) of this section.

(ii) The record shall include the following information about the employee:

(A) Name and social security number;

(B) A copy of the PLHCP's written opinions;

(C) A copy of the information provided to the PLHCP as required by paragraph (i)(4) of this section.

(iii) The employer shall ensure that medical records are maintained and made available in accordance with 29 CFR 1910.1020.

(l) *Dates.* (1) For employers with 20 or more employees, all obligations of this section, except engineering controls required by paragraph (e) of this section, commence November 27, 2006.

(2) For employers with 19 or fewer employees, all obligations of this section, except engineering controls required by paragraph (e) of this section, commence May 30, 2007.

(3) For all employers, engineering controls required by paragraph (e) of this section shall be implemented no later than May 31, 2010.

[FR Doc. 06–1589 Filed 2–27–06; 8:45 am]

BILLING CODE 4510–26–P

Federal Register

Tuesday,
February 28, 2006

Part III

Department of Labor

Office of the Secretary

Organization, Functions, and Authority Delegations: Inspector General Office; Notice

DEPARTMENT OF LABOR

Office of the Secretary

[Secretary's Order 04–2006]

Organization, Functions, and Authority Delegations: Inspector General Office

1. Purpose

To update the delegations of authority and assignments of responsibilities that have been made to the Office of Inspector General (OIG), including authorization for the OIG to provide for its own legal, personnel, and procurement services.

2. Authority and Directives Affected

A. *Authority.* This Order is issued pursuant to various Federal statutes, including but not limited to the Act of March 4, 1913 (37 Stat. 736, 29 U.S.C. 551), 5 U.S.C. 301 and 302(b)(1), and the Inspector General Act of 1978, as amended (92 Stat. 1101, 5 U.S.C. App. 3).

B. *Directives Affected.* Secretary's Order 2–90 is superseded by this Directive.

3. Policy

It continues to be the policy of the Department of Labor (DOL) to utilize its resources so as to promote economy and efficiency in the administration of its programs and operations, and to prevent and detect fraud, waste and abuse in such programs and operations. Pursuant to this policy, DOL is fully committed to supporting the audit, investigative, and oversight efforts of the OIG.

4. Background

The Inspector General Act of 1978 (originally implemented by Secretary's Order 1–80 and previously amended by Secretary's Order 2–90) established an OIG within the Department of Labor to: Conduct and supervise audits and investigations relating to the programs and operations of DOL; provide leadership and coordination and recommend policies for activities designed to promote economy and efficiency in the administration of DOL programs and operations; provide leadership and coordination to prevent and detect fraud and abuse in DOL programs and operations, and; provide a means to keep the Secretary and the Congress fully and currently informed about problems and deficiencies in DOL programs and operations.

This Order confirms that such authority is established within the OIG. This Order also recognizes the unique role of the OIG, as set forth in the Inspector General Act of 1978, as amended, and as described above. This Order also reaffirms and preserves the Solicitor's longstanding role as chief legal officer for the Secretary and the Department, and the Solicitor's exclusive role in furnishing legal services of all kinds to the Secretary, the Department, and its constituent agencies (excluding the OIG). This Order shall not be construed as conferring authority on any agency of the Department other than the OIG to hire attorneys or otherwise to obtain or provide for legal services other than through the Solicitor of Labor.

5. Authority and Responsibilities

A. The *Inspector General* has the powers, duties, and responsibilities with respect to the Department of Labor and its programs and operations, as granted under the Inspector General Act of 1978, as amended. These powers include the authority to conduct, supervise, and coordinate audits and investigations relating to DOL programs and operations; review existing and proposed legislation and regulations; and investigate Federal offenses associated with labor racketeering matters as directed by the Department of Justice Organized Crime and Racketeering Section or as directed by other offices within the Department of Justice.

In addition, the Inspector General has responsibilities under other federal statutes, including but not limited to the Program Fraud Civil Remedies Act, the Computer Matching and Privacy Protection Act of 1988, the Federal Managers' Financial Integrity Act of 1982, the Chief Financial Officers Act of 1990, the Single Audit Act Amendments of 1996, and the Federal Information Security Management Act of 2002. The Inspector General shall also have such additional authority as may be delegated to him by the Secretary to carry out his assigned responsibilities. The Inspector General reports to and is under the general supervision of the Secretary and the Deputy Secretary, although neither the Secretary nor Deputy Secretary shall prevent or prohibit the Inspector General from initiating, carrying out, or completing any audit or investigation, or from issuing any subpoena during the course of any audit or investigation. In order to carry out these responsibilities, the Inspector General shall continue to have independent personnel and procurement authority, and shall continue to have the assistance of independent legal services.

B. *DOL Agency Heads* have responsibility to:

(1) Develop, implement and maintain effective monitoring systems and mechanisms to provide for the early detection and prevention of program fraud, waste, and abuse, and to measure program results to ensure that program goals and objectives are being achieved.

(2) Consider and, when appropriate, implement recommendations made by the OIG as a result of audits and investigations.

(3) Provide the OIG with cooperation and timely access to information, data and reports or other assistance as may be required by their responsibilities under the Inspector General Act and other Federal law.

C. *Supervisory Personnel.* Any employee of the Department who has authority to take, direct others to take, recommend, or approve any personnel action shall not, with respect to such authority, take or threaten to take any action against any employee as a reprisal for making a complaint or disclosing information to the OIG, pursuant to section 7 of the Inspector General Act of 1978, unless the complaint was made or the information disclosed with the knowledge that it was false or with willful disregard for its truth or falsity.

D. *DOL Employees.* All DOL employees are responsible to report to the OIG or to their supervisor, in accordance with applicable requirements, information that they reasonably believe indicates wrongdoing by DOL employees or in DOL programs and operations. DOL employees shall, to the extent required by law and as may be consistent with the employees' legal rights and lawful official responsibilities, cooperate with the OIG, provide timely access to documents and information, respond to questions, and provide, if requested, signed statements to OIG personnel, in furtherance of the OIG's statutory responsibilities.

6. Legal Services

A. *The Inspector General* (1) is authorized to employ attorneys and support staff to provide the OIG with legal advice and assistance necessary to carry out its authority under the Inspector General Act and other provisions of law; (2) is authorized to continue to seek legal advice and assistance from the Solicitor; (3) is authorized, subject to the restrictions of applicable law, to be represented by OIG legal staff in legal matters and proceedings: (a) With respect to the enforcement of a subpoena issued by the Inspector General pursuant to the Inspector General Act; (b) with respect to subpoenas of OIG personnel or documents; or (c) in actions involving the Secretary or other components of the Department, with respect to discovery of

OIG personnel or documents; and (4) may request the approval of the Deputy Secretary to have OIG legal staff provide representation for the OIG in other legal proceedings where the OIG believes it has interests independent of the Secretary or the Department.

B. *The Solicitor of Labor* is the chief legal officer of the Department and for the Secretary of Labor. Nothing in section 6.A. of this Order in any way limits the exclusive authority of the Solicitor of Labor to: (1) Select, bring, and defend appropriate actions on behalf of the Secretary and the Department; (2) represent the Department in all legal matters and proceedings (except as provided in section 6.A. of this Order and by applicable laws); or (3) render advice and issue opinions that set forth the legal position of the Secretary or the Department. In addition, the Solicitor retains exclusive authority and responsibility to provide other legal advice and assistance to the Secretary and other Department of Labor officials, and to employ and supervise those persons employed in the Department as attorneys, except as provided in section 6.A. or by other actions of the Secretary.

7. Personnel Services

The Inspector General is authorized to have independent personnel authority within the Department, including but not limited to: maintaining a personnel office that shall establish and carry out, in support and on behalf of the Inspector General, an OIG-wide personnel program to include functions and activities as required by statutes, regulations, and related Office of Personnel Management policy references and guidance; retaining a Personnel Officer who is delegated appointing authority and classification authority consistent with OPM policy and procedures; providing personnel management policies, programs, and services for all OIG staff nationwide; and appointing, selecting, reassigning, suspending, removing, setting pay for, and appraising the performance of Senior Executive Service (SES) employees within the OIG.

8. Procurement Services

The Inspector General is authorized to exercise independent procurement authority within the Department, including but not limited to the authority to solicit, award, and administer contracts for supplies and services on behalf of the OIG in accordance with the Federal Acquisition Regulations and other applicable statutes and regulations.

9. Effective Date

This Order is effective immediately.

Dated: February 21, 2006.

Elaine L. Chao,

Secretary of Labor.

[FR Doc. 06–1834 Filed 2–27–06; 8:45 am]

BILLING CODE 4510–23–P

Federal Register

Tuesday,
February 28, 2006

Part IV

Department of Education

Office of Elementary and Secondary Education; Overview Information; Office of Indian Education—Professional Development Notice Inviting Applications for New Awards for Fiscal Year (FY) 2006; Notice

DEPARTMENT OF EDUCATION

Office of Elementary and Secondary Education; Overview Information; Office of Indian Education—Professional Development Notice Inviting Applications for New Awards for Fiscal Year (FY) 2006

Catalog of Federal Domestic Assistance (CFDA) Number: 84.299B.

Dates:

Applications Available: February 28, 2006.

Deadline for Transmittal of Applications: March 30, 2006.

Deadline for Intergovernmental Review: May 30, 2006.

Eligible Applicants: Eligible applicants for this program are institutions of higher education, including Indian institutions of higher education; State educational agencies or local educational agencies in consortium with institutions of higher education; Indian tribes or organizations in consortium with institutions of higher education; and Bureau-funded schools.

An application from a consortium of eligible entities must meet the requirements of 34 CFR 75.127 through 75.129. An application from a consortium of eligible entities must include a consortium agreement. Letters of support do *not* meet the requirement for a consortium agreement.

In order to be considered an eligible entity, applicants, including institutions of higher education, must be eligible to provide the level and type of degree proposed in the application or must apply in consortium with an institution of higher education that is eligible to grant the target degree.

Applicants applying in consortium with or as an ''Indian organization'' must demonstrate eligibility by showing how the ''Indian organization'' meets all the criteria outlined in 34 CFR 263.3.

The term ''Indian institution of higher education'' means an accredited college or university within the United States that is cited in section 532 of the Equity in Educational Land-Grant Status Act of 1994 (7 U.S.C. 301 *note*), any other institution that qualifies for funding under the Tribally Controlled College or University Assistance Act of 1978 (25 U.S.C. 1801 *et seq.*), and Dine College (formerly Navajo Community College), authorized in the Navajo Community College Act (25 U.S.C. 640a *et seq.*).

We will reject any application that does not meet these requirements.

Estimated Available Funds: $3,670,206.

Estimated Range of Awards: $125,000 to $325,000.

Estimated Average Size of Awards: $305,850.

Maximum Award: We will reject any application that proposes a budget exceeding $325,000 for the first budget period of 12 months, and $400,000 during the second and third budget periods. The last 12-month budget period of a 48-month award will be limited to induction services only, at a cost not to exceed $75,000. The Assistant Secretary may change the maximum amount through a notice published in the **Federal Register**.

Estimated Number of Awards: 12.

Note: The Department is not bound by any estimates in this notice.

Project Period: Up to 48 months.

Full Text of Announcement

I. Funding Opportunity Description

Purpose of Program: The purpose of the Professional Development program is to (1) increase the number of qualified Indian individuals in professions that serve Indians; (2) provide training to qualified Indian individuals to become teachers, administrators, teacher aides, social workers, and ancillary educational personnel; and (3) improve the skills of qualified Indian individuals who serve in the education field. Activities may include, but are not limited to, continuing programs, symposia, workshops, conferences, and direct financial support.

Priorities: This competition contains two absolute priorities and two competitive preference priorities. In accordance with 34 CFR 75.105(b)(2)(ii), these priorities are from the regulations for this program (34 CFR 263.5(a), (b), and (c)(1) and (2)).

Absolute Priorities: For FY 2006 these priorities are absolute priorities. Under 34 CFR 75.105(c)(3) we consider only applications that meet one or both of these priorities.

These priorities are:

Absolute Priority One—Pre-Service Training for Teachers

A project that provides support and training to Indian individuals to complete a pre-service education program that enables these individuals to meet the requirements for full State certification or licensure as a teacher through—

(1)(i) Training that leads to a bachelor's degree in education before the end of the award period;

(ii) For States allowing a degree in a specific subject area, training that leads to a bachelor's degree in the subject area so long as the training meets the requirements for full State teacher certification or licensure; or

(iii) Training in a current or new specialized teaching assignment that requires at least a bachelor's degree and in which a documented teacher shortage exists; and

(2) One-year induction services after graduation, certification, or licensure, provided during the award period to graduates of the pre-service program while they are completing their first year of work in schools with significant Indian student populations.

Note: In working with various institutions of higher education and State certification/licensure requirements, we have found that States requiring a degree in a specific subject area (*e.g.*, specialty areas or teaching at the secondary level) generally require a master's degree or fifth-year requirement before an individual can be certified or licensed as a teacher. These students would be eligible to participate so long as their training meets the requirements for full State certification or licensure as a teacher.

Note: The degree received as a result of training and one year of induction services must be completed prior to the end of the award period in order to meet the requirements of this priority.

Absolute Priority Two—Pre-Service Administrator Training

A project that provides—

(1) Support and training to Indian individuals to complete a master's degree in education administration that is provided before the end of the award period and that allows participants to meet the requirements for State certification or licensure as an education administrator; and

(2) One year of induction services, during the award period, to participants after graduation, certification, or licensure, while they are completing their first year of work as administrators in schools with significant Indian student populations.

Note: The degree received as a result of training and one year of induction services must be completed prior to the end of the award period in order to meet the requirements of this priority.

Competitive Preference Priorities: Within these absolute priorities, we give competitive preference to applications that address the following priorities. Under 34 CFR 75.105(c)(2)(i) we award up to an additional 10 points to an application, depending on the extent to which the application meets one or both of these priorities.

These priorities are:

Competitive Preference Priority One

We award five points to an application submitted by an Indian tribe, Indian organization, or Indian institution of higher education that is

eligible to participate in the Professional Development program. An application for a consortium of eligible entities that meets the requirements of 34 CFR 75.127 through 75.129 of EDGAR and includes an Indian tribe, Indian organization, or Indian institution of higher education will be considered eligible to receive the five competitive preference points.

Competitive Preference Priority Two

We award five points to an application submitted by a consortium of eligible applicants that includes a tribal college or university and that designates that tribal college or university as the fiscal agent for the application. The consortium application of eligible entities must meet the requirements of 34 CFR 75.127 through 75.129 of EDGAR to be eligible to receive the five competitive preference points. These points are in addition to the five competitive preference points that may be awarded under Competitive Preference Priority One.

Note: A consortium application must include a consortium agreement, signed by all parties to be considered. Letters of support do *not* meet the requirement for a consortium agreement.

Note: Tribal colleges and universities are those institutions that are cited in section 532 of the Equity in Educational Land-Grant Status Act of 1994 (7 U.S.C. 301 *note*), any other institution that qualifies for funding under the Tribally Controlled College or University Assistance Act of 1978 (25 U.S.C. 1801 *et seq.*), or Dine College (formerly Navajo Community College), authorized in the Navajo Community College Act (25 U.S.C. 640a *et seq.*).

Program Authority: 20 U.S.C. 7442.

Applicable Regulations: (a) The Education Department General Administrative Regulations (EDGAR) in 34 CFR parts 74, 75, 77, 79, 80, 81, 82, 84, 85, 86, 97, 98 and 99. (b) The regulations for this program in 34 CFR part 263.

Note: The regulations in 34 CFR part 79 apply to all applicants except federally recognized Indian tribes.

Note: The regulations in 34 CFR part 86 apply to institutions of higher education only.

II. Award Information

Type of Award: Discretionary grants.

Estimated Available Funds: $3,670,206.

Estimated Range of Awards: $125,000 to $325,000.

Estimated Average Size of Awards: $305,850.

Maximum Award: We will reject any application that proposes a budget exceeding $325,000 for the first budget period of 12 months, and $400,000 during the second and third budget periods. The last 12-month budget period of a 48-month award will be limited to induction services only, at a cost not to exceed $75,000. The Assistant Secretary may change the maximum amount through a notice published in the **Federal Register**.

Estimated Number of Awards: 12.

Note: The Department is not bound by any estimates in this notice.

Project Period: Up to 48 months.

III. Eligibility Information

1. *Eligible Applicants:* Eligible applicants for this program are institutions of higher education, including Indian institutions of higher education; State educational agencies or local educational agencies in consortium with institutions of higher education; Indian tribes or organizations in consortium with institutions of higher education; and Bureau-funded schools.

An application from a consortium of eligible entities must meet the requirements of 34 CFR 75.127 through 75.129. An application from a consortium of eligible entities must include a consortium agreement. Letters of support do *not* meet the requirement for a consortium agreement.

In order to be considered an eligible entity, applicants, including institutions of higher education, must be eligible to provide the level and type of degree proposed in the application or must apply in consortium with an institution of higher education that is eligible to grant the target degree.

Applicants applying in consortium with or as an ''Indian organization'' must demonstrate eligibility by showing how the ''Indian organization'' meets all requirements of 34 CFR 263.3.

The term ''Indian institution of higher education'' means an accredited college or university within the United States that is cited in section 532 of the Equity in Educational Land-Grant Status Act of 1994 (7 U.S.C. 301 note), any other institution that qualifies for funding under the Tribally Controlled College or University Assistance Act of 1978 (25 U.S.C. 1801 *et seq.*), and Dine College (formerly Navajo Community College), authorized in the Navajo Community College Act (25 U.S.C. 640a *et seq.*).

We will reject any application that does not meet these requirements.

2. *Cost Sharing or Matching:* This program does not involve cost sharing or matching.

3. *Other:* Projects funded under this competition must budget for a two-day Project Directors' meeting in Washington, DC during each year of the project period.

IV. Application and Submission Information

1. *Address to Request Application Package:* Education Publications Center (ED Pubs), P.O. Box 1398, Jessup, MD 20794–1398. Telephone (toll free): 1–877–433–7827. FAX: (301) 470–1244. If you use a telecommunications device for the deaf (TDD), you may call (toll free): 1–877–576–7734.

You may also contact ED Pubs at its Web site: *http://www.ed.gov/pubs/edpubs.html* or you may contact ED Pubs at its e-mail address: *edpubs@inet.ed.gov.*

You may also obtain the application package electronically by downloading it from the following Web site: *http://www.ed.gov/about/offices/list/oese/oie/index.html.*

If you request an application from ED Pubs, be sure to identify this competition as follows: CFDA number 84.299B.

Individuals with disabilities may obtain a copy of the application package in an alternative format (*e.g.,* Braille, large print, audiotape, or computer diskette) by contacting the program contact person listed elsewhere in this notice under **FOR FURTHER INFORMATION CONTACT**.

2. *Content and Form of Application Submission:* Requirements concerning the content of an application, together with the forms you must submit, are in the application package for this competition. Page Limit: The application narrative (Part III of the application) is where you, the applicant, address the selection criteria that reviewers use to evaluate your application. You must limit Part III to the equivalent of no more than 50 pages, using the following standards:

- A ''page'' is 8.5″ x 11″, on one side only, with 1″ margins at the top, bottom, and both sides.
- Double space (no more than three lines per vertical inch) all text in the application narrative, including titles, headings, footnotes, quotations, references, and captions, as well as all text in charts, tables, figures, and graphs.
- Use a font that is either 12 point or larger or no smaller than 10 pitch (characters per inch).

The page limit does not apply to Part I, the cover sheet; Part II, the budget section, including the narrative budget justification; Part IV, the assurances and certifications; or the one-page abstract, the resumes, the bibliography, or the letters of support. However, you must

include all of the application narrative in Part III.

Our reviewers will not read any pages of your application that—

• Exceed the page limit if you apply these standards; or

• Exceed the equivalent of the page limit if you apply other standards.

3. *Submission Dates and Times:*

Applications Available: February 28, 2006.

Deadline for Transmittal of Applications: March 30, 2006.

Applications for grants under this competition must be submitted electronically using the Grants.gov Apply site (Grants.gov). For information (including dates and times) about how to submit your application electronically or by mail or hand delivery if you qualify for an exception to the electronic submission requirement, please refer to section IV. 6. *Other Submission Requirements* in this notice.

We do not consider an application that does not comply with the deadline requirements.

Deadline for Intergovernmental Review: May 30, 2006.

4. *Intergovernmental Review:* This program is subject to Executive Order 12372 and the regulations in 34 CFR part 79. Information about Intergovernmental Review of Federal Programs under Executive Order 12372 is in the application package for this program.

5. *Funding Restrictions:* Stipends may be paid only to full-time students. For the payment of stipends to project participants being trained, the Secretary expects to set the stipend maximum at $1,775 per month for full-time students and provide for a $275 allowance per month per dependent during an academic term. The terms ''stipend,'' ''full-time student,'' and ''dependent allowance'' are defined in 34 CFR 263.3. We reference additional regulations outlining funding restrictions in the *Applicable Regulations* section of this notice.

6. *Other Submission Requirements:* Applications for grants under this competition must be submitted electronically unless you qualify for an exception to this requirement in accordance with the instructions in this section.

a. *Electronic Submission of Applications.*

Applications for grants under the Professional Development program—CFDA Number 84.299B must be submitted electronically using the Grants.gov Apply site at: *http://www.grants.gov.* Through this site, you will be able to download a copy of the application package, complete it offline, and then upload and submit your application. You may not e-mail an electronic copy of a grant application to us.

We will reject your application if you submit it in paper format unless, as described elsewhere in this section, you qualify for one of the exceptions to the electronic submission requirement *and* submit, no later than two weeks before the application deadline date, a written statement to the Department that you qualify for one of these exceptions. Further information regarding calculation of the date that is two weeks before the application deadline date is provided later in this section under *Exception to Electronic Submission Requirement.*

You may access the electronic grant application for the Professional Development program at: *http://www.grants.gov.* You must search for the downloadable application package for this program by the CFDA number. Do not include the CFDA number's alpha suffix in your search.

Please note the following:

• When you enter the Grants.gov site, you will find information about submitting an application electronically through the site, as well as the hours of operation.

• Applications received by Grants.gov are time and date stamped. Your application must be fully uploaded and submitted, and must be date/time stamped by the Grants.gov system no later than 4:30 p.m., Washington, DC time, on the application deadline date. Except as otherwise noted in this section, we will not consider your application if it is date/time stamped by the Grants.gov system later than 4:30 p.m., Washington, DC time, on the application deadline date. When we retrieve your application from Grants.gov, we will notify you if we are rejecting your application because it was date/time stamped by the Grants.gov system after 4:30 p.m., Washington, DC time, on the application deadline date.

• The amount of time it can take to upload an application will vary depending on a variety of factors including the size of the application and the speed of your Internet connection. Therefore, we strongly recommend that you do not wait until the application deadline date to begin the submission process through Grants.gov.

• You should review and follow the Education Submission Procedures for submitting an application through Grants.gov that are included in the application package for this competition to ensure that you submit your application in a timely manner to the Grants.gov system. You can also find the Education Submission Procedures pertaining to Grants.gov at *http://e-Grants.ed.gov/help/GrantsgovSubmissionProcedures.pdf.*

• To submit your application via Grants.gov, you must complete all of the steps in the Grants.gov registration process (*see http://www.grants.gov/GetStarted*). These steps include (1) Registering your organization, (2) registering yourself as an Authorized Organization Representative (AOR), and (3) getting authorized as an AOR by your organization. Details on these steps are outlined in the new Grants.gov 3-Step Registration Guide (see *http://www.grants.gov/assets/GrantsgovCoBrandBrochure8X11.pdf*). You must also provide on your application the same D-U-N-S Number used with this registration. Please note that the registration process may take five or more business days to complete, and you must have completed all registration steps to allow you to successfully submit an application via Grants.gov.

• You will not receive additional point value because you submit your application in electronic format, nor will we penalize you if you qualify for an exception to the electronic submission requirement, as described elsewhere in this section, and submit your application in paper format.

• You must submit all documents electronically, including all information typically included on the Application for Federal Education Assistance (ED 424), Budget Information—Non-Construction Programs (ED 524), and all necessary assurances and certifications. You must attach any narrative sections of your application as files in a .DOC (document), .RTF (rich text), or .PDF (Portable Document) format. If you upload a file type other than the three file types specified above or submit a password protected file, we will not review that material.

• Your electronic application must comply with any page limit requirements described in this notice.

• After you electronically submit your application, you will receive an automatic acknowledgment from Grants.gov that contains a Grants.gov tracking number. The Department will retrieve your application from Grants.gov and send you a second confirmation by e-mail that will include a PR/Award number (an ED-specified identifying number unique to your application).

• We may request that you provide us original signatures on forms at a later date.

Application Deadline Date Extension in Case of Technical Issues with the Grants.gov System: If you are prevented from electronically submitting your application on the application deadline date because of technical problems with the Grants.gov system, we will grant you an extension until 4:30 p.m., Washington, DC time, the following business day to enable you to transmit your application electronically, or by hand delivery. You also may mail your application by following the mailing instructions as described elsewhere in this notice. If you submit an application after 4:30 p.m., Washington, DC time, on the deadline date, please contact the person listed elsewhere in this notice under **FOR FURTHER INFORMATION CONTACT**, and provide an explanation of the technical problem you experienced with Grants.gov, along with the Grants.gov Support Desk Case Number (if available). We will accept your application if we can confirm that a technical problem occurred with the Grants.gov system and that that problem affected your ability to submit your application by 4:30 p.m., Washington, DC time, on the application deadline date. The Department will contact you after a determination is made on whether your application will be accepted.

Note: Extensions referred to in this section apply only to the unavailability of or technical problems with the Grants.gov system. We will not grant you an extension if you failed to fully register to submit your application to Grants.gov before the deadline date and time or if the technical problem you experienced is unrelated to the Grants.gov system.

Exception to Electronic Submission Requirement: You qualify for an exception to the electronic submission requirement, and may submit your application in paper format, if you are unable to submit an application through the Grants.gov system because—

- You do not have access to the Internet; or
- You do not have the capacity to upload large documents to the Grants.gov system; *and*
- No later than two weeks before the application deadline date (14 calendar days or, if the fourteenth calendar day before the application deadline date falls on a Federal holiday, the next business day following the Federal holiday), you mail or fax a written statement to the Department, explaining which of the two grounds for an exception prevent you from using the Internet to submit your application. If you mail your written statement to the Department, it must be postmarked no later than two weeks before the application deadline date. If you fax your written statement to the Department, we must receive the faxed statement no later than two weeks before the application deadline date.

Address and mail or fax your statement to: Lana Shaughnessy, U.S. Department of Education, 400 Maryland Avenue, SW., room 5C152, Washington, DC 20202–6335. FAX: (202) 260–7779.

Your paper application must be submitted in accordance with the mail or hand delivery instructions described in this notice.

b. *Submission of Paper Applications by Mail.*

If you qualify for an exception to the electronic submission requirement, you may mail (through the U.S. Postal Service or a commercial carrier), your application to the Department. You must mail the original and two copies of your application, on or before the application deadline date, to the Department at the applicable following address:

By mail through the U.S. Postal Service: U.S. Department of Education, Application Control Center, Attention: (CFDA Number 84.299B), 400 Maryland Avenue, SW., Washington, DC 20202–4260; or

By mail through a commercial carrier: U.S. Department of Education, Application Control Center—Stop 4260, Attention: (CFDA Number 84.299B), 7100 Old Landover Road, Landover, MD 20785–1506.

Regardless of which address you use, you must show proof of mailing consisting of one of the following:

(1) A legibly dated U.S. Postal Service postmark,

(2) A legible mail receipt with the date of mailing stamped by the U.S. Postal Service,

(3) A dated shipping label, invoice, or receipt from a commercial carrier, or

(4) Any other proof of mailing acceptable to the Secretary of the U.S. Department of Education.

If you mail your application through the U.S. Postal Service, we do not accept either of the following as proof of mailing:

(1) A private metered postmark, or

(2) A mail receipt that is not dated by the U.S. Postal Service.

If your application is postmarked after the application deadline date, we will not consider your application.

Note: The U.S. Postal Service does not uniformly provide a dated postmark. Before relying on this method, you should check with your local post office.

c. *Submission of Paper Applications by Hand Delivery.*

If you qualify for an exception to the electronic submission requirement, you (or a courier service) may deliver your paper application to the Department by hand. You must deliver the original and two copies of your application by hand, on or before the application deadline date, to the Department at the following address: U.S. Department of Education, Application Control Center, Attention: (CFDA Number 84.299B), 550 12th Street, SW., Room 7041, Potomac Center Plaza, Washington, DC 20202–4260.

The Application Control Center accepts hand deliveries daily between 8 a.m. and 4:30 p.m., Washington, DC time, except Saturdays, Sundays and Federal holidays.

Note for Mail or Hand Delivery of Paper Applications: If you mail or hand deliver your application to the Department:

(1) You must indicate on the envelope and—if not provided by the Department—in Item 4 of the ED 424 the CFDA number—and suffix letter, if any—of the competition under which you are submitting your application.

(2) The Application Control Center will mail a grant application receipt acknowledgment to you. If you do not receive the grant application receipt acknowledgment within 15 business days from the application deadline date, you should call the U.S. Department of Education Application Control Center at (202) 245–6288.

V. Application Review Information

Selection Criteria: The selection criteria for this competition are from 34 CFR 263.6 and are listed in the application package.

VI. Award Administration Information

1. *Award Notices:* If your application is successful, we notify your U.S. Representative and U.S. Senators and send you a Grant Award Notification (GAN). We may also notify you informally.

If your application is not evaluated or not selected for funding, we notify you.

2. *Administrative and National Policy Requirements:* We identify administrative and national policy requirements in the application package and reference these and other requirements in the *Applicable Regulations* section of this notice.

We reference the regulations outlining the terms and conditions of an award in the *Applicable Regulations* section of this notice and include these and other specific conditions in the GAN. The GAN also incorporates your approved application as part of your binding commitments under the grant.

3. *Reporting:* At the end of your project period, you must submit a final performance report, including financial information, as directed by the Secretary. If you receive a multi-year award, you must submit an annual

performance report that provides the most current performance and financial expenditure information as specified by the Secretary in 34 CFR 75.118.

4. *Performance Measures:* The Secretary has established the following key performance measures for assessing the effectiveness of the Professional Development program: (1) The percentage of program participants who receive full State licensure; (2) the percentage of program participants who become teachers in schools with high concentrations of American Indian and Alaska Native students and teach in their licensure area; and (3) the percentage of program participants who become principals/vice principals/school administrators in schools with high concentrations of American Indian and Alaska Native students.

Under the selection criteria ''Quality of project services'' and ''Quality of the project evaluation,'' we will consider the extent to which the applicant demonstrates a strong capacity to provide reliable data on these measures.

All grantees will be expected to submit, as part of their performance report, information documenting their progress with regard to these performance measures.

VII. Agency Contact

FOR FURTHER INFORMATION CONTACT: Lana Shaughnessy, U.S. Department of Education, 400 Maryland Avenue, SW., room 5C152, Washington, DC 20202–6335. Telephone: (202) 205–2528 or by e-mail: *indian.education@ed.gov.*

If you use a telecommunications device for the deaf (TDD), you may call the Federal Relay Service (FRS) at 1–800–877–8339.

Individuals with disabilities may obtain this document in an alternative format (*e.g.*, Braille, large print, audiotape, or computer diskette) on request to the contact person listed in this section.

VIII. Other Information

Electronic Access to This Document: You may view this document, as well as all other documents of this Department published in the **Federal Register**, in text or Adobe Portable Document Format (PDF) on the Internet at the following site: *http://www.ed.gov/news/fedregister.*

To use PDF you must have Adobe Acrobat Reader, which is available free at this site. If you have questions about using PDF, call the U.S. Government Printing Office (GPO), toll free, at 1–888–293–6498; or in the Washington, DC, area at (202) 512–1530.

Note: The official version of this document is the document published in the **Federal Register**. Free Internet access to the official edition of the **Federal Register** and the Code of Federal Regulations is available on GPO Access at: *http://www.gpoaccess.gov/nara/index.html.*

Dated: February 23, 2006.

Henry L. Johnson,

Assistant Secretary for Elementary and Secondary Education.

[FR Doc. 06–1866 Filed 2–27–06; 8:45 am]

BILLING CODE 4000–01–P

Federal Register

Tuesday,
February 28, 2006

Part V

Department of Education

Office of Elementary and Secondary Education; Overview Information; Office of Indian Education—Demonstration Grants for Indian Children; Notice Inviting Applications for New Awards for Fiscal Year (FY) 2006; Notice

DEPARTMENT OF EDUCATION

Office of Elementary and Secondary Education; Overview Information; Office of Indian Education—Demonstration Grants for Indian Children; Notice Inviting Applications for New Awards for Fiscal Year (FY) 2006

Catalog of Federal Domestic Assistance (CFDA) Number: 84.299A.

Dates:

Applications Available: February 28, 2006.

Deadline for Transmittal of Applications: March 30, 2006.

Deadline for Intergovernmental Review: May 30, 2006.

Eligible Applicants: Eligible applicants for this program include State educational agencies (SEAs); local educational agencies (LEAs); Indian tribes; Indian organizations; federally supported elementary or secondary schools for Indian students; Indian institutions (including Indian institutions of higher education); or a consortium of any of these institutions.

An application from a consortium of eligible entities must meet the requirements of 34 CFR 75.127 through 75.129. An application from a consortium of eligible entities must include a consortium agreement. Letters of support do *not* meet the requirement for a consortium agreement.

Applicants applying in consortium with or as an ''Indian organization'' must demonstrate eligibility by showing how the ''Indian organization'' meets all the criteria outlined in 34 CFR 263.20.

The term ''Indian institution of higher education'' means an accredited college or university within the United States that is cited in section 532 of the Equity in Educational Land-Grant Status Act of 1994 (7 U.S.C. 301 note), any other institution that qualifies for funding under the Tribally Controlled College or University Assistance Act of 1978 (25 U.S.C. 1801 et seq.), and Dine College (formerly Navajo Community College), authorized in the Navajo Community College Act (25 U.S.C. 640a et seq.).

We will reject any application that does not meet these requirements.

Estimated Available Funds: $3,000,000.

Estimated Range of Awards: $100,000 to $275,000.

Estimated Average Size of Awards: $250,000.

Maximum Award: We will reject any application that proposes a budget exceeding $275,000 for a single budget period of 12 months. The Assistant Secretary may change the maximum amount through a notice published in the **Federal Register**.

Estimated Number of Awards: 12.

Note: The Department is not bound by any estimates in this notice.

Project Period: Up to 48 months.

Full Text of Announcement

I. Funding Opportunity Description

Purpose of Program: The purpose of the Demonstration Grants for Indian Children program is to provide financial assistance to projects that develop, test, and demonstrate the effectiveness of services and programs to improve the educational opportunities and achievement of preschool, elementary, and secondary Indian students. To meet the purposes of the No Child Left Behind Act of 2001, this program will focus project services on (1) increasing school readiness skills of three- and four-year-old American Indian and Alaska Native children; and (2) enabling American Indian and Alaska Native high school graduates to transition successfully to postsecondary education by increasing their competency and skills in challenging subjects, including mathematics and science.

Priorities: This competition contains two absolute priorities and two competitive preference priorities.

Absolute Priorities: For FY 2006 these priorities are absolute priorities. In accordance with 34 CFR 75.105(b)(2)(ii), these priorities are from the regulations for this program (34 CFR 263.21(c)(1) and (3)). Under 34 CFR 75.105(c)(3), we consider only applications that meet one or both of the following priorities.

These priorities are:

Absolute Priority One

School readiness projects that provide age-appropriate educational programs and language skills to three- and four-year-old Indian students to prepare them for successful entry into school at the kindergarten level.

Absolute Priority Two

College preparatory programs for secondary school students designed to increase competency and skills in challenging subject matter, including mathematics and science, to enable Indian students to transition successfully to postsecondary education.

Competitive Preference Priorities: Within these absolute priorities, we give competitive preference to applicants that address the following priorities. Under 34 CFR 75.105(c)(2)(i) we award up to an additional 10 points to an application, depending on the extent to which the application meets one or both of these priorities.

These priorities are:

Competitive Preference Priority One

In accordance with 34 CFR 75.105(b)(2)(iv), this priority is from section 7121 of the Elementary and Secondary Education Act of 1965, as amended (ESEA), 20 U.S.C. 7441(d)(1)(B). We award five competitive preference priority points to an applicant that presents a plan for combining two or more of the activities described in section 7121(c) of the ESEA over a period of more than one year.

Note: For Competitive Preference Priority One, the combination of activities is limited to the activities described in the Absolute Priorities.

Competitive Preference Priority Two

In accordance with 34 CFR 75.105(b)(2)(iv), this priority is from section 7143 of the ESEA, 20 U.S.C. 7473. We award five competitive preference priority points to an application submitted by an Indian tribe, Indian organization, or Indian institution of higher education, including a consortium of any of these entities with other eligible entities. An application from a consortium of eligible entities that meets the requirements of 34 CFR 75.127 through 75.129 and includes an Indian tribe, Indian organization, or Indian institution of higher education will be considered eligible to receive the five competitive preference points. These competitive preference points are in addition to the five competitive preference points that may be given under Competitive Preference Priority One.

Note: A consortium agreement, signed by all parties, must be submitted with the application in order for the application to be considered a consortium application. Letters of support do *not* meet the requirement for a consortium agreement. We will reject any application from a consortium that does not meet this requirement.

Note: The term ''Indian institution of higher education'' means an accredited college or university within the United States that is cited in section 532 of the Equity in Educational Land-Grant Status Act of 1994 (7 U.S.C. 301 note), any other institution that qualifies for funding under the Tribally Controlled College or University Assistance Act of 1978 (25 U.S.C. 1801 *et seq.*), and Dine College (formerly Navajo Community College), authorized in the Navajo Community College Act (25 U.S.C. 640a *et seq.*).

Program Authority: 20 U.S.C. 7441.

Applicable Regulations: (a) The Education Department General Administrative Regulations (EDGAR) in 34 CFR parts 74, 75, 77, 79, 80, 81, 82, 84, 85, 86, 97, 98, and 99. (b) The regulations for this program in 34 CFR part 263.

Note: The regulations in 34 CFR part 79 apply to all applicants except federally recognized Indian tribes.

Note: The regulations in 34 CFR part 86 apply to institutions of higher education only.

II. Award Information

Type of Award: Discretionary grants.

Estimated Available Funds: $3,000,000.

Estimated Range of Awards: $100,000 to $275,000.

Estimated Average Size of Awards: $250,000.

Maximum Award: We will reject any application that proposes a budget exceeding $275,000 for a single budget period of 12 months. The Assistant Secretary may change the maximum amount through a notice published in the **Federal Register**.

Estimated Number of Awards: 12.

Note: The Department is not bound by any estimates in this notice.

Project Period: Up to 48 months.

III. Eligibility Information

1. *Eligible Applicants:* Eligible applicants for this program include SEAs; LEAs; Indian tribes; Indian organizations; federally supported elementary or secondary schools for Indian students; Indian institutions (including Indian institutions of higher education); or a consortium of any of these institutions.

An application from a consortium of eligible entities must meet the requirements of 34 CFR 75.127 through 75.129. An application from a consortium of eligible entities must include a consortium agreement. Letters of support do *not* meet the requirement for a consortium agreement.

Applicants applying in consortium with or as an ''Indian organization'' must demonstrate eligibility by showing how the ''Indian organization'' meets all the criteria outlined in 34 CFR 263.20.

The term ''Indian institution of higher education'' means an accredited college or university within the United States that is cited in section 532 of the Equity in Educational Land-Grant Status Act of 1994 (7 U.S.C. 301 note), any other institution that qualifies for funding under the Tribally Controlled College or University Assistance Act of 1978 (25 U.S.C. 1801 et seq.), and Dine College (formerly Navajo Community College), authorized in the Navajo Community College Act (25 U.S.C. 640a et seq.).

We will reject any application that does not meet these requirements.

2. *Cost Sharing or Matching:* This program does not involve cost sharing or matching.

3. *Other:* Projects funded under this competition must budget for a one-and-one-half-day Project Directors' meeting in Washington, DC during each year of the project period.

IV. Application and Submission Information

1. *Address to Request Application Package:* Education Publications Center (ED Pubs), P.O. Box 1398, Jessup, MD 20794–1398. Telephone (toll free): 1–877–433–7827. FAX: (301) 470–1244. If you use a telecommunications device for the deaf (TDD), you may call (toll free): 1–877–576–7734.

You may also contact ED Pubs at its Web site: *http://www.ed.gov/pubs/edpubs.html* or you may contact ED Pubs at its e-mail address: *edpubs@inet.ed.gov.*

You may also obtain the application package electronically by downloading it from the following Web site: *http://www.ed.gov/about/offices/list/oese/oie/index.html.*

If you request an application from ED Pubs, be sure to identify this competition as follows: CFDA number 84.299A.

Individuals with disabilities may obtain a copy of the application package in an alternative format (e.g., Braille, large print, audiotape, or computer diskette) by contacting the program contact person listed elsewhere in this notice under **FOR FURTHER INFORMATION CONTACT.**

2. *Content and Form of Application Submission:* Requirements concerning the content of an application, together with the forms you must submit, are in the application package for this competition.

Page Limit: The application narrative (Part III of the application) is where you, the applicant, address the selection criteria that reviewers use to evaluate your application. You must limit Part III to the equivalent of no more than 50 pages, using the following standards:

- A ''page'' is 8.5″ x 11″, on one side only, with 1′ margins at the top, bottom, and both sides.
- Double space (no more than three lines per vertical inch) all text in the application narrative, including titles, headings, footnotes, quotations, references, and captions, as well as all text in charts, tables, figures, and graphs.
- Use a font that is either 12 point or larger or no smaller than 10 pitch (characters per inch).

The page limit does not apply to Part I, the cover sheet; Part II, the budget section, including the narrative budget justification; Part IV, the assurances and certifications; or the one-page abstract, the resumes, the bibliography, or the letters of support. However, you must include all of the application narrative in Part III.

Our reviewers will not read any pages of your application that:

- Exceed the page limit if you apply these standards; or
- Exceed the equivalent of the page limit if you apply other standards.

3. *Submission Dates and Times:*

Applications Available: February 28, 2006.

Deadline for Transmittal of Applications: March 30, 2006.

Applications for grants under this competition must be submitted electronically using the Grants.gov Apply site (Grants.gov). For information (including dates and times) about how to submit your application electronically or by mail or hand delivery if you qualify for an exception to the electronic submission requirement, please refer to section IV. 6. *Other Submission Requirements* in this notice.

We do not consider an application that does not comply with the deadline requirements.

Deadline for Intergovernmental Review: May 30, 2006.

4. *Intergovernmental Review:* This program is subject to Executive Order 12372 and the regulations in 34 CFR part 79. Information about Intergovernmental Review of Federal Programs under Executive Order 12372 is in the application package for this program.

5. *Funding Restrictions:* We reference regulations outlining funding restrictions in the *Applicable Regulations* section of this notice.

6. *Other Submission Requirements:* Applications for grants under this competition must be submitted electronically unless you qualify for an exception to this requirement in accordance with the instructions in this section.

a. *Electronic Submission of Applications.*

Applications for grants under the Demonstration Grants for Indian Children—CFDA Number 84.299A must be submitted electronically using the Grants.gov Apply site at: *http://www.grants.gov.* Through this site, you will be able to download a copy of the application package, complete it offline,

and then upload and submit your application. You may not e-mail an electronic copy of a grant application to us.

We will reject your application if you submit it in paper format unless, as described elsewhere in this section, you qualify for one of the exceptions to the electronic submission requirement *and* submit, no later than two weeks before the application deadline date, a written statement to the Department that you qualify for one of these exceptions. Further information regarding calculation of the date that is two weeks before the application deadline date is provided later in this section under *Exception to Electronic Submission Requirement.*

You may access the electronic grant application for Demonstration Grants for Indian Children at: *http://www.grants.gov.* You must search for the downloadable application package for this program by the CFDA number. Do not include the CFDA number's alpha suffix in your search.

Please note the following:

- When you enter the Grants.gov site, you will find information about submitting an application electronically through the site, as well as the hours of operation.
- Applications received by Grants.gov are time and date stamped. Your application must be fully uploaded and submitted, and must be date/time stamped by the Grants.gov system no later than 4:30 p.m., Washington, DC time, on the application deadline date. Except as otherwise noted in this section, we will not consider your application if it is date/time stamped by the Grants.gov system later than 4:30 p.m., Washington, DC time, on the application deadline date. When we retrieve your application from Grants.gov, we will notify you if we are rejecting your application because it was date/time stamped by the Grants.gov system after 4:30 p.m., Washington, DC time, on the application deadline date.
- The amount of time it can take to upload an application will vary depending on a variety of factors including the size of the application and the speed of your Internet connection. Therefore, we strongly recommend that you do not wait until the application deadline date to begin the submission process through Grants.gov.
- You should review and follow the Education Submission Procedures for submitting an application through Grants.gov that are included in the application package for this competition to ensure that you submit your application in a timely manner to the Grants.gov system. You can also find the Education Submission Procedures pertaining to Grants.gov at *http://e-Grants.ed.gov/help/GrantsgovSubmissionProcedures.pdf.*
- To submit your application via Grants.gov, you must complete all of the steps in the Grants.gov registration process (see *http://www.grants.gov/GetStarted*). These steps include (1) registering your organization, (2) registering yourself as an Authorized Organization Representative (AOR), and (3) getting authorized as an AOR by your organization. Details on these steps are outlined in the new Grants.gov 3-Step Registration Guide (see *http://www.grants.gov/assets/GrantsgovCoBrandBrochure8X11.pdf*). You must also provide on your application the same D-U-N-S Number used with this registration. Please note that the registration process may take five or more business days to complete, and you must have completed all registration steps to allow you to successfully submit an application via Grants.gov.
- You will not receive additional point value because you submit your application in electronic format, nor will we penalize you if you qualify for an exception to the electronic submission requirement, as described elsewhere in this section, and submit your application in paper format.
- You must submit all documents electronically, including all information typically included on the Application for Federal Education Assistance (ED 424), Budget Information—Non-Construction Programs (ED 524), and all necessary assurances and certifications. You must attach any narrative sections of your application as files in a .DOC (document), .RTF (rich text), or .PDF (Portable Document) format. If you upload a file type other than the three file types specified above or submit a password protected file, we will not review that material.
- Your electronic application must comply with any page limit requirements described in this notice.
- After you electronically submit your application, you will receive an automatic acknowledgment from Grants.gov that contains a Grants.gov tracking number. The Department will retrieve your application from Grants.gov and send you a second confirmation by e-mail that will include a PR/Award number (an ED-specified identifying number unique to your application).
- We may request that you provide us original signatures on forms at a later date.

Application Deadline Date Extension in Case of Technical Issues with the Grants.gov System: If you are prevented from electronically submitting your application on the application deadline date because of technical problems with the Grants.gov system, we will grant you an extension until 4:30 p.m., Washington, DC time, the following business day to enable you to transmit your application electronically, or by hand delivery. You also may mail your application by following the mailing instructions as described elsewhere in this notice. If you submit an application after 4:30 p.m., Washington, DC time, on the deadline date, please contact the person listed elsewhere in this notice under **FOR FURTHER INFORMATION CONTACT,** and provide an explanation of the technical problem you experienced with Grants.gov, along with the Grants.gov Support Desk Case Number (if available). We will accept your application if we can confirm that a technical problem occurred with the Grants.gov system and that that problem affected your ability to submit your application by 4:30 p.m., Washington, DC time, on the application deadline date. The Department will contact you after a determination is made on whether your application will be accepted.

Note: Extensions referred to in this section apply only to the unavailability of or technical problems with the Grants.gov system. We will not grant you an extension if you failed to fully register to submit your application to Grants.gov before the deadline date and time or if the technical problem you experienced is unrelated to the Grants.gov system.

Exception to Electronic Submission Requirement: You qualify for an exception to the electronic submission requirement, and may submit your application in paper format, if you are unable to submit an application through the Grants.gov system because:

- You do not have access to the Internet; or
- You do not have the capacity to upload large documents to the Grants.gov system;

and

- No later than two weeks before the application deadline date (14 calendar days or, if the fourteenth calendar day before the application deadline date falls on a Federal holiday, the next business day following the Federal holiday), you mail or fax a written statement to the Department, explaining which of the two grounds for an exception prevent you from using the Internet to submit your application. If you mail your written statement to the Department, it must be postmarked no

later than two weeks before the application deadline date. If you fax your written statement to the Department, we must receive the faxed statement no later than two weeks before the application deadline date.

Address and mail or fax your statement to: Lana Shaughnessy, U.S. Department of Education, 400 Maryland Avenue, SW., room 5C152, Washington, DC 20202–6335. FAX: (202) 260–7779.

Your paper application must be submitted in accordance with the mail or hand delivery instructions described in this notice.

b. *Submission of Paper Applications by Mail.*

If you qualify for an exception to the electronic submission requirement, you may mail (through the U.S. Postal Service or a commercial carrier), your application to the Department. You must mail the original and two copies of your application, on or before the application deadline date, to the Department at the applicable following address:

By mail through the U.S. Postal Service: U.S. Department of Education, Application Control Center, Attention: (CFDA Number 84.299A), 400 Maryland Avenue, SW., Washington, DC 20202–4260,

or

By mail through a commercial carrier: U.S. Department of Education, Application Control Center '' Stop 4260, Attention: (CFDA Number 84.299A), 7100 Old Landover Road, Landover, MD 20785–1506.

Regardless of which address you use, you must show proof of mailing consisting of one of the following:

(1) A legibly dated U.S. Postal Service postmark,

(2) A legible mail receipt with the date of mailing stamped by the U.S. Postal Service,

(3) A dated shipping label, invoice, or receipt from a commercial carrier, or

(4) Any other proof of mailing acceptable to the Secretary of the U.S. Department of Education.

If you mail your application through the U.S. Postal Service, we do not accept either of the following as proof of mailing:

(1) A private metered postmark, or

(2) A mail receipt that is not dated by the U.S. Postal Service.

If your application is postmarked after the application deadline date, we will not consider your application.

Note: The U.S. Postal Service does not uniformly provide a dated postmark. Before relying on this method, you should check with your local post office.

c. *Submission of Paper Applications by Hand Delivery.*

If you qualify for an exception to the electronic submission requirement, you (or a courier service) may deliver your paper application to the Department by hand. You must deliver the original and two copies of your application by hand, on or before the application deadline date, to the Department at the following address: U.S. Department of Education, Application Control Center, Attention: (CFDA Number 84.299A), 550 12th Street, SW., Room 7041, Potomac Center Plaza, Washington, DC 20202–4260. The Application Control Center accepts hand deliveries daily between 8 a.m. and 4:30 p.m., Washington, DC time, except Saturdays, Sundays and Federal holidays.

Note for Mail or Hand Delivery of Paper Applications: If you mail or hand deliver your application to the Department:

(1) You must indicate on the envelope and—if not provided by the Department—in Item 4 of the ED 424 the CFDA number—and suffix letter, if any—of the competition under which you are submitting your application.

(2) The Application Control Center will mail a grant application receipt acknowledgment to you. If you do not receive the grant application receipt acknowledgment within 15 business days from the application deadline date, you should call the U.S. Department of Education Application Control Center at (202) 245–6288.

V. Application Review Information

Selection Criteria: The selection criteria for this competition are from 34 CFR 75.210 and are listed in the application package.

VI. Award Administration Information

1. *Award Notices:* If your application is successful, we notify your U.S. Representative and U.S. Senators and send you a Grant Award Notification (GAN). We may also notify you informally.

If your application is not evaluated or not selected for funding, we notify you.

2. *Administrative and National Policy Requirements:* We identify administrative and national policy requirements in the application package and reference these and other requirements in the *Applicable Regulations* section of this notice.

We reference the regulations outlining the terms and conditions of an award in the *Applicable Regulations* section of this notice and include these and other specific conditions in the GAN. The GAN also incorporates your approved application as part of your binding commitments under the grant.

3. *Reporting.* At the end of your project period, you must submit a final performance report, including financial information, as directed by the Secretary. If you receive a multi-year award, you must submit an annual performance report that provides the most current performance and financial expenditure information as specified by the Secretary in 34 CFR 75.118.

4. *Performance Measures:* The Secretary has established the following key performance measures for assessing the effectiveness of the Demonstration Grants for Indian Children program: (1) The percentage of pre-school American Indian and Alaska Native students who possess school readiness skills gained through a scientifically based research curriculum that prepares them for kindergarten; (2) the percentage of American Indian and Alaska Native high school students successfully completing (as defined by receiving a passing grade) challenging core subjects (including English, mathematics, science and social studies); and (3) the percentage of American Indian and Alaska Native high school students attaining at least the district average score in national college entrance examinations (the ACT and the SAT) and preliminary college entrance examinations (the PSAT).

Under the selection criteria ''Quality of project services'' and ''Quality of the project evaluation,'' we will consider the extent to which the applicant demonstrates a strong capacity to provide reliable data on these measures.

All grantees will be expected to submit, as part of their performance report, information documenting their progress with regard to these performance measures.

VII. Agency Contact

For Further Information Contact: Lana Shaughnessy, U.S. Department of Education, 400 Maryland Avenue, SW., room 5C152, Washington, DC 20202–6335. Telephone: (202) 205–2528 or by e-mail: *indian.education@ed.gov*.

If you use a telecommunications device for the deaf (TDD), you may call the Federal Relay Service (FRS) at 1–800–877–8339.

Individuals with disabilities may obtain this document in an alternative format (e.g., Braille, large print, audiotape, or computer diskette) on request to the contact person listed in this section.

VII. Other Information

Electronic Access to This Document: You may view this document, as well as all other documents of this Department published in the **Federal Register**, in

text or Adobe Portable Document Format (PDF) on the Internet at the following site: *http://www.ed.gov/news/fedregister*.

To use PDF you must have Adobe Acrobat Reader, which is available free at this site. If you have questions about using PDF, call the U.S. Government Printing Office (GPO), toll free, at 1–888–293–6498; or in the Washington, DC, area at (202) 512–1530.

Note: The official version of this document is the document published in the **Federal Register**. Free Internet access to the official edition of the **Federal Register** and the Code of Federal Regulations is available on GPO Access at: *http://www.gpoaccess.gov/nara/index.html*.

Dated: February 23, 2006.

Henry L. Johnson,

Assistant Secretary for Elementary and Secondary Education.

[FR Doc. 06–1867 Filed 2–27–06; 8:45 am]

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Federal Register

Tuesday,
February 28, 2006

Part VI

Department of the Interior

Fish and Wildlife Service

50 CFR Part 92

Migratory Bird Subsistence Harvest in Alaska; Harvest Regulations for Migratory Birds in Alaska During the 2006 Season; Final Rule

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 92

RIN 1018–AU39

Migratory Bird Subsistence Harvest in Alaska; Harvest Regulations for Migratory Birds in Alaska During the 2006 Season

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The U.S. Fish and Wildlife Service (Service or we) is publishing migratory bird subsistence harvest regulations in Alaska for the 2006 season. This final rule establishes regulations that prescribe frameworks, or outer limits, for dates when harvesting of birds may occur, species that can be taken, and methods and means that are excluded from use. These regulations were developed under a co-management process involving the Service, the Alaska Department of Fish and Game, and Alaska Native representatives. These regulations provide a framework to enable the continuation of customary and traditional subsistence uses of migratory birds in Alaska. The rulemaking is necessary because the regulations governing the subsistence harvest of migratory birds in Alaska are subject to annual review. This rulemaking promulgates regulations that start on April 2, 2006, and expire on August 31, 2006, for the subsistence harvest of migratory birds in Alaska.

DATES: The amendments to subpart C of 50 CFR part 92 become effective March 30, 2006. The amendments to subpart D of 50 CFR part 92 are effective April 2, 2006, through August 31, 2006.

ADDRESSES: The administrative record for this rule may be viewed at the office of the Regional Director, Alaska Region, U.S. Fish and Wildlife Service, 1011 E. Tudor Road, Anchorage, AK 99503.

FOR FURTHER INFORMATION CONTACT: Fred Armstrong, (907) 786–3887, or Donna Dewhurst, (907) 786–3499, U.S. Fish and Wildlife Service, 1011 E. Tudor Road, Mail Stop 201, Anchorage, AK 99503.

SUPPLEMENTARY INFORMATION:

Background

What Events Led to This Action?

In 1916, the United States and Great Britain (on behalf of Canada) signed the Convention for the Protection of Migratory Birds in Canada and the United States (Canada Treaty). The treaty prohibited all commercial bird hunting and specified a closed season on the taking of migratory game birds between March 10 and September 1 of each year. In 1936, the United States and Mexico signed the Convention for the Protection of Migratory Birds and Game Mammals (Mexico Treaty). The Mexico treaty prohibited the taking of wild ducks between March 10 and September 1. Neither treaty allowed adequately for the traditional harvest of migratory birds by northern peoples during the spring and summer months. This harvest, which has occurred for centuries, was and is necessary to the subsistence way of life in the north and thus continued despite the closed season.

The Canada treaty and the Mexico treaty, as well as migratory bird treaties with Japan (1972) and Russia (1976), have been implemented in the United States through the Migratory Bird Treaty Act (MBTA). The courts have ruled that the MBTA prohibits the Federal Government from permitting any harvest of migratory birds that is inconsistent with the terms of any of the migratory bird treaties. The more restrictive terms of the Canada and Mexico treaties thus prevented the Federal Government from permitting the traditional subsistence harvest of migratory birds during spring and summer in Alaska. To remedy this situation, the United States negotiated Protocols amending both the Canada and Mexico treaties to allow for subsistence harvest of migratory birds by indigenous inhabitants of identified subsistence harvest areas in Alaska. The U.S. Senate approved the amendments to both treaties in 1997.

What Has the Amended Treaty Accomplished?

The major goals of the amended treaty with Canada are to allow traditional subsistence harvest and improve conservation of migratory birds by allowing effective regulation of this harvest. The amended treaty with Canada provides a means to allow permanent residents of villages within subsistence harvest areas, regardless of race, to continue harvesting migratory birds between March 10 and September 1 as they have done for thousands of years. The Letter of Submittal of May 20, 1996, from the Department of State to the White House that officially accompanied the treaty protocol set the geographic baseline with lands north and west of the Alaska Range and within the Alaska Peninsula, Kodiak Archipelago, and the Aleutian Islands as the initial subsistence harvest areas.

What Has the Service Accomplished Since Ratification of the Amended Treaty?

In 1998, we began a public involvement process to determine how to structure management bodies to provide the most effective and efficient involvement for subsistence users. This process was concluded on March 28, 2000, when we published in the **Federal Register** (65 FR 16405) the Notice of Decision: ''Establishment of Management Bodies in Alaska to Develop Recommendations Related to the Spring/Summer Subsistence Harvest of Migratory Birds.'' This notice described the establishment and organization of 12 regional management bodies plus the Alaska Migratory Bird Co-management Council (Co-management Council).

Establishment of a migratory bird subsistence harvest began on August 16, 2002, when we published in the **Federal Register** (67 FR 53511) a final rule at 50 CFR part 92 that set procedures for incorporating subsistence management into the continental migratory bird management program. These regulations established an annual procedure to develop harvest guidelines to implement a subsistence migratory bird harvest.

The next step established the first subsistence migratory bird harvest system. This was finalized on July 21, 2003, when we published in the **Federal Register** (68 FR 43010) a final rule that created the first annual harvest regulations at 50 CFR parts 20, 21 and 92 for the 2003 subsistence migratory bird season in Alaska. These annual frameworks were not intended to be a complete, all-inclusive set of regulations, but were intended to regulate continuation of customary and traditional subsistence uses of migratory birds in Alaska during the spring and summer. For additional background information on the subsistence harvest program for migratory birds in Alaska, see the following final rules: 67 FR 53511, August 16, 2002; 68 FR 43010, July 21, 2003; 69 FR 17318, April 2, 2004; and 70 FR 18244, April 8, 2005.

This current rulemaking is necessary because the migratory bird harvest season is closed unless opened and the regulations governing subsistence harvest of migratory birds in Alaska are subject to public review and annual approval. The Co-management Council held a meeting in May 2005 to develop recommendations for changes effective for the 2006 harvest season. These recommendations were presented to the Service Regulations Committee (SRC) on

July 27 and July 28, 2005, and were approved without modification.

On September 22, 2005, we published a proposed rule in the **Federal Register** (70 FR 55692) to establish annual spring/summer subsistence migratory bird harvest regulations for Alaska, for the 2006 season. We opened a 60-day comment period but received no written responses.

This final rule promulgates regulations for the taking of migratory birds for subsistence uses in Alaska during 2006. This rule lists migratory bird species that are open or closed to harvest, as well as season openings and closures by region, including several changes in the Yukon/Kuskokwim Delta region. It also describes minor changes in the methods and means of taking migratory birds for subsistence purposes.

How Will the Service Continue to Ensure That the Subsistence Harvest Will Not Raise Overall Migratory Bird Harvest?

The Service has an emergency closure provision (§ 92.21), so that if any significant increases in harvest are documented for one or more species in a region, an emergency closure can be requested and implemented. Eligibility to harvest under the regulations established in 2003 was limited to permanent residents, regardless of race, in villages located within the Alaska Peninsula, Kodiak Archipelago, the Aleutian Islands, and in areas north and west of the Alaska Range (§ 92.5). These geographical restrictions opened the initial subsistence migratory bird harvest to only about 13 percent of Alaska residents. High-population areas such as Anchorage, the Matanuska-Susitna and Fairbanks North Star boroughs, the Kenai Peninsula roaded area, the Gulf of Alaska roaded area, and Southeast Alaska were excluded from the eligible subsistence harvest areas.

Based on petitions requesting inclusion in the harvest, in 2004, we added 13 additional communities based on the five criteria set forth in § 92.5(c). These communities included: Gulkana, Gakona, Tazlina, Copper Center, Mentasta Lake, Chitina, Chistochina, Tatitlek, Chenega, Port Graham, Nanwalek, Tyonek, and Hoonah, populations totaling 2,766. In 2005, we added three additional communities for glaucous-winged gull egg gathering only, based on petitions requesting inclusion. These southeastern communities included Craig, Hydaburg, and Yakutat, with a combined population of 2,459. These new regions increased the percentage of the State population included in the subsistence bird harvest only to 14 percent.

Subsistence harvest has been monitored for the past 15 years through the use of annual household surveys in the most heavily used subsistence harvest areas, e.g., Yukon/Kuskokwim Delta. This monitoring enables tracking of any major changes or trends in levels of harvest and user participation. The Office of Management and Budget (OMB) approved the information collection and assigned OMB control number 1018–0124, which expires on October 31, 2006.

How Did the Service Develop the Methods and Means Prohibitions, and What Is Proposed to Change for 2006?

In the proposed rule for the initial regulations (68 FR 6697, February 10, 2003), the Co-management Council encouraged the Service to adopt the existing methods and means prohibitions that occur in the Federal (50 CFR 20.21) and Alaska (5AAC92.100) migratory bird hunting regulations. We included exceptions to the Federal regulations in the initial regulations and included some in this rule to allow the continuation of customary and traditional spring harvest methods, but not the creation of new proposed traditions. In this final rule, we have incorporated the Yukon/Kuskokwim Delta region's request to prohibit the use of private or chartered aircraft for hunting or transporting hunters, except for transportation between community airstrips, in Unit 18.

How Did the Service Decide the List of Birds Open to Harvest, and What Is Proposed To Change for 2006?

The Service believes it is necessary to develop a list of bird species that are open to subsistence harvest. The original list was compiled from subsistence harvest data, with several species added based on their presence in Alaska. The original intent was for the list to be reviewed by the regional management bodies as a check list. The Co-management Council adopted the list as part of the guidelines for the 2003 season. Most of the regions adopted the list as written; however, two regions created their own lists. One regional representative explained that it would take much more time than was available for his region to reduce the list and that, once a bird was removed, returning it to the list would be more difficult later. Using the original list was viewed as protecting hunters from prosecution for the take of an unlisted bird. To understand this rationale, one must be aware that subsistence hunting is generally opportunistic and does not usually target individual species. Native language names for birds often group closely related species, with no separate names for species within these groups. Also, preferences for individual species differ greatly between villages and individual hunters. As a result, regions are hesitant to remove birds from the list open to harvest until they are certain the species are not taken for subsistence use. The list therefore contains some species that are taken infrequently and opportunistically, but this is still part of the subsistence tradition. The Co-management Council initially decided to call this list ''potentially harvested birds'' versus ''traditionally harvested birds'' because a detailed written documentation of the customary and traditional use patterns for the species listed had not yet been conducted. However, this terminology was leading to some confusion, so the Service renamed the list ''subsistence birds'' to cover the birds open to harvest.

The ''customary and traditional use'' of a wildlife species has been defined in Federal regulations (50 CFR 100.4) as a long-established, consistent pattern of use, incorporating beliefs and customs that have been transmitted from generation to generation. Much of the customary and traditional use information has not been documented in written form, but exists in the form of oral histories from elders, traditional stories, harvest methods taught to children, and traditional knowledge of the birds' natural history shared within a village or region. The primary source of quantitative data on customary and traditional use of the harvested bird species comes from Alaska subsistence migratory bird harvest surveys conducted by Service personnel and contractors and transferred to a computerized database. Because of the difficulties in bird species identification, shorebird harvest information has been lumped into ''large shorebird'' and ''small shorebird'' categories. In reality, Alaska subsistence harvests are also conducted in this manner, generally with no targeting or even recognition of individual shorebird species in most cases.

Based on conservation concerns, we are closing the harvest of black brant in the Izembek and Moffet lagoons on August 16 to protect brant during the early fall migration staging in the area. Izembek Lagoon is an internationally recognized staging area that attracts over 90 percent of black brant in fall. Black brant are well below the population objective defined by the Pacific Flyway Council. Population size has declined in recent years and has triggered restrictive harvest limits throughout the Pacific Flyway.

Based on requests by the Association of Village Council Presidents and the Yukon Delta National Wildlife Refuge, two special closures are being established in the Yukon/Kuskokwim Delta region. The first request was to implement a special black brant and cackling goose season hunting closure from the period when egg laying begins until young birds are fledged, with the closure dates to be announced by the Alaska Regional Director or his designee, after consultation with field biologists, the Association of Village Council President's Waterfowl Conservation Committee. This closure represents a conservation measure to maximize survival of locally hatched black brant and cackling geese. The second request was to implement an area closure of the following goose colonies: Kokechik Bay, Tutakoke River, Kigigak Island, Baird Peninsula, and Baird Island. These colonies will be closed to all hunting and egg gathering from the period of nest initiation until young birds are fledged. Closure dates will be announced by the Alaska Regional Director or his designee, after consultation with field biologists, and the Association of Village Council President's Waterfowl Conservation Committee. This area closure is a conservation measure to prevent disturbance by subsistence users in these five key black brant nesting areas. This closure is primarily for the benefit of black brant and cackling geese, but would also benefit emperor geese, spectacled eiders, and many other waterfowl species.

At the request of the North Slope Borough Fish and Game Management Committee, the Co-management Council recommended continuing the 2005 provision into 2006 to allow subsistence use of yellow-billed loons inadvertently caught in subsistence fishing (gill) nets on the North Slope. Justification given by the proponent was that yellow-billed loons are culturally important for the Inupiat Eskimo of the North Slope for use in traditional dance regalia. The Service Regulations Committee originally met on July 29, 2004, and set a maximum of 20 yellow-billed loons inadvertently caught annually in the North Slope Region for the 2005 season. Individual reporting to the North Slope Borough Department of Wildlife is required by the end of each season. In addition, the North Slope Borough will ask fishermen, through announcements on the radio and through personal contact, to report all entanglements of loons to better estimate the levels of injury or mortality caused by gill nets. This provision to allow subsistence possession and use of yellow-billed loons caught in fishing gill nets continues to be subject to annual review and renewed for 2006, as part of Subpart D—Annual Regulations Governing Subsistence Harvest.

How Does the Service Address the Birds of Conservation Concern Relative to the Subsistence Harvest?

Birds of Conservation Concern (BCC) 2002 is the latest document in a continuing effort by the Service to assess and prioritize bird species for conservation purposes. It published in the **Federal Register** on February 6, 2003 (68 FR 6179). The BCC list identifies bird species at risk because of inherently small populations, restricted ranges, severe population declines, or imminent threats. The species listed need increased conservation attention to maintain or stabilize populations. The legal authority for this effort is the Fish and Wildlife Conservation Act (FWCA) of 1980, as amended. Section 13(a)(3) of the FWCA, 16 U.S.C. 2912(a)(3), requires the Secretary of the Interior through the Service, to ''identify species, subspecies and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531–1543).'' The Co-management Council will continually review the list of subsistence birds. As appropriate, the Council will elevate hunter awareness of species that may have small or declining populations in an effort to directly involve subsistence hunters in conserving these vulnerable species.

Statutory Authority

We derive our authority to issue these regulations from the four migratory bird treaties with Canada, Mexico, Japan, and Russia and from the Migratory Bird Treaty Act of 1918 (16 U.S.C. 703 *et seq.*), that implements these treaties. Specifically, these regulations are issued pursuant to 16 U.S.C. 712(1), which authorizes the Secretary of the Interior, in accordance with these four treaties, to ''issue such regulations as may be necessary to assure that the taking of migratory birds and the collection of their eggs, by the indigenous inhabitants of the State of Alaska, shall be permitted for their own nutritional and other essential needs, as determined by the Secretary of the Interior, during seasons established so as to provide for the preservation and maintenance of stocks of migratory birds.''

Executive Order 12866

The Office of Management and Budget (OMB) has determined that this document is not a significant rule subject to OMB review under Executive Order 12866.

a. This rule will not have an annual economic effect of $100 million or more or adversely affect an economic sector, productivity, jobs, the environment, or other units of government. The rule does not provide for new or additional hunting opportunities and therefore will have minimal economic or environmental impact. This rule benefits those participants who engage in the subsistence harvest of migratory birds in Alaska in two identifiable ways: first, participants receive the consumptive value of the birds harvested; and second, participants get the cultural benefit associated with the maintenance of a subsistence economy and way of life. The Service can estimate the consumptive value for birds harvested under this rule but does not have a dollar value for the cultural benefit of maintaining a subsistence economy and way of life.

The economic value derived from the consumption of the harvested migratory birds has been estimated using the results of a paper by Robert J. Wolfe titled ''Subsistence Food Harvests in Rural Alaska, and Food Safety Issues'' (August 13, 1996). Using data from Wolfe's paper and applying it to the areas that will be included in this process, we determined a maximum economic value of $6 million. This is the estimated economic benefit of the consumptive part of this rule for participants in subsistence hunting. The cultural benefits of maintaining a subsistence economy and way of life can be of considerable value to the participants, and these benefits are not included in this figure.

b. This rule will not create inconsistencies with other agencies' actions. We are the Federal agency responsible for the management of migratory birds, coordinating with the State of Alaska's Department of Fish and Game on management programs within Alaska. The State of Alaska is a member of the Alaska Migratory Bird Co-management Council.

c. This rule will not materially affect entitlements, grants, user fees, loan programs, or the rights and obligations of their recipients. The rule does not affect entitlement programs.

d. This rule will not raise novel legal or policy issues. The subsistence harvest regulations will go through the same national regulatory process as the

existing migratory bird hunting regulations in 50 CFR part 20.

Regulatory Flexibility Act

The Department of the Interior certifies that this rule will not have a significant economic effect on a substantial number of small entities as defined under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*). An initial regulatory flexibility analysis is not required. Accordingly, a Small Entity Compliance Guide is not required. The rule legalizes a pre-existing subsistence activity, and the resources harvested will be consumed by the harvesters or persons within their local community.

Small Business Regulatory Enforcement Fairness Act

This rule is not a major rule under 5 U.S.C. 804(2), the Small Business Regulatory Enforcement Fairness Act, as discussed in the Executive Order 12866 section above.

a. This rule does not have an annual effect on the economy of $100 million or more. It will legalize and regulate a traditional subsistence activity. It will not result in a substantial increase in subsistence harvest or a significant change in harvesting patterns. The commodities being regulated under this rule are migratory birds. This rule deals with legalizing the subsistence harvest of migratory birds and, as such, does not involve commodities traded in the marketplace. A small economic benefit from this rule derives from the sale of equipment and ammunition to carry out subsistence hunting. Most, if not all, businesses that sell hunting equipment in rural Alaska would qualify as small businesses. We have no reason to believe that this rule will lead to a disproportionate distribution of benefits.

b. This rule will not cause a major increase in costs or prices for consumers; individual industries; Federal, State, or local government agencies; or geographic regions. This rule does not deal with traded commodities and, therefore, does not have an impact on prices for consumers.

c. This rule does not have significant adverse effects on competition, employment, investment, productivity, innovation, or the ability of U.S.-based enterprises to compete with foreign-based enterprises. This rule deals with the harvesting of wildlife for personal consumption. It does not regulate the marketplace in any way to generate effects on the economy or the ability of businesses to compete.

Unfunded Mandates Reform Act

We have determined and certified pursuant to the Unfunded Mandates Reform Act (2 U.S.C. 1501 *et seq.*) that this rule will not impose a cost of $100 million or more in any given year on local, State, or tribal governments or private entities. A statement containing the information required by this Act is therefore not necessary. Participation on regional management bodies and the Co-management Council will require travel expenses for some Alaska Native organizations and local governments. In addition, they will assume some expenses related to coordinating involvement of village councils in the regulatory process. Total coordination and travel expenses for all Alaska Native organizations are estimated to be less than $300,000 per year. In the Notice of Decision (65 FR 16405, March 28, 2000) we identified 12 partner organizations (Alaska Native non-profits and local governments) to be responsible for administering the regional programs. The Alaska Department of Fish and Game will also incur expenses for travel to Co-management Council and regional management body meetings. In addition, the State of Alaska will be required to provide technical staff support to each of the regional management bodies and to the Co-management Council. Expenses for the State's involvement may exceed $100,000 per year, but should not exceed $150,000 per year. When funding permits, we make annual grant agreements available to the partner organizations and the Alaska Department of Fish and Game to help offset their expenses.

Paperwork Reduction Act

This rule has been examined under the Paperwork Reduction Act of 1995 and has been found to contain no information collection requirements. We have, however, received OMB approval of associated voluntary annual household surveys used to determine levels of subsistence take. The OMB control number for the information collection is 1018–0124, which expires on October 31, 2006. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

Federalism Effects

As discussed in the Executive Order 12866 and Unfunded Mandates Reform Act sections above, this rule does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment under Executive Order 13132. We worked with the State of Alaska on development of these regulations.

Civil Justice Reform—Executive Order 12988

In accordance with Executive Order 12988, the Office of the Solicitor has determined that the rule does not unduly burden the judicial system and that it meets the requirements of Section 3 of the Order.

Takings Implication Assessment

This rule is not specific to particular land ownership, but applies to the harvesting of migratory bird resources throughout Alaska. Therefore, in accordance with Executive Order 12630, this rule does not have significant takings implications.

Government-to-Government Relations With Native American Tribal Governments

In accordance with the President's memorandum of April 29, 1994, ''Government-to-Government Relations With Native American Tribal Governments'' (59 FR 22951), and Executive Order 13175 (65 FR 67249, November 6, 2000), concerning consultation and coordination with Indian Tribal Governments, we have consulted with Alaska tribes and evaluated the rule for possible effects on tribes or trust resources, and have determined that there are no significant effects. The rule will legally recognize the subsistence harvest of migratory birds and their eggs for tribal members, as well as for other indigenous inhabitants.

Endangered Species Act Consideration

Section 7 of the Endangered Species Act, as amended (16 U.S.C. 1531–1543; 87 Stat. 884), provides that, ''The Secretary shall review other programs administered by him and utilize such programs in furtherance of the purposes of the Act'' and shall ''insure that any action authorized, funded, or carried out * * * is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical] habitat. * * *'' Consequently, we consulted with the Anchorage Fish and Wildlife Field Office of the Service to ensure that actions resulting from these regulations would not likely jeopardize the continued existence of Spectacled or Steller's Eiders or result in the destruction or adverse modification of their critical habitat. Findings from this consultation are included in the

Biological Opinion on the Effects of the Proposed 2006 Spring and Summer Subsistence Harvest of Birds on the Threatened Steller's and Spectacled Eiders (dated January 20, 2006). The consultation concluded that the 2006 regulations are not likely to jeopardize the continued existence of either the Steller's or Spectacled Eider. Additionally, any modifications resulting from this consultation to regulatory measures previously proposed are reflected in the final rule. The complete administrative record for this consultation is on file at the Anchorage Fish and Wildlife Field Office and is also available for public inspection at the address indicated under the caption **ADDRESSES**.

National Environmental Policy Act Consideration

The annual regulations and options were considered in the Environmental Assessment, ''Managing Migratory Bird Subsistence Hunting in Alaska: Hunting Regulations for the 2006 Spring/Summer Harvest,'' issued October 12, 2005. Copies are available from the address indicated under the caption **ADDRESSES**.

Energy Supply, Distribution, or Use (Executive Order 13211)

On May 18, 2001, the President issued Executive Order 13211 on regulations that significantly affect energy supply, distribution, and use. Executive Order 13211 requires agencies to prepare Statements of Energy Effects when undertaking certain actions. Because this rule only allows for traditional subsistence harvest and improves conservation of migratory birds by allowing effective regulation of this harvest, it is not a significant regulatory action under Executive Order 12866. Consequently it is not expected to significantly affect energy supplies, distribution and use. Therefore, this action is not a significant energy action under Executive Order 13211 and no Statement of Energy Effects is required.

List of Subjects in 50 CFR Part 92

Exports, Hunting, Imports, Reporting and recordkeeping requirements, Subsistence, Treaties, Wildlife.

■ For the reasons set out in the preamble, we are amending title 50, chapter I, subchapter G, of the Code of Federal Regulations as follows:

PART 92—MIGRATORY BIRD SUBSISTENCE HARVEST IN ALASKA

■ 1. The authority citation for part 92 continues to read as follows:

Authority: 16 U.S.C. 703–712.

Subpart C—General Regulations Governing Subsistence Harvest

■ 2. In subpart C, amend § 92.20 by revising paragraphs (g), (h), and (i) and adding paragraph (j) to read as follows:

§ 92.20 Methods and means.

* * * * *

(g) Having in possession or using lead or other toxic shot while hunting (Approved nontoxic shot types are listed in § 20.21(j) of subchapter B.);

(h) Shooting while on or across any road or highway;

(i) Using an air boat (Interior and Bristol Bay Regions only) or jet ski (Interior Region only) for hunting or transporting hunters; or

(j) Using private or chartered aircraft for hunting or transporting hunters, except for transportation between community airstrips (Unit 18, Yukon/Kuskokwim Delta Region only).

Subpart D—Annual Regulations Governing Subsistence Harvest

■ 3. In subpart D, add §§ 92.31 through 92.33 to read as follows:

§ 92.31 Migratory bird species closed to subsistence harvest.

(a) Because of conservation concerns, you may not harvest birds or gather eggs from the following species in 2006:

(1) Spectacled Eider (*Somateria fischeri*).

(2) Steller's Eider (*Polysticta stelleri*).

(3) Emperor Goose (*Chen canagica*).

(4) Aleutian Canada Goose (*Branta canadensis leucopareia*)—Semidi Islands only.

(5) Yellow-billed Loons (*Gavia adamsii*)—Except in the North Slope Region only, a total of up to 20 yellow-billed loons inadvertently caught in fishing nets may be kept for subsistence purposes.

(b) In addition, you may not gather eggs from the following species in 2006:

(1) Cackling Canada Goose (*Branta canadensis minima*).

(2) Black Brant (*Branta bernicla nigricans*)—in the Yukon/Kuskokwim Delta and North Slope regions only.

§ 92.32 Subsistence migratory bird species.

You may harvest birds or gather eggs from the following species, listed in taxonomic order, within all included regions. When birds are listed only to the species level, all subspecies existing in Alaska are open to harvest.

(a) Family Anatidae

(1) Greater White-fronted Goose (*Anser albifrons*).

(2) Snow Goose (*Chen caerulescens*).

(3) Lesser Canada Goose (*Branta canadensis parvipes*).

(4) Taverner's Canada Goose (*Branta canadensis taverneri*).

(5) Aleutian Canada Goose (*Branta canadensis leucopareia*)—except in the Semidi Islands.

(6) Cackling Canada Goose (*Branta canadensis minima*)—except no egg gathering is permitted.

(7) Black Brant (*Branta bernicla nigricans*)—except no egg gathering is permitted in the Yukon/Kuskokwim Delta and the North Slope regions.

(8) Tundra Swan (*Cygnus columbianus*)—except in Units 9(D) and 10.

(9) Gadwall (*Anas strepera*).

(10) Eurasian Wigeon (*Anas penelope*).

(11) American Wigeon (*Anas americana*).

(12) Mallard (*Anas platyrhynchos*).

(13) Blue-winged Teal (*Anas discors*).

(14) Northern Shoveler (*Anas clypeata*).

(15) Northern Pintail (*Anas acuta*).

(16) Green-winged Teal (*Anas crecca*).

(17) Canvasback (*Aythya valisineria*).

(18) Redhead (*Aythya americana*).

(19) Ring-necked Duck (*Aythya collaris*).

(20) Greater Scaup (*Aythya marila*).

(21) Lesser Scaup (*Aythya affinis*).

(22) King Eider (*Somateria spectabilis*).

(23) Common Eider (*Somateria mollissima*).

(24) Harlequin Duck (*Histrionicus histrionicus*).

(25) Surf Scoter (*Melanitta perspicillata*).

(26) White-winged Scoter (*Melanitta fusca*).

(27) Black Scoter (*Melanitta nigra*).

(28) Long-tailed Duck (*Clangula hyemalis*).

(29) Bufflehead (*Bucephala albeola*).

(30) Common Goldeneye (*Bucephala clangula*).

(31) Barrow's Goldeneye (*Bucephala islandica*).

(32) Hooded Merganser (*Lophodytes cucullatus*).

(33) Common Merganser (*Mergus merganser*).

(34) Red-breasted Merganser (*Mergus serrator*).

(b) Family Gaviidae

(1) Red-throated Loon (*Gavia stellata*).

(2) Arctic Loon (*Gavia arctica*).

(3) Pacific Loon (*Gavia pacifica*).

(4) Common Loon (*Gavia immer*).

(5) Yellow-billed Loon (*Gavia adamsii*)—In the North Slope Region only, a total of up to 20 yellow-billed loons inadvertently caught in fishing nets may be kept for subsistence purposes.

(c) Family Podicipedidae

(1) Horned Grebe (*Podiceps auritus*).
(2) Red-necked Grebe (*Podiceps grisegena*).

(d) Family Procellariidae

(1) Northern Fulmar (*Fulmarus glacialis*).
(2) [Reserved].

(e) Family Phalacrocoracidae

(1) Double-crested Cormorant (*Phalacrocorax auritus*).
(2) Pelagic Cormorant (*Phalacrocorax pelagicus*).

(f) Family Gruidae

(1) Sandhill Crane (*Grus canadensis*).
(2) [Reserved].

(g) Family Charadriidae

(1) Black-bellied Plover (*Pluvialis squatarola*).
(2) Common Ringed Plover (*Charadrius hiaticula*).

(h) Family Haematopodidae

(1) Black Oystercatcher (*Haematopus bachmani*).
(2) [Reserved].

(i) Family Scolopacidae

(1) Greater Yellowlegs (*Tringa melanoleuca*).
(2) Lesser Yellowlegs (*Tringa flavipes*).
(3) Spotted Sandpiper (*Actitis macularia*).
(4) Bar-tailed Godwit (*Limosa lapponica*).
(5) Ruddy Turnstone (*Arenaria interpres*).
(6) Semipalmated Sandpiper (*Calidris pusilla*).
(7) Western Sandpiper (*Calidris mauri*).
(8) Least Sandpiper (*Calidris minutilla*).
(9) Baird's Sandpiper (*Calidris bairdii*).
(10) Sharp-tailed Sandpiper (*Calidris acuminata*).
(11) Dunlin (*Calidris alpina*).
(12) Long-billed Dowitcher (*Limnodromus scolopaceus*).
(13) Common Snipe (*Gallinago gallinago*).
(14) Red-necked phalarope (*Phalaropus lobatus*).
(15) Red phalarope (*Phalaropus fulicaria*).

(j) Family Laridae

(1) Pomarine Jaeger (*Stercorarius pomarinus*).
(2) Parasitic Jaeger (*Stercorarius parasiticus*).
(3) Long-tailed Jaeger (*Stercorarius longicaudus*).
(4) Bonaparte's Gull (*Larus philadelphia*).
(5) Mew Gull (*Larus canus*).
(6) Herring Gull (*Larus argentatus*).
(7) Slaty-backed Gull (*Larus schistisagus*).
(8) Glaucous-winged Gull (*Larus glaucescens*).
(9) Glaucous Gull (*Larus hyperboreus*).
(10) Sabine's Gull (*Xema sabini*).
(11) Black-legged Kittiwake (*Rissa tridactyla*).
(12) Red-legged Kittiwake (*Rissa brevirostris*).
(13) Ivory Gull (*Pagophila eburnea*).
(14) Arctic Tern (*Sterna paradisaea*).
(15) Aleutian Tern (*Sterna aleutica*).

(k) Family Alcidae

(1) Common Murre (*Uria aalge*).
(2) Thick-billed Murre (*Uria lomvia*).
(3) Black Guillemot (*Cepphus grylle*).
(4) Pigeon Guillemot (*Cepphus columba*).
(5) Cassin's Auklet (*Ptychoramphus aleuticus*).
(6) Parakeet Auklet (*Aethia psittacula*).
(7) Least Auklet (*Aethia pusilla*).
(8) Whiskered Auklet (*Aethia pygmaea*).
(9) Crested Auklet (*Aethia cristatella*).
(10) Rhinoceros Auklet (*Cerorhinca monocerata*).
(11) Horned Puffin (*Fratercula corniculata*).
(12) Tufted Puffin (*Fratercula cirrhata*).

(l) Family Strigidae

(1) Great Horned Owl (*Bubo scandiacus*).
(2) Snowy Owl (*Nyctea scandiaca*).

§ 92.33 Region-specific regulations.

The 2006 season dates for the eligible subsistence regions are as follows:

(a) Aleutian/Pribilof Islands Region.
(1) Northern Unit (Pribilof Islands):
(i) Season: April 2–June 30.
(ii) Closure: July 1–August 31.
(2) Central Unit (Aleut Region's eastern boundary on the Alaska Peninsula westward to and including Unalaska Island):
(i) Season: April 2–June 15 and July 16–August 31.
(ii) Closure: June 16–July 15.
(iii) Special Black Brant Season Closure: August 16–August 31, only in Izembek and Moffet lagoons.
(iv) Special Tundra Swan Closure: All hunting and egg gathering closed in units 9(D) and 10.
(3) Western Unit (Umnak Island west to and including Attu Island):
(i) Season: April 2–July 15 and August 16–August 31.
(ii) Closure: July 16–August 15.
(b) Yukon/Kuskokwim Delta Region.
(1) Season: April 2–August 31.
(2) Closure: 30-day closure dates to be announced by the Alaska Regional Director or his designee, after consultation with local subsistence users, field biologists, and the Association of Village Council President's Waterfowl Conservation Committee. This 30-day period will occur between June 1 and August 15 of each year. A press release announcing the actual closure dates will be forwarded to regional newspapers and radio and television stations and posted in village post offices and stores.
(3) Special Black Brant and Cackling Goose Season Hunting Closure: From the period when egg laying begins until young birds are fledged. Closure dates to be announced by the Alaska Regional Director or his designee, after consultation with field biologists and the Association of Village Council President's Waterfowl Conservation Committee. A press release announcing the actual closure dates will be forwarded to regional newspapers and radio and television stations and posted in village post offices and stores.
(4) Special Area Closure: (i) The following described goose nesting colonies are closed to all hunting and egg gathering from the period of nest initiation until young birds are fledged:
(A) Kokechik Bay Colony—bounded by 61.61° N to 61.67° N and 165.83° W to 166.08° W;
(B) Tutakoke River Colony—bounded by 61.20° N to 61.28° N and 165.08° W to 165.13° W;
(C) Kigigak Island Colony—bounded by island's edge;
(D) Baird Peninsula Colony—bounded by 60.87° N to 60.91° N and 164.65° W to 165.80° W, and
(E) Baird Island Colony—bounded by island's edge.
(ii) Closure dates to be announced by the Alaska Regional Director or his designee, after consultation with field biologists and the Association of Village Council President's Waterfowl Conservation Committee. A press release announcing the actual closure dates will be forwarded to regional newspapers and radio and television stations and posted in village post offices and stores.
(c) Bristol Bay Region.
(1) Season: April 2–June 14 and July 16–August 31 (general season); April 2–July 15 for seabird egg gathering only.
(2) Closure: June 15–July 15 (general season); July 16–August 31 (seabird egg gathering).
(d) Bering Strait/Norton Sound Region.

(1) Stebbins/St. Michael Area (Point Romanof to Canal Point):

(i) Season: April 15–June 14 and July 16–August 31.

(ii) Closure: June 15–July 15.

(2) Remainder of the region:

(i) Season: April 2–June 14 and July 16–August 31 for waterfowl; April 2–July 19 and August 21–August 31 for all other birds.

(ii) Closure: June 15–July 15 for waterfowl; July 20–August 20 for all other birds.

(e) Kodiak Archipelago Region, except for the Kodiak Island roaded area, is closed to the harvesting of migratory birds and their eggs. The closed area consists of all lands and waters (including exposed tidelands) east of a line extending from Crag Point in the north to the west end of Saltery Cove in the south and all lands and water south of a line extending from Termination Point along the north side of Cascade Lake extending to Anton Larson Bay. Waters adjacent to the closed area are closed to harvest within 500 feet from the water's edge. The offshore islands are open to harvest.

(1) Season: April 2–June 20 and July 22–August 31; egg gathering: May 1–June 20 only.

(2) Closure: June 21–July 21.

(f) Northwest Arctic Region.

(1) Season: April 2–June 9 and August 15–August 31 (in general); waterfowl egg gathering May 20–June 9 only; seabird egg gathering July 3–July 12 only; molting/non-nesting waterfowl July 1–July 31 only.

(2) Closure: June 10–August 14, except for the taking of seabird eggs and molting/non-nesting waterfowl as provided in paragraph (f)(1) of this section.

(g) North Slope Region.

(1) Southern Unit (Southwestern North Slope regional boundary east to Peard Bay, everything west of the longitude line 158°30′ S and south of the latitude line 70°45′ E to the west bank of the Ikpikpuk River, and everything south of the latitude line 69°45′ E between the west bank of the Ikpikpuk River to the east bank of Sagavinirktok River):

(i) Season: April 2–June 29 and July 30–August 31 for seabirds; April 2–June 19 and July 20–August 31 for all other birds.

(ii) Closure: June 30–July 29 for seabirds; June 20–July 19 for all other birds.

(2) Northern Unit (At Peard Bay, everything east of the longitude line 158°30′ S and north of the latitude line 70°45′ E to west bank of the Ikpikpuk River, and everything north of the latitude line 69°45′ E between the west bank of the Ikpikpuk River to the east bank of Sagavinirktok River):

(i) Season: April 6–June 6 and July 7–August 31 for king and common eiders and

April 2—June 15 and July 16—August 31 for all other birds.

(ii) Closure: June 7–July 6 for king and common eiders; June 16–July 15 for all other birds.

(3) Eastern Unit (East of eastern bank of the Sagavanirktok River):

(i) Season: April 2–June 19 and July 20–August 31.

(ii) Closure: June 20–July 19.

(4) All Units: yellow-billed loons. Annually, a total of up to 20 yellow-billed loons may be caught inadvertently in subsistence fishing nets in the North Slope Region and kept for subsistence use. Individuals must report each yellow-billed loon inadvertently caught while subsistence gill net fishing to the North Slope Borough Department of Wildlife Management by the end of the season.

(h) Interior Region.

(1) Season: April 2–June 14 and July 16–August 31; egg gathering May 1–June 14 only.

(2) Closure: June 15–July 15.

(i) Upper Copper River (Harvest Area: State of Alaska Game Management Units 11 and 13) (Eligible communities: Gulkana, Chitina, Tazlina, Copper Center, Gakona, Mentasta Lake, Chistochina and Cantwell).

(1) Season: April 15–May 26 and June 27–August 31.

(2) Closure: May 27–June 26.

(3) The Copper River Basin communities listed above also documented traditional use harvesting birds in Unit 12, making them eligible to hunt in this unit using the seasons specified in paragraph (h) of this section.

(j) Gulf of Alaska Region.

(1) Prince William Sound Area (Harvest area: Unit 6 [D]), (Eligible Chugach communities: Chenega Bay, Tatitlek).

(i) Season: April 2–May 31 and July 1–August 31.

(ii) Closure: June 1–30.

(2) Kachemak Bay Area (Harvest area: Unit 15[C] South of a line connecting the tip of Homer Spit to the mouth of Fox River) (Eligible Chugach Communities: Port Graham, Nanwalek).

(i) Season: April 2–May 31 and July 1–August 31.

(ii) Closure: June 1–30.

(k) Cook Inlet (Harvest area: Portions of Unit 16[B] as specified below) (Eligible communities: Tyonek only).

(1) Season: April 2–May 31—That portion of Unit 16(B) south of the Skwentna River and west of the Yentna River, and August 1–31—That portion of Unit 16(B) south of the Beluga River, Beluga Lake, and the Triumvirate Glacier.

(2) Closure: June 1–July 31.

(l) Southeast Alaska.

(1) Community of Hoonah (Harvest area: National Forest lands in Icy Strait and Cross Sound, including Middle Pass Rock near the Inian Islands, Table Rock in Cross Sound, and other traditional locations on the coast of Yakobi Island. The land and waters of Glacier Bay National Park remain closed to all subsistence harvesting [50 CFR Part 100.3]).

(i) Season: glaucous-winged gull egg gathering only: May 15–June 30.

(ii) Closure: July 1–August 31.

(2) Communities of Craig and Hydaburg (Harvest area: Small islands and adjacent shoreline of western Prince of Wales Island from Point Baker to Cape Chacon, but also including Coronation and Warren islands).

(i) Season: glaucous-winged gull egg gathering only: May 15–June 30.

(ii) Closure: July 1–August 31.

(3)Community of Yakutat (Harvest area: Icy Bay [Icy Cape to Pt. Riou], and coastal lands and islands bordering the Gulf of Alaska from Pt. Manby southeast to Dry Bay.

(i) Season: glaucous-winged gull egg gathering only: May 15–June 30.

(ii) Closure: July 1–August 31.

Dated: January 13, 2005.

Paul Hoffman,

Acting Assistant Secretary for Fish and Wildlife and Parks.

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The items in this list were editorially compiled as an aid to Federal Register users. Inclusion or exclusion from this list has no legal significance.

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LIST OF PUBLIC LAWS

This is a continuing list of public bills from the current session of Congress which have become Federal laws. It may be used in conjunction with "P L U S" (Public Laws Update Service) on 202–741–6043. This list is also available online at *http://www.archives.gov/federal-register/laws.html*.

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