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Briefing on How To Use the Federal Register
For information on a briefing in Washington, DC, see announcement on the inside cover of this issue.

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THE FEDERAL REGISTER
WHAT IT IS AND HOW TO USE IT

FOR: Any person who uses the Federal Register and Code of Federal Regulations.

WHO: The Office of the Federal Register.

WHAT: Free public briefings (approximately 3 hours) to present:

1. The regulatory process, with a focus on the Federal Register system and the public's role in the development of regulations.
2. The relationship between the Federal Register and Code of Federal Regulations.
3. The important elements of typical Federal Register documents.
4. An introduction to the finding aids of the FR/CFR system.

WHY: To provide the public with access to information necessary to research Federal agency regulations which directly affect them. There will be no discussion of specific agency regulations.

WASHINGTON, DC

WHEN: December 7, at 9:00 a.m.
WHERE: Office of the Federal Register, First Floor Conference Room, 1100 L Street NW., Washington, DC.
RESERVATIONS: 202–523–5240.

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DEPARTMENT OF AGRICULTURE

Agricultural Marketing Service

7 CFR Parts 1006, 1007, 1011, 1012, 1013, 1030, 1032, 1033, 1036, 1040, 1046, 1049, 1050, 1064, 1065, 1068, 1076, 1079, 1093, 1094, 1096, 1097, 1098, 1099, 1106, 1108, 1120, 1124, 1126, 1131, 1132, 1134, 1135, 1137, 1138, and 1139

[Docket Nos. AO-160-A65-R01, etc.; DA-89-028]

Milk in Certain Marketing Areas; Interim Amendment of Orders

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AGENCY: Agricultural Marketing Service, USDA.

ACTION: Interim amendment of rules.

SUMMARY: This action changes on an interim basis those orders that currently provide tentative and final price announcements for Class II milk. These interim amendments would change the current method of announcing a tentative Class II milk price for each month on or before the 15th of the preceeding month, with a final Class II milk price for the month being determined and announced on the fifth day of the following month. Instead, the Class II milk price announced by the 15th of each month would be the final or effective Class II milk price for the following month. The Class II milk price will not be retroactively revised. The objective of the current pricing arrangement whereby the Class II milk price will not be less than the Minnesota-Wisconsin (M-W) manufacturing grade milk price, or Class III milk price in most Federal orders, is maintained in principle. To the extent that the announced Class II price for a given month is less than the Class III price for that same month, the difference would be included in computing the second succeeding month's Class II milk price. These changes are based on evidence presented at a public hearing held in Alexandria, Virginia, on August 22, 1989. More than the required number of producers in each of the marketing areas affected have approved the interim amendments to the order for their market.

EFFECTIVE DATE: December 4, 1989.

FOR FURTHER INFORMATION CONTACT: Richard A. Glandt, Marketing Specialist, USDA/AMS/Dairy Division, Order Formulation Branch, Room 2968, South Building, P.O. Box 96456, Washington, DC 20090-6456, (202) 447-4829.

SUPPLEMENTARY INFORMATION: This administrative action is governed by the provisions of sections 556 and 557 of title 5 of the United States Code and, therefore, is excluded from the requirements of Executive Order 12291.

Prior documents in this proceeding:

Notice of Hearing: Issued August 10, 1989; published August 16, 1989 (54 FR 33709).

Recommended Decision: Issued October 31, 1989; published November 8, 1989 (54 FR 46904).

Tentative Decision: Issued November 8, 1989; published November 15, 1989 (54 FR 47527).

Findings and Determinations

The findings and determinations hereinafter set forth supplement those that were made when the orders were first issued and when they were amended. The previous findings and determinations are hereby ratified and confirmed, except where they may conflict with those set forth herein.

(a) *Findings upon the basis of the hearing record.* Pursuant to the provisions of the Agricultural Marketing Agreement Act of 1937, as amended (7 U.S.C. 601-674), and the applicable rules of practice and procedure governing the formulation of marketing agreements and marketing orders (7 CFR part 900), a public hearing was held upon certain proposed amendments to the tentative marketing agreements and to the orders regulating the handling of milk in the respective marketing areas.

Upon the basis of the evidence introduced at such hearing and the record thereof, it is found that:

(1) The said orders as hereby amended, and all of the terms and conditions thereof, will tend to effectuate the declared policy of the Act;

(2) The parity prices of milk, as determined pursuant to section 2 of the Act, are not reasonable in view of the price of feeds, available supplies of feeds, and other economic conditions which affect market supply and demand for milk in the said marketing areas; and the minimum prices specified in the orders as hereby amended on an interim basis, are such prices as will reflect the aforesaid factors, insure a sufficient quantity of pure and wholesome mik, and be in the public interest; and

(3) The said orders as hereby amended on an interim basis regulate the handling of milk in the same manner as, and are applicable only to persons in the respective classes of industrial or commercial activity specified in,

marketing agreements upon which a hearing has been held.

(b) *Additional findings.* It is necessary in the public interest to make these interim amendments to each of the aforesaid orders effective December 4, 1989. Any delay beyond that date would tend to disrupt the orderly marketing of milk in the marketing areas.

The interim amendments to these orders are known to handlers. The Tentative Decision of the Assistant Secretary containing proposed amendments to these orders was issued November 8, 1989, and published on November 15, 1989, in the **Federal Register** (54 FR 47527).

The changes effected by these interim amendments will not require extensive preparation or substantial alteration in method of operation for handlers. In view of the foregoing, it is hereby found and determined that it would be contrary to the public interest to delay the effective date of these amendments for 30 days after publication in the **Federal Register**. (Sec. 553(d), Administrative Procedure Act, 5 U.S.C. 551–559).

(c) *Determinations.* It is hereby determined that:

(1) The refusal or failure of handlers (excluding cooperative associations specified in Sec. 8c(9) of the Act) of more than 50 percent of the milk, which is marketed within each of the respective marketing areas, to sign a proposed marketing agreement, tends to prevent the effectuation of the declared policy of the Act;

(2) The issuance of these interim amendments to each of the specified orders is the only practical means pursuant to the declared policy of the Act of advancing the interests of producers as defined in the respective orders; and

(3) The issuance of these interim amendments to each of the specified orders is approved by more than the required number of producers who during the determined representative period were engaged in the production of milk for sale in the marketing area.

List of Subjects in 7 CFR Parts 1006, 1007, 1011, 1012, 1013, 1030, 1032, 1033, 1036, 1040, 1046, 1049, 1050, 1064, 1065, 1068, 1076, 1079, 1093, 1094, 1096, 1097, 1098, 1099, 1106, 1108, 1120, 1124, 1126, 1131, 1132, 1134, 1135, 1137, 1138, and 1139

Milk marketing orders, Milk, Dairy products.

Order Relative to Handling

It is therefore ordered, That on and after the effective date hereof, the handling of milk in each of the specified marketing areas shall be in conformity to and in compliance with the terms and conditions of the aforesaid orders, as amended, and as hereby further amended, as follows:

1. The authority citation for CFR Parts 1006, 1007, 1011, 1012, 1013, 1030, 1032, 1033, 1036, 1040, 1046, 1049, 1050, 1064, 1065, 1068, 1076, 1079, 1093, 1094, 1096, 1097, 1098, 1099, 1106, 1108, 1120, 1124, 1126, 1131, 1132, 1134, 1135, 1137, 1138, and 1139 continues to read as follows:

Authority: Secs 1–19, 48 Stat. 31, as amended; 7 U.S.C. 601–674.

PART 1006—MILK IN THE UPPER FLORIDA MARKETING AREA

2. In § 1006.50(b), the introductory test is revised to read as follows:

§ 1006.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1006.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the basic formula price for the second preceding month.

* * * * *

3. Secton 1006.53 is revised to read as follows:

§ 1006.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the basic formula price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1006.50(b).

PART 1007—MILK IN THE GEORGIA MARKETING AREA

4. In § 1007.50(b), the introductory text is revised to read as follows:

§ 1007.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1007.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

5. Section 1007.53 is revised to read as follows:

§ 1007.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1007.50(b).

PART 1011—MILK IN THE TENNESSEE VALLEY MARKETING AREA

6. In § 1011.50(b), the introductory text is revised to read as follows:

§ 1011.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1011.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

7. Section 1011.53 is revised to read as follows:

§ 1011.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1011.50(b).

PART 1012—MILK IN THE TAMPA BAY MARKETING AREA

8. In § 1012.50(b), the introductory text is revised to read as follows:

§ 1012.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1012.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the basic formula price for the second preceding month.

* * * * *

9. Section 1012.53 is revised to read as follows:

§ 1012.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the basic formula price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1012.50(b).

PART 1013—MILK IN THE SOUTHEASTERN FLORIDA MARKETING AREA

10. In § 1013.50(b), the introductory text is revised to read as follows:

§ 1013.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1013.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the Class II price for the second preceding month was less than the Class III price for the second preceding month.

* * * * *

11. Section 1013.53 is revised to read as follows:

§ 1013.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1013.50(b).

PART 1030—MILK IN THE CHICAGO REGIONAL MARKETING AREA

12. In § 1030.50(b), the introductory text is revised to read as follows:

§ 1030.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1030.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

13. Section 1030.53 is revised to read as follows:

§ 1030.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1030.50(b).

PART 1032—MILK IN THE SOUTHERN ILLINOIS-EASTERN MISSOURI MARKETING AREA

14. In § 1032.50(b), the introductory text is revised to read as follows:

§ 1032.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1032.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

15. Section 1032.53 is revised to read as follows:

§ 1032.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1032.50(b).

PART 1033—MILK IN THE OHIO VALLEY MARKETING AREA

16. In § 1033.27, paragraphs (k)(1) and (k)(3) are revised to read as follows:

§ 1033.27 Additional duties of the market administrator.

* * * * *

(k) Publicly announce on or before:

(1) The 5th day of each month:

(i) The Class I price for the following month;

(ii) The Class III price for the preceding month;

(iii) The butterfat differential for the preceding month;

(2) * * *

(3) The 15th day of each month, the Class II price for the following month computed pursuant to § 1033.51(b).

* * * * *

17. In § 1033.51(b), the introductory text is revised to read as follows:

§ 1033.51 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1033.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

PART 1036–MILK IN THE EASTERN OHIO–WESTERN PENNSYLVANIA MARKETING AREA

18. In § 1036.50(b), the introductory text is revised to read as follows:

§ 1036.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1036.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

19. Section 1036.53 is revised to read as follows:

§ 1036.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1036.50(b).

PART 1040–MILK IN THE SOUTHERN MICHIGAN MARKETING AREA

20. In § 1040.50(b), the introductory text is revised to read as follows:

§ 1040.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1040.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

21. Section 1040.53 is revised to read as follows:

§ 1040.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class II price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1040.50(b).

PART 1046–MILK IN THE LOUISVILLE–LEXINGTON–EVANSVILLE MARKETING AREA

22. In § 1046.50(b), the introductory text is revised to read as follows:

§ 1046.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1046.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

23. Section 1046.53 is revised to read as follows:

§ 1046.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1046.50(b).

PART 1049–MILK IN THE INDIANA MARKETING AREA

24. In § 1049.50(b), the introductory text is revised to read as follows:

§ 1049.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1049.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

25. Section 1049.53 is revised to read as follows:

§ 1049.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1049.50(b).

PART 1050—MILK IN THE CENTRAL ILLINOIS MARKETING AREA

26. In § 1050.50(b), the introductory text is revised to read as follows:

§ 1050.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1050.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

27. Section 1050.53 is revised to read as follows:

§ 1050.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1050.50(b).

PART 1064—MILK IN THE GREATER KANSAS CITY MARKETING AREA

28. In § 1064.50(b), the introductory text is revised to read as follows:

§ 1064.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1064.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

29. Section 1064.53 is revised to read as follows:

§ 1064.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1064.50(b).

PART 1065—MILK IN THE NEBRASKA-WESTERN IOWA MARKETING AREA

30. In § 1065.50(b), the introductory text is revised to read as follows:

§ 1065.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1065.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

31. Section 1065.53 is revised to read as follows:

§ 1065.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1065.50(b).

PART 1068—MILK IN THE UPPER MIDWEST MARKETING AREA

32. In § 1068.50(b), the introductory text is revised to read as follows:

§ 1068.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1068.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

33. Section 1068.53 is revised to read as follows:

§ 1068.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1068.50(b).

PART 1076—MILK IN THE EASTERN SOUTH DAKOTA MARKETING AREA

34. In § 1076.50(b), the introductory text is revised to read as follows:

§ 1076.50 Class prices.

* * * * *

(b) *Class II price.* The class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1076.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

35. Section 1076.53 is revised to read as follows:

§ 1076.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1076.50(b).

PART 1079—MILK IN THE IOWA MARKETING AREA

36. In Section 1079.50(b), the introductory text is revised to read as follows:

§ 1079.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1079.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

37. Section 1079.53 is revised to read as follows:

§ 1079.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1079.50(b).

PART 1093—MILK IN THE ALABAMA-WEST FLORIDA MARKETING AREA

38. In Section 1093.50(b), the introductory text is revised to read as follows:

§ 1093.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to

§ 1093.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

39. Section 1093.53 is revised to read as follows:

§ 1093.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1093.50(b).

PART 1094—MILK IN THE NEW ORLEANS-MISSISSIPPI MARKETING AREA

40. In Section 1094.50(b), the introductory text is revised to read as follows:

§ 1094.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1094.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

41. Section 1094.53 is revised to read as follows:

§ 1094.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1094.50(b).

PART 1096—MILK IN THE GREATER LOUISIANA MARKETING AREA

40. In § 1096.50(b), the introductory text is revised to read as follows:

§ 1096.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1096.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraph (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

43. Section 1096.53 is revised to read as follows:

§ 1096.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1096.50(b).

PART 1097—MILK IN THE MEMPHIS, TENNESSEE MARKETING AREA

44. In § 1097.50(b), the introductory text is revised to read as follows:

§ 1097.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1097.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

45. Section 1097.53 is revised to read as follows:

§ 1097.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1097.50(b).

PART 1098—MILK IN THE NASHVILLE, TENNESSEE MARKETING AREA

46. In § 1098.50(b), the introductory text is revised to read as follows:

§ 1098.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1098.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

47. Section 1098.53 is revised to read as follows:

§ 1098.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1098.50(b).

PART 1099—MILK IN THE PADUCAH, KENTUCKY MARKETING AREA

48. In § 1099.50(b), the introductory text is revised to read as follows:

§ 1099.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1099.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed

pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

49. Section 1099.53 is revised to read as follows:

§ 1099.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1099.50(b).

PART 1106—MILK IN THE SOUTHWEST PLAINS MARKETING AREA

50. In § 1106.50(b), the introductory text is revised to read as follows:

§ 1106.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1106.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

51. Section 1106.53 is revised to read as follows:

§ 1106.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1106.50(b).

PART 1108—MILK IN THE CENTRAL ARKANSAS MARKETING AREA

52. In Section 1108.50(b), the introductory text is revised to read as follows:

§ 1108.50 Class prices.

* * * * *

(b) Class II price. The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1108.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

53. Section 1108.53 is revised to read as follows:

§ 1108.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1108.50(b).

PART 1120—MILK IN THE LUBBOCK-PLAINVIEW, TEXAS MARKETING AREA

54. In Section 1120.50(b), the introductory text is revised to read as follows:

§ 1120.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1120.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

55. Section 1120.53 is revised to read as follows:

§ 1120.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1120.50(b).

PART 1124—MILK IN THE PACIFIC NORTHWEST MARKETING AREA

56. In Section 1124.50(b), the introductory text is revised to read as follows:

§ 1124.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1124.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

57. Section 1124.53 is revised to read as follows:

§ 1124.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1124.50(b).

PART 1126—MILK IN THE TEXAS MARKETING AREA

58. In § 1126.50(b), the introductory text is revised to read as follows:

§ 1126.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1126.51(a) for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the

basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

59. Section 1126.53 is revised to read as follows:

§ 1126.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1126.50(b).

PART 1131—MILK IN THE CENTRAL ARIZONA MARKETING AREA

60. In § 1131.50(b), the introductory text is revised to read as follows:

§ 1131.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1131.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

61. Section 1131.53 is revised to read as follows:

§ 1131.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1131.50(b).

PART 1132—MILK IN THE TEXAS PANHANDLE MARKETING AREA

62. In § 1132.50(b), the introductory text is revised to read as follows:

§ 1132.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1132.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

63. Section 1132.53 is revised to read as follows:

§ 1132.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1132.50(b).

PART 1134—MILK IN THE WESTERN COLORADO MARKETING AREA

64. In Section 1134.50(b), the introductory text is revised to read as follows:

§ 1134.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1134.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

65. Section 1134.53 is revised to read as follows:

§ 1134.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1134.50(b).

PART 1135—MILK IN THE SOUTHWESTERN IDAHO–EASTERN OREGON MARKETING AREA

66. In § 1135.50(b), the introductory text is revised to read as follows:

§ 1135.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1135.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

67. Section 1135.53 is revised to read as follows:

§ 1135.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1135.50(b).

PART 1137—MILK IN THE EASTERN COLORADO MARKETING AREA

68. In § 1137.50(b), the introductory text is revised to read as follows:

§ 1137.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1137.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

69. Section 1137.53 is revised to read as follows:

§ 1137.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1137.50(b).

PART 1138—MILK IN THE RIO GRANDE VALLEY MARKETING AREA

70. In Section 1138.50(b), the introductory text is revised to read as follows:

§ 1138.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1138.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

71. Section 1138.53 is revised to read as follows:

§ 1138.53 Announcement of class prices.

The market administrator shall announce publicly on or before the fifth day of each month the Class I price for the following month, the Class III price for the preceding month, and on or before the 15th day of each month the Class II price for the following month computed pursuant to § 1138.50(b).

PART 1139—MILK IN THE GREAT BASIN MARKETING AREA

72. In Section 1139.50(b), the introductory text is revised to read as follows:

§ 1139.50 Class prices.

* * * * *

(b) *Class II price.* The Class II price shall be computed by the Director of the Dairy Division and transmitted to the market administrator on or before the 15th day of the preceding month. The Class II price shall be the basic Class II formula price computed pursuant to § 1139.51a for the month plus the amount that the value computed pursuant to paragraph (b)(1) of this section exceeds the value computed pursuant to paragraph (b)(2) of this section, plus any amount by which the basic Class II formula price for the second preceding month, adjusted pursuant to paragraphs (b)(1) and (b)(2) of this section, was less than the Class III price for the second preceding month.

* * * * *

73. Section 1139.53 is revised to read as follows:

§ 1139.53 Announcement of class and component prices.

The market administrator shall announce on or before:

(a) The 5th day of each month, the Class I price for the following month;

(b) The 15th of each month, the Class II price for the following month computed pursuant to § 1139.50(b); and

(c) The 5th day after the end of each month, the Class III price and the prices for butterfat, milk protein and skim milk computed pursuant to § 1139.50 (d), (e) and (f) for each month.

* * * * *

Effective date: December 4, 1989.

Signed at Washington, DC, on November 28, 1989.

John E. Frydenlund,

Acting Assistant Secretary, Marketing and Inspection Services.

[FR Doc. 89-28233 Filed 12-1-89; 8:45 am]

BILLING CODE 3410-02-M

DEPARTMENT OF JUSTICE

Immigration and Naturalization Service

8 CFR Part 245a

[INS No. 1038R-89]

RIN 1115-AA55

Temporary Disqualification of Certain Newly Legalized Aliens From Receiving Benefits From Federal Programs of Financial Assistance

AGENCY: Immigration and Naturalization Service, Department of Justice.

ACTION: Final rule.

SUMMARY: This rule removes the Operating Assistance for Troubled Multifamily Housing Projects (Troubled Projects (Flexible Subsidy) Program) from the list at 8 CFR 245a.5(c) of programs of Federal financial assistance for which newly legalized aliens are temporarily disqualified. The intended effect is to lessen the impact of legalization on benefit programs.

EFFECTIVE DATE: December 4, 1989.

FOR FURTHER INFORMATION CONTACT: Paul W. Virtue, Acting General Counsel, Immigration and Naturalization Service, Room 7048, 425 I Street, NW., Washington, DC 20536, (202-633-2895).

SUPPLEMENTARY INFORMATION: On July 12, 1989, the Department of Justice, Immigration and Naturalization Service, published the Final Rule at 54 FR 29437 implementing section 245A(h) of the Immigration and Nationality Act ("Act"), as amended by section 201 of the Immigration Reform and Control Act of 1986, Public Law 99-603 ("IRCA"). Section 245A(H) provides that, with certain exceptions, aliens granted lawful temporary resident status pursuant to 245A(a) ("legalization") are not eligible for a period of five years after such grant to receive benefits from programs of financial assistance furnished under Federal law on the basis of financial need. The Attorney General is required by section 245A(H)(1)(A)(i) of the Act to identify such programs after consultation with other appropriate heads of the various departments and agencies of government.

Upon consultation with the Department of Housing and Urban Development ("HUD") the determination was made that the Rental Rehabilitation Program and the Flexible Subsidy Program should not be included as programs from which section 245A aliens were disqualified.

The Rental Rehabilitation Program does not provide assistance based on financial need, and HUD's Economic and Market Analysis Division has concluded that market rents paid by citizens in the area in which a Rental Rehabilitation project is located will not be increased if temporary resident aliens are permitted to rent units in these projects. The Rental Rehabilitation Program was not listed at 8 CFR 245a.5, and the reference at 54 FR 20435 to this program was inadvertent.

The Flexible Subsidy Program provides funds for repairs and management improvements to owners of certain troubled HUD-assisted multi-family projects. Projects that are eligible for the Flexible Subsidy Program include those projects assisted under sections 236 and 221(d)(5) of the National Housing Act, projects assisted under the Rent Supplement Program under section 101 of the Housing and Urban Development Act of 1965, certain projects which have received loans under the elderly and handicapped housing program under section 202 of the Housing Act of 1959.

Under section 214 of the Housing and Community Development Act of 1980, temporary resident aliens are generally eligible to reside in these projects. Since temporary resident aliens are eligible for the underlying projects, Flexible Subsidy assistance should not have been included as a program for which such temporary resident aliens are disqualified. The reference to the Flexible Subsidy Program at 8 CFR 245a.5(c) was inadvertent and is removed through this correction.

In accordance with 5 U.S.C. 605(b), the Commissioner certifies that this rule if promulgated will not have a significant economic impact on a substantial number of small entities.

This is not a "major rule" within the meaning of section 1(b) of Executive Order 12291, nor does this rule have federalism implications warranting the preparation of a Federal Assessment in accordance with E.O. 12612.

List of Subjects in 8 CFR Part 245a

Aliens, Temporary resident status and permanent resident status.

Accordingly, chapter I of title 8, Code of Federal Regulations, is amended as follows:

PART 245a—[AMENDED]

1. The authority for part 245A continues to read as follows:

Authority: Pub. L. 99–603, 100 Stat. 3359, 8 U.S.C. 1101 note.

§ 245a.5 [Amended]

2. Section 245a.5(c) is amended by removing the following entry:

Operating Assistance for Troubled Multifamily Housing Projects (Troubled Projects (Flexible Subsidy) Program) 14.164.

Dated: November 2, 1989.

Gene McNary,

Commissioner, Immigration and Naturalization Service.

[FR Doc. 89–28203 Filed 12–1–89; 8:45 am]

BILLING CODE 4410–01–M

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 89–NM–145–AD; Amdt. 39–6407]

Airworthiness Directives; Boeing Model 757 Series Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD), applicable to certain Boeing Model 757 series airplanes, which requires modification; one-time and periodic inspections; and repair, if necessary, of passenger doors to ensure proper operation of the emergency power assist door opening system. This amendment is prompted by reports of fractured emergency power assist triggers. This condition, if not corrected, could result in an inoperative emergency power assist door opening system during an emergency evacuation.

DATE: Effective January 6, 1990.

ADDRESSES: The applicable service information may be obtained from Boeing Commercial Airplanes, P.O. Box 3707, Seattle, Washington 98124. This information may be examined at the FAA, Northwest Mountain Region, Transport Airplane Directorate, 17900 Pacific Highway South, Seattle, Washington, or Seattle Aircraft Certification Office, 9010 East Marginal Way South, Seattle, Washington.

FOR FURTHER INFORMATION CONTACT: Mr. Pliny Brestel, Aerospace Engineer, Airframe Branch, ANM–120S; telephone (206) 431–1931. Mailing address: FAA, Northwest Mountain Region, 17900 Pacific Highway South, C–68966, Seattle, Washington 98168.

SUPPLEMENTARY INFORMATION: A proposal to amend Part 39 of the Federal Aviation Regulations to include an airworthiness directive, applicable to Boeing Model 757 series airplanes, which requires modification; one-time and periodic inspections; and repair, if necessary, of passenger doors, was published in the **Federal Register** on August 17, 1989 (54 FR 33937).

Interested persons have been afforded an opportunity to participate in the making of this amendment. Due consideration has been given to the comments received.

The Air Transport Association (ATA) of America commented that the initial compliance time of 350 flight hours is too restrictive and not necessary because broken trigger mechanisms will be routinely discovered by the flight crew. Also, the ATA contended that new airplanes should not have to be inspected within 350 flight hours after delivery. Consequently, ATA requested that the intial compliance period be changed to 6 months. The FAA does not concur with an extension of the initial compliance period from 350 flight hours to 6 months, because fractured triggers are not easily detected during normal door operation and at least one fractured trigger was found on one airplane prior to delivery.

After careful review of the available data, including the comments noted above, the FAA has determined that air safety and the public interest require the adoption of the rule as proposed.

There are approximately 205 Model 757 series airplanes of the affected design in the worldwide fleet. It is estimated that 111 airplanes of U.S. registry will be affected by this AD, that it will take approximately 9 manhours per airplane to accomplish the initial required actions, and that the average labor cost will be $40 per manhour. Based on these figures, the total initial cost impact of the AD on U.S. operators is estimated to be $39,960. It is estimated that it would take 3 manhours per airplane to accomplish each periodic inspection, resulting in an annual estimated cost impact of $26,640.

The regulations adopted herein 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. Therefore, in accordance with Executive Order 12612, it is determined that this final rule does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

For the reasons discussed above, I certify that this action (1) is not a "major rule" under Executive Order 12291; (2) is not a "significant rule" under 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. A final evaluation has been prepared for this action and is contained in the regulatory docket. A copy of it may be obtained from the Rules Docket.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Safety.

Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations as follows:

PART 39—[AMENDED]

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 1354(a), 1421 and 1423; 49 U.S.C. 106(g) (Revised Pub. L. 97–449, January 12, 1983); and 14 CFR 11.89.

§ 39.13 [Amended]

2. Section 39.13 is amended by adding the following new airworthiness directive:

Boeing: Applies to Model 757 series airplanes, as listed in Boeing Service Bulletin 757-52-0042, dated March 30, 1989 (hereafter referred to as the Service Bulletin), certificated in any category. Compliance required as indicated, unless previously accomplished.

To ensure passenger door power assist opening when required for emergency evacuation, accomplish the following:

A. For airplanes identified in the Service Bulletin as Group 1, within the next 350 flight hours after the effective date of this AD, accomplish the following in accordance with Section III., Part II., of the Service Bulletin. Any interference or improper clearance detected as a result of the required inspections must be repaired prior to further flight, in accordance with the Service Bulletin.

1. Modify the forward right-hand door.

2. Inspect all doors for evidence of interference between the trigger support housing and the upper hinge arm.

3. Inspect all doors for proper clearance between the power assist trigger and the door and fuselage skin.

B. For all airplanes, within the next 350 flight hours after the effective date of this AD, and thereafter at intervals not to exceed 6 months, accomplish the following inspections in accordance with Section III., Part I., of the Service Bulletin. Any damage or improper adjustment or operation detected as a result of the inspections must be repaired prior to further flight, in accordance with the Service Bulletin.

1. Inspect the forward doors for proper adjustment of the lockout mechanism of the door emergency power assist system.

2. Inspect all passenger door emergency power assist triggers for wear marks, damage, or fracture.

3. Inspect trigger spring cylinders for proper operation.

4. Inspect roller arms for damage.

C. An alternate means of compliance or adjustment of the compliance time, which provides an acceptable level of safety, may be used when approved by the Manager, Seattle Aircraft Certification Office, FAA, Northwest Mountain Region.

Note: The request should be forwarded through an FAA Principal Maintenance Inspector (PMI), who will either concur or comment, and then send it to the Manager, Seattle Aircraft Certification Office.

D. Special flight permits may be issued in accordance with FAR 21.197 and 21.199 to operate airplanes to a base in order to comply with the requirements of this AD.

All persons affected by this directive who have not already received the appropriate service documents from the manufacturer may obtain copies upon request to Boeing Commercial Airplanes, P.O. Box 3707, Seattle, Washington 98124. These documents may be examined at the FAA, Northwest Mountain Region, Transport Airplane Directorate, 17900 Pacific Highway South, Seattle, Washington, or Seattle Aircraft Certification Office, 9010 East Marginal Way South, Seattle, Washington.

This amendment becomes effective January 6, 1990.

Issued in Seattle, Washington, on November 20, 1989.

Darrell M. Pederson,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 89-28263 Filed 12-1-89; 8:45 am]

BILLING CODE 4910-13-M

Federal Aviation Administration

14 CFR Part 39

[Docket No. 89-CE-18-AD; Amdt. 39-6410]

Airworthiness Directives; Beech 65 and 80 Series Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new Airworthiness Directive (AD), applicable to certain Beech Models 65, 65-80, 65-A80 and 65-B80 airplanes, which supersedes AD 70-25-01, Amendment 39-1609. The FAA has determined that improved inspection methods are available that will enhance the effectiveness of the required inspections. The new AD incorporates this improved criteria.

EFFECTIVE DATE: January 4, 1990.

Compliance: As prescribed in the body of the AD.

ADDRESSES: Beech Structural Inspection and Repair Manual (SIRM), applicable to this AD may be obtained from the Beech Aircraft Corporation, Commercial Service, Department 52, P.O. Box 85, Wichita, Kansas 67201-0085. Aviadesign Engineering Order E.O. B-8001, Issue 3, dated May 30, 1985, may be obtained from Western Aircraft Maintenance, 4444 Aeronca Street, Boise, Idaho 83705. This information also may be examined at the FAA, Central Region, Office of the Assistant Chief Counsel, Room 1558, 601 East 12th Street, Kansas City, Missouri 64106.

FOR FURTHER INFORMATION CONTACT: Don Campbell, Aerospace Engineer, Airframe Branch, Wichita Aircraft Certification Office (ACO), 1801 Airport Road, Room 100, Wichita, Kansas 67209; Telephone (316) 946-4409.

SUPPLEMENTARY INFORMATION: A proposal to amend part 39 of the Federal Aviation Regulations to include an AD requiring inspection of the wing main spar lower cap and associated structure on certain Beech 65 and 80 Series airplanes was published in the **Federal Register** on September 1, 1989 (54 FR 36319).

The proposal was prompted by a need to replace AD 70-25-01, Amendment 39-1609, effective November 16, 1971, which required inspection of the wing main spar lower cap and attach fittings on certain Beech 65 and 80 Series airplanes for fatigue cracks. AD 70-25-01 relied on an obsolete Beech Service Instruction (No. 0393-018) for inspection criteria. Improved criteria are now available in the Beech Structural Inspection and Repair Manual (SIRM). The SIRM methods have been mandatory for Beech 90 and 100 Series airplanes since September 1986, and are known to be effective. The criteria in AD 70-25-01 have also been used for the 90 Series, and found not to be as effective as the SIRM methods. Therefore, safety is served by adopting the SIRM methods in lieu of the AD 70-25-01 criteria.

Another deficiency of AD 70-25-01 was that it called for inspection of the wing skin adjacent to the attach fitting for cracks, and required further inspections only if skin cracks were found. It is now known that skin cracks are neither an indicator of, nor related to, the condition of the attach fitting or spar cap. The straight-forward fitting and spar cap inspection methods in the SIRM are much preferred.

Interested persons have been afforded an opportunity to comment on the proposal. No comments or objections were received on the proposal or the FAA determination of the related cost to the public. Since issuing the NPRM, the FAA has re-evaluated its position of not allowing credit for inspections previously performed in accordance with AD 70-25-01, and concluded that it would be in the interest of the public to allow credit for these inspections. Accordingly, the proposal is adopted with this change and other minor editorial corrections.

The FAA has determined there are approximately 739 airplanes affected by the proposed AD. The cost of inspecting these airplanes in accordance with the proposed AD is estimated to be less than that already required by AD 70-25-01. Therefore, few, if any, small entities are expected to experience a significant economic impact as a result of this amendment.

The regulations adopted herein 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. Therefore, in accordance with Executive Order 12612, it is determined that this final rule does not

have sufficient federalism implications to warrant the preparation of a Federalism Assessment. Therefore, I certify that this action (1) is not a "major rule" under Executive Order 12291; (2) is not a "significant rule" under 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. A copy of the final evaluation prepared for this action is contained in the regulatory docket. A copy of it may be obtained by contacting the Rules Docket at the location provided under the caption **"ADDRESSES".**

List of Subjects in 14 CFR 39

Air transportation, Aircraft, Aviation safety, Safety

Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations as follows:

PART 39—[AMENDED]

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 1354(a), 1421 and 1423; 49 U.S.C. 106(g) (Revised Pub. L. 97-449, January 12, 1983); and 14 CFR 11.89.

§ 39.13 [Amended]

2. Section 39.13 is amended by superseding AD 70-25-01, Amendment Number 39-1609, with the following new AD:

Beech: Applies to Models 65 (Serial Numbers (S/N) L-1, L-2, L-6, LF-7 through LF-76, and LC-1 through LC-180); 65-80 and 65-A80 (S/N LD-1 through LD-244); 65-A80 (S/N LD-245 through LD-269) when Beech Modification Kit No. 80-4004-1 or -3 is installed; and 65-B80 (all S/N) airplanes certificated in any category.

Compliance: Required as indicated after the effective date of this AD, unless already accomplished.

To detect possible fatigue cracking of the wing main spar lower cap and associated structure, accomplish the following:

(a) Within the next 200 hours time-in-service (TIS) after the effective date of this AD, or upon accumulating 3000 hours TIS on Models 65-80 and 65-A80 airplanes, or upon accumulating 5000 hours TIS on Models 65 and 65-B80 airplanes, whichever occurs later, unless previously accomplished per AD 70-25-01, Amendment No. 39-1609, and thereafter at intervals not to exceed 1000 hours TIS (except as provided in paragraph (b) below) after the initial inspection, inspect the wing lower forward spar attach fittings, center section and outboard wing spar caps adjacent to the attach fittings by visual, fluorescent penetrant and eddy current methods as specified in the applicable section of Beech Structural Inspection and Repair Manual (SIRM), P/N 98-39006, Revision A4, dated May 1, 1987.

Note 1: Beech offers a two-day training course free of charge to qualified personnel who have prior knowledge of eddy current inspection techniques. A listing of Beech Corporate maintenance facilities may be obtained from the sources contained in paragraph (e) of this AD. A listing of other facilities employing qualified inspectors is not available.

(b) At each inspection required by paragraph (a) above, inspect any reinforcing strap installed per Supplemental Type Certificate (STC) SA1583CE for proper tension and condition in accordance with Aviadesign Engineering Order E.O. B-8001, Issue 3, dated May 30, 1985. Correct any discrepancy prior to further flight. For airplanes equipped with STC SA1583CE and inspected in accordance with paragraph (a) above, the repetitive inspection interval of 1000 hours TIS in paragraph (a) above may be extended to 3000 hours TIS.

(c) If any crack is found in a main spar lower cap or fitting, prior to further flight repair or replace the defective part using the instructions and limitations specified in the SIRM or other FAA approved instructions provided by Beech Aircraft Corporation.

(d) Airplanes may be flown in accordance with FAR 21.197 to a location where this AD can be accomplished.

(e) An alternate method of compliance or adjustment of the initial or repetitive compliance times which provides an equivalent level of safety, may be approved by the Manager, Wichita Aircraft Certification Office, FAA, 1801 Airport Road, Room 100, Wichita, Kansas 67209; Telephone (316) 946-4400.

Note 2: The request should be forwarded through an FAA Maintenance Inspector, who may add comments and send it to the Manager, Wichita Aircraft Certification Office.

All persons affected by this directive may obtain copies of the documents referred to herein upon request to the Beech Aircraft Corporation, Commercial Service, Department 52, P.O. Box 85, Wichita, Kansas 67201-0085; or Western Aircraft Maintenance, 4444 Aeronca Street, Boise, Idaho 83705; or may examine these documents at the FAA, Central Region, Office of the Assistant Chief Counsel, Room 1558, 601 East 12th Street, Kansas City, Missouri 64106.

This amendment supersedes AD 70-25-01, Amendment 39-1609.

Issued in Kansas City, Missouri on November 22, 1989.

Earsa L. Tankesley,

Acting Manager, Small Airplane Directorate Aircraft Certification Service.

[FR Doc. 89-28262 Filed 12-1-89; 8:45 am]

BILLING CODE 4910-13-M

14 CFR Part 39

[Docket No. 89-CE-12-AD; Amdt. 39-6409]

Airworthiness Directives; Beech 90 and 100 Series Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new Airworthiness Directive (AD), applicable to certain Beech Models 65-90, 65-A90, 65-A90-1, 65-A90-2, 65-A90-3, 65-A90-4, B90, C90, C90A, E90, 100, A100, and B100 airplanes, which supersedes AD 87-23-09 and AD 70-25-04. This amendment incorporates those portions of the superseded AD's which remain valid and corrects minor editorial errors.

EFFECTIVE DATE: January 4, 1990.

Compliance: As prescribed in the body of the AD.

ADDRESSES: Beech Structural Inspection and Repair Manual (SIRM), applicable to this AD may be obtained from the Beech Aircraft Corporation, Commercial Service, Department 52, P.O. Box 85, Wichita, Kansas 67201-0085. Aviadesign Engineering Order E.O. B-8001, Issue 3, dated May 30, 1985, may be obtained from Western Aircraft Maintenance, 4444 Aeronca Street, Boise, Idaho 83705. This information may also be examined at the FAA, Central Region, Office of the Assistant Chief Counsel, Room 1558, 601 East 12th Street, Kansas City, Missouri 64106.

FOR FURTHER INFORMATION CONTACT: Don Campbell, Aerospace Engineer, Airframe Branch, Wichita Aircraft Certification Office (ACO), 1801 Airport Road, Room 100, Wichita, Kansas 67209; Telephone (316) 946-4409.

SUPPLEMENTARY INFORMATION: A proposal to amend part 39 of the Federal Aviation Regulations to include an AD which requires inspection of the wing main spar lower cap and attach fittings for fatigue cracks on certain Beech 90 & 100 Series airplanes was published in the **Federal Register** on September 1, 1989 (54 FR 36317). The proposal was prompted by a need to replace AD 70-25-04 by a new AD which employs up-to-date inspection methods. AD 70-25-04 relies on an obsolete Beech Service Instruction (No. 0394-018) for inspection criteria. Improved criteria are now available in the Beech Structural Inspection and Repair Manual (SIRM). Certain portions of the SIRM have been made mandatory by AD 87-23-09 for all 90 Series airplanes except Serials LJ-1

through LJ–67. The SIRM inspections are known to be effective in that at least 20 cracked wing spar components have been found by these inspections since September, 1983, out of the entire fleet of approximately 1550 airplanes. These inspections have been performed by Beech trained personnel using state-of-the-art methods. This contrasts against the inspection methods in AD 70–25–04, which have found no cracks since September, 1979, in the fleet of 67 airplanes, applying the outdated inspection criteria and not necessarily utilizing Beech-trained personnel. Additional cause for requiring improved inspections on these 67 airplanes is that the wing lower forward attach fittings are not as durable as the improved fittings on airplanes having serial numbers LJ–68 and higher. The likelihood of cracks occurring in the attach fittings of these 67 airplanes is probably higher than for the remaining fleet. The likelihood of spar cap cracks would be about the same as for the remaining fleet. Since the remaining fleet is already protected by AD 87–23–09, the first 67 airplanes should be offered the same protection.

Another deficiency of AD 70–25–04 is that it calls for inspection of the wing skin adjacent to the attach fitting for cracks, and requires further inspections only if skin cracks are found. Since skin cracks are not an indicator of, and in fact are not related to, the condition of the attach fitting or spar cap, the straight-forward fitting and spar cap inspection methods in the SIRM are much preferred.

Based on the above discussion, a new AD is being issued which will supersede AD's 70–25–04 and 87–23–09, and have the applicability of both combined. The new AD will employ the inspection methods of AD 87–23–09. Also an omission in paragraph (e) of AD 87–23–09 will be corrected by adding reference to Beech Wing Modification Kit No. 100–4007–1S.

Interested persons have been afforded an opportunity to comment on the proposal. No comments or objections were received on the proposal or the FAA determination of the related cost to the public. Accordingly, the proposal is adopted without change except for minor editorial corrections.

The FAA has determined there are approximately 1617 airplanes affected by this amendment. The cost of inspecting these airplanes in accordance with this AD is estimated to be the same as already required by AD 70–25–04 and AD 87–23–09. Therefore the AD will impose no additional economic impact on any small entities operating these airplanes.

The regulations adopted herein 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. Therefore, in accordance with Executive Order 12612, it is determined that this final rule does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment. Therefore, I certify that this action (1) is not a "major rule" under Executive Order 12291; (2) is not a "significant rule" under 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. A copy of the final evaluation prepared for this action is contained in the regulatory docket. A copy of it may be obtained by contacting the Rules Docket at the location provided under the caption **"ADDRESSES"**.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Safety.

Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations as follows:

PART 39—[AMENDED]

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 1354(a), 1421 and 1423; 49 U.S.C. 106(g) (Revised Pub. L. 97–449, January 12, 1983); and 14 CFR 11.89.

§ 39.13 [Amended]

2. Section 39.13 is amended by superseding AD 87–23–09, Amendment Number 39–5765, and AD 70–25–04, Amendment Number 39–1332, with the following new AD:

Beech: Applies to Models 65–90 and 65–A90 (Serial Number (S/N)) LJ–1 thru LJ–317); 65–A90–1, 65–A90–2, 65–A90–3, 65–A90–4, B90, C90 (all S/N); C90A (S/N LJ–1063 thru LJ–1087, except LJ–1085); E90, 100, A100 and B100 (all S/N) airplanes certificated in any category.

Compliance: Required as indicated after the effective date of this AD, unless already accomplished.

To detect possible fatigue cracking of the wing main spar lower cap and associated structure, accomplish the following:

(a) Within the next 200 hours time-in-service (TIS), after the effective date of this AD, or upon accumulating 3000 hours TIS, whichever occurs later, unless previously accomplished per AD 87–23–09, Amendment No. 39–5765, or AD 70–25–04, Amendment No. 39–1332, and thereafter at intervals not to exceed 1000 hours TIS (except as provided in paragraph (b) below) after the initial inspection, inspect the wing lower forward spar attach fittings, center section and outboard wing spar caps adjacent to the attach fittings by visual, fluorescent penetrant and eddy current methods as specified in the applicable section of Beech Structural Inspection and Repair Manual (SIRM), Part Number 98–39006, Revision A4, dated May 1, 1987. The inspection must be performed by personnel specifically trained by Beech Aircraft Corporation.

Note 1: Beech offers a two-day training course free of charge to qualified personnel who have prior knowledge of eddy current inspection techniques. A listing of Beech Corporate maintenance facilities may be obtained from the sources contained in paragraph (g) of this AD. A listing of other facilities employing qualified inspectors is not available.

(b) At each inspection required by paragraph (a) above, inspect any reinforcing strap installed per Supplemental Type Certificate (STC) SA1178CE or SA1583CE for proper tension and condition in accordance with Aviadesign Engineering Order E.O. B–8001, Issue 3, dated May 30, 1985. Correct any discrepancy prior to further flight. For airplanes so equipped and inspected, the repetitive inspection interval of 1000 hours TIS in paragraph (a) above may be extended to 3000 hours TIS.

(c) If any crack is found in a main spar lower cap or fitting, prior to further flight repair or replace the defective part using the instructions and limitations specified in the Beech SIRM or other FAA approved instructions provided by Beech Aircraft Corporation.

(d) Within one week after completion of any inspection required by paragraph (a) or (b) of this AD, complete the reporting form included with this AD as Figure 1 and mail it to the address shown thereon (Reporting approved by the Office of Management and Budget under OMB No. 2120–0056).

(e) The initial and repetitive inspections specified in this AD are no longer required when the airplane is modified by Beech Wing Modification Kit No. 90–4077–1S or 100–4007–1S.

(f) Airplanes may be flown in accordance with FAR 21.197 to a location where this AD can be accomplished.

(g) An alternate method of compliance or adjustment of the initial or repetitive compliance times which provides an equivalent level of safety, may be approved by the Manager, Wichita Aircraft Certification Office, FAA, 1801 Airport Road, Room 100, Wichita, Kansas 67209; Telephone (316) 946–4400.

Note 2: The request should be forwarded through an FAA Maintenance Inspector, who may add comments and send it to the Manager, Wichita Aircraft Certification Office.

All persons affected by this directive may obtain copies of the documents referred to herein upon request to the Beech Aircraft Corporation, Commercial Service,

Department 52, Wichita, Kansas 67201-0085; or Western Aircraft Maintenance, 4444 Aeronca Street, Boise, Idaho 83705, or may examine these documents at the FAA, Central Region, Office of the Assistant Chief Counsel, Room 1558, 601 East 12th Street, Kansas City, Missouri 64106.

This amendment supersedes AD 87-23-09, Amendment No. 39-5765, and AD 70-25-04, Amendment No. 39-1332.

Issued in Kansas City, Missouri, on November 22, 1989.

Earsa L. Tankesley,

Acting Manager, Small Airplane Directorate Aircraft Certification Service.

BILLING CODE 4910-13-M

REPORTING FORM

Airplane Model No._____

Airplane Serial No._____

Date of inspection per this AD_____

Airframe total hours time-in-service_____

Were any fatigue cracks found? No_____ Yes_____

If "Yes" was checked above, complete the following:

Location of crack_____

_____

Was crack removable by reaming or grinding? No_____ Yes_____

Additional Comments_____

_____

Mailing Address:

FAA, Wichita ACO

Airframe Branch, Room 100

1801 Airport Road

Wichita, KS 67209

FIGURE 1

[FR Doc. 89-28264 Filed 12-1-89; 8:45 am]
BILLING CODE 4910-13-C

DEPARTMENT OF COMMERCE

Bureau of Export Administration

15 CFR Part 799

[Docket No. 91155-9255]

Redesignation of Processing Codes for certain CCL Entries

November 27, 1989.

AGENCY: Bureau of Export Administration, Commerce.

ACTION: Final rule.

SUMMARY: The Bureau of Export Administration maintains the Commodity Control List (CCL), which identifies those items subject to Department of Commerce export controls. Each Export Control Commodity Number (ECCN) on the Commodity Control List (Supplement No. 1 to § 799.1) contains a "Processing Code" paragraph that identifies the processing code for that ECCN. Section 799.1(h) of the Export Administration Regulations requires that applicants place a processing code on each export license application or reexport request. In accordance with § 772.4(e), all ECCNs listed on the same application must have the same processing code. The Office of Export Licensing uses processing codes to refer license applications to the appropriate licensing units.

This final rule amends several ECCNs on the Commodity Control List be revising the "Processing Code" paragraphs to reflect an internal Department of Commerce reorganization or to correct errors. Processing code paragraphs that heretofore read "MT" are to read now "CS" or "EE". This change is being made because the Office of Export Licensing recently disbanded the Microcomputer and Telecommunications Branch (to which the "MT" processing code refers) and all "Processing Code" paragraphs that reference "MT" must be changed to reference the processing codes of the licensing units now responsible for reviewing the applications associated with these ECCNs.

EFFECTIVE DATE: This rule is effective December 4, 1989.

FOR FURTHER INFORMATION CONTACT: Kathryn Sullivan, Regulations Branch, Office of Technology and Policy Analysis, Bureau of Export Administration, Telephone: (202) 377-4479.

SUPPLEMENTARY INFORMATION:

Rulemaking Requirements

1. This rule is consistent with Executive Orders 12291 and 12661.

2. This rule does not involve a collection of information subject to the requirements of the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*).

3. This rule does not contain policies with Federalism implications sufficient to warrant preparation of a Federalism assessment under Executive Order 12612.

4. Because a notice of proposed rulemaking and an opportunity for public comment are not required to be given for this rule by section 553 of the Administrative Procedure Act (5 U.S.C. 553), or by any other law, under sections 603(a) and 604(a) of the Regulatory Flexibility Act (5 U.S.C. 603(a) and 604(a)) no initial or final Regulatory Flexibility Analysis has to be or will be prepared.

5. Section 13(a) of the Export Administration Act of 1979 (EAA), as amended (50 U.S.C. app. 2412(a)), exempts this rule from all requirements of section 553 of the Administrative Procedure Act (APA) (5 U.S.C. 553), including those requiring publication of a notice of proposed rulemaking, an opportunity for public comment, and a delay in effective date. Section 13(b) of the EAA does not require that this rule be published in proposed form because this rule does not impose a new control. Further, no other law requires that a notice of proposed rulemaking and an opportunity for public comment be given for this rule.

Accordingly, it is being issued in final form. However, comments from the public are always welcome. Comments should be submitted to Kathryn Sullivan, Office of Technology and Policy Analysis, Bureau of Export Administration, Department of Commerce, P.O. Box 273, Washington, DC 20044.

List of Subjects in 15 CFR Part 799

Exports, Reporting and recordkeeping requirements.

Accordingly, part 799 of the Export Administration Regulations (15 CFR parts 730-799) is amended as follows:

PART 799—[AMENDED]

1. The authority citation for 15 CFR part 799 continues to read as follows:

Authority: Pub. L. 96-72, 93 Stat. 503 (50 U.S.C. app. 2401 *et seq.*), as amended by Pub. L. 97-145 of December 29, 1981, by Pub. L. 99-64 of July 12, 1985 and by Pub. L. 100-418 of August 23, 1988; E.O. 12525 of July 12, 1985 (50 FR 28757, July 16, 1985); Pub. L. 95-223 of December 28, 1977 (50 U.S.C. 1701 *et seq.*); E.O. 12532 of September 9, 1985 (50 FR 36861, September 10, 1985) as affected by notice of September 4, 1986 (51 FR 31925, September 8, 1986); Pub. L. 99-440 of October 2, 1986 (22 U.S.C. 5001 *et seq.*); and E.O. 12571 of October 27, 1986 (51 FR 39505, October 29, 1986).

§ 799.1(h) (Amended)

2. Section 799.1(h) is amended by removing the designation "MT" from the phrase "*i.e.*, CM, CS, EE, MT, SS, or TE," to read "*i.e.*, CM, CS, EE, SS, or TE,"; and by removing the phrase "Microcomputers and Telecommunications (MT)," after the phrase "Electronic Components and Instrumentation (EE)," and before the phrase "Short Supply (SS),".

Supplement No. 1 to § 799.1 [Amended]

3. In Supplement No. 1 to § 799.1 (the Commodity Control List), Commodity Group 5 (Electronics and Precision Instruments) ECCN 6565G is amended by adding a "Processing Code" paragraph and adding a "Reason for Control"paragraph as set forth below:

6565G Personal computers excepted from control under ECCN 1565A because they meet the specifications of paragraph (h)(2)(iii) of 1565A.

Controls for ECCN 6565G

Unit: * * *
Validated License Required: * * *
GLV $ Value Limit: * * *
Processing Code: CS
Reason for Control: Foreign policy.
* * * * *

4. Supplement No. 1 to § 799.1 (the Commodity Control List) is amended as follows:

A. The "Processing Code" paragraph for each of the Export Control Commodity Numbers (ECCNs) listed below is revised to read "Processing Code: EE.":

Group 4—Transportation Equipment

ECCN: 9499M

Group 5—Electronics and Precision Instruments

ECCNs: 1516A, 1517A, 4517B, 1518A, 1519A, 1520A, 1526A, 1527A, 1529A, 1531A, and 4597B

B. The "Processing Code" paragraph for each of the Export Control Commodity Numbers (ECCNs) listed below is revised to read "Processing Code: CS.":

Group 5—Electronic and Precision Instruments

ECCNs: 1565A and 1567A

C. The "Processing Code" paragraph for ECCN 1572A (Commodity Group 5) is revised to read "Processing Code: CS for equipment that may be used with

electronic computers; EE for all other items.".

James M. LeMunyon,

Deputy Assistant Secretary for Export Administration.

[FR Doc. 89-28070 Filed 12-1-89; 8:45 am]

BILLING CODE 3510-DT-M

DEPARTMENT OF LABOR

Occupational Safety and Health Administration

29 CFR Parts 1910 and 1917

RIN 1218-AA22

Grain Handling Facilities

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

ACTION: Final rule; supplemental statement of reasons.

SUMMARY: On January 24, 1989, the U.S. Court of Appeals for the Fifth Circuit issued its decision in *National Grain and Feed Association* v. *McLaughlin*, 866 F.2d 717, reviewing the housekeeping provisions of OSHA's final rule on grain handling facilities under section 6(f) of the Occupational Safety and Health Act (OSH Act), 29 U.S.C. 655(f). The Court remanded the standard for reconsideration of two points: first, the economic feasibility of the ⅛-inch action level for grain dust in priority housekeeping areas; and second, reasonable alternatives to applying the action level only to priority areas, including, as a minimum, the alternative of expanding the action level to the entire facility. The Court directed that OSHA more fully explain why the alternative it chose is reasonably necessary and appropriate. This notice addresses the first of these two issues; the second issue will be addressed based on the Court's evaluation of the first issue in a future notice.

In response to the Court's remand, OSHA has reviewed the rulemaking record on the grain handling standard, and has determined that the ⅛-inch action level applied in priority housekeeping areas is economically feasible. This determination incorporates a reevaluation of the Agency's determinations of appropriate sweeping rates for removal of grain dust, and a finding that the cost associated with sweeping up grain dust in priority housekeeping areas will not threaten the grain industry's long-term profitability and competitiveness.

OSHA has submitted a copy of this document to the Court in response to the remand, and has requested that the stay of the action level provision of the grain handling standard be lifted.

ADDRESS: For further information, contact Mr. James Foster, Office of Public Affairs, Occupational Safety and Health Administration, Room N-3649, U.S. Department of Labor, 200 Constitution Avenue, NW., Washington, DC 20210, telephone (202)-523-8151.

SUPPLEMENTARY INFORMATION:

I. Background.

On December 31, 1987, OSHA promulgated a final standard on grain handling facilities (52 FR 49592). Paragraph (i)(2) of that standard required grain elevators to initiate appropriate cleaning measures whenever grain dust accumulations reached a depth of ⅛-inch in "priority housekeeping areas." These areas included floor areas which are within 35 feet of inside bucket elevators; floors of enclosed areas containing grinding equipment; and floors of enclosed areas containing grain dryers located inside the facility. This provision of the standard was challenged in the U.S. Court of Appeals for the Fifth Circuit by the National Grain and Feed Association (the industry), and in the DC Circuit by the Food and Allied Service Trades Department, AFL-CIO (the unions). The cases were consolidated in the Fifth Circuit.

The Court upheld most of OSHA's determinations against these challenges, but remanded the standard to the Agency on two issues, both involving the feasibility of the standard. The first issue involves the economic feasibility of the action level as incorporated in the final rule, namely, as it applies to "priority housekeeping areas" in grain elevators. The Court remanded the standard to OSHA to reconsider this issue based upon its perception that there was "a significant factual gap in the record" on the costs of sweeping up grain dust in the priority areas, and the appropriate sweeping rate that should be assumed in calculating those costs. The second issue involves a fuller explanation of why OSHA believed that applying the action level only to priority areas is reasonably necessary and appropriate, and will include, at least, a consideration of the option of expanding the action level to the entire facility. This consideration will include issues of feasibility as well as need. Clearly, a feasibility determination must be made on the first issue before reaching the second: if the action level were found to be economically infeasible when applied only to certain areas of the facility, it would certainly not be feasible to extend it beyond those areas. By contrast, if the action level were found to be economically feasible in priority areas, further inquiry would be needed to determine whether extension beyond those areas would be feasible and necessary. OSHA has reviewed the record in response to the Court's remand, and has determined that the housekeeping provision in the final rule, applying the action level only to priority housekeeping areas in grain elevators, is economically feasible. The reasons for this determination are provided in this notice, and are being submitted to the Court. Based in part on the Court's evaluation of this supplemental statement of reasons, OSHA will address the second issue covered by the remand, i.e., whether the action level would be reasonably necessary and appropriate, including whether it would be economically feasible, if extended to the entire grain facility.

In *National Grain*, the Court considered the available evidence on the rate at which grain dust could be cleaned up in priority housekeeping areas. The industry relied upon the 1500 square foot per hour cleaning rate reported in the Arthur D. Little (ADL) study. The two other studies cited by the industry in support of the 1500 square foot figure provided no empirical support, but merely accepted the ADL figure as given. OSHA's cleaning rate of 8100 square per hour was based on its analysis of two studies of vacuuming rates, adjusted to allow for possible obstructions in the priority housekeeping areas. The costs of compliance and economic feasibility of the standard depend heavily upon the rate at which dust can be removed from priority housekeeping areas. The Court determined that the industry estimates appeared to be of "higher quality" than OSHA's because, in the Court's view, they were based upon "empirical observation," which addressed practical contingencies and considerations. For this reason, the Court remanded the issue of economic feasibility to the Agency. However, the Court noted that "we express no view as to the validity of the industry's evidence, and hence no opinion as to whether the agency underestimated the compliance costs of its standard (.)" 866 F.2d at 740. In the following discussion of the available evidence on cleaning rates, OSHA addresses the above issues which were left undecided by the Court, and concludes that the best available evidence supports the Agency's determination that the standard as promulgated is economically feasible for the grain industry.

In its regulatory impact analysis (RIA) of the final rule in December 1987, OSHA estimated that compliance with all provisions of the final grain handling standard would cost the grain elevator industry between $35.7 and $63.1 million per year. Of these costs, compliance with the action level in priority housekeeping areas was estimated to comprise between 49 and 71% of the total costs for this industry, or between $17.3 and $44.7 million per year. To calculate these costs, OSHA first examined the sizes and numbers of priority housekeeping areas which would be found in the various sizes of grain elevators. To these areas, OSHA then applied a cleaning rate of 8100 ft²/hour for sweeping and/or vacuuming, in order to determine the amount of time necessary to clean the priority areas. As noted above, the Court in *National Grain* directed OSHA to reconsider the question of the appropriate cleaning rate, based on the Court's view that OSHA's 8100 ft²/hour rate did not appear to take into account practical complications which might be encountered in grain elevators. In response to the Court's remand, OSHA has conducted a further review of the rulemaking and has concluded that the 8100 ft²/hour cleaning rate does take into account the types of complicating factors which were of concern to the Court. As noted in detail below, the 1500 ft²/hour figure cited by industry is based solely on unsupported assumtions contained in the ADL report. Nothing in the record demonstrates that this rate is based on empirical data. Further, although the industry has asserted that the 1500 ft²/hour figure was developed independently by three separate sets of experts, the record clearly shows that the ADL report is the only source for this figure, and that the other experts merely adopted the ADL figure.

Nonetheless, in responding to the court's remand on economic feasibility, OSHA has also reexamined the economic impacts of the standard based upon the ADL cleaning rate of 1500 ft²/hour, even though the Agency maintains that that rate is not realistic and not supported by empirical data. OSHA has determined that even if the 1500 ft²/hour figure were to be used in calculating the economic impacts of the housekeeping provisions of the grain handling standard, the standard would be economically feasible, applying the tests for economic feasibility which the Court has previously established.

II. Cleaning Rates and Costs of Housekeeping

As discussed above, the final rule requires employers to maintain grain dust accumulations below ⅛-inch in priority housekeeping areas of grain elevators. In order to calculate the costs of this provision, it is necessary to determine an appropriate cleaning rate, in square feet per hour. This rate, when multiplied by an appropriate average labor wage rate per hour, provides the labor cost per square foot. This figure is then multiplied by the total number of square feet in priority housekeeping areas which would need to meet the ⅛-inch requirement, in order to provide the total cost for compliance with this requirement. (See OSHA's Final Regulatory Impact Analysis, Docket No. H–117, Exhibit #223.) It is clear, therefore, that the cleaning rate is a central component of OSHA's cost-estimating methodology.

In developing the proposed rule, OSHA entered into a contract with Arthur D. Little, Inc. (ADL) to provide a preliminary evaluation of the grain industry and the impacts of the proposed grain handling standard. In that report,[1] ADL presented an estimated cleaning rate of 1000–1500 ft²/hour. For reasons discussed further below, OSHA concluded that this rate was unrealistically slow, and that there was no empirical support for such a figure. Therefore, OSHA searched the available literature on sweeping and vacuuming, in order to develop a more realistic and supportable cleaning rate. That search revealed two studies of vacuuming rates, which OSHA then examined and applied to the situation at hand: First, a time-and-motion study of vacuuming in a factory setting conducted by Barnes;[2] and second, an American National Standards Institute report of American Society for Testing and Materials (ASTM) standards for carpet sweeping.[3] Barnes' time-and-motion study showed a vacuuming rate of 9,400 to 11,000 square feet per hour in an evaluation of vacuuming performed on-the-job in an industrial setting, over an uncarpeted surface. By contrast, the ASTM study, applying standard test methodology, showed a vacuuming rate of 6,400 square feet per hour with a 12-inch vacuum head, but this study involved vacuuming of a carpeted surface. As will be noted, OSHA did not simply accept the cleaning rates in either of these studies, but made necessary adjustments for differences between the parameters of the studies and the actual environment to be encountered in the priority housekeeping areas of grain elevators.

OSHA's technical staff determined that dust clean-up in priority areas could be accomplished by a combination of vacuuming and sweeping. Further, it was determined that a worker using a 24-inch-wide pushbroom would cover a given sweeping area in half the time necessary for a worker using a 12-inch-wide vacuum head, and that, therefore, the sweeping employee would clean a given area twice as rapidly as the vacuuming employee. In order to avoid overstating the sweeping rate, OSHA used the ASTM study, with its lower vacuuming rate, instead of the Barnes study, as the basis for calculating the sweeping rate for the employee with the 24-inch pushbroom. Thus, if the vacuuming employee covered 6400 square feet in one hour, the sweeping employee would cover 12,800 square feet. Further, if half an area were to be swept with a 24-inch pushbroom, and the other half with a 12-inch vacuum head, the entire area would be cleaned at a rate of 9,720 square feet per hour. (Had OSHA used the Barnes factory time-and-motion study as the basis for calculating the pushbroom rate, the overall cleaning rate would have been considerably higher.[4]) However, OSHA recognized that this rate would still need to be adjusted downward to fit the grain elevator environment, because obstructions might be encountered in grain elevators which are not directly addressed in the two studies. Accordingly, OSHA adjusted the hourly average significantly, reducing it by over

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[1] Arthur D. Little, Inc., *Technical Feasibility and Economic Impact Analysis (EIA) for Various Standards, Provisions Applicable to Hazards in Grain Handling Facilities.* February 1, 1983, Washington, DC (Docket No. H–117, Exhibit #10).

[2] Barnes, Ralph M., *Motion and Time Study. Design and Measurement of Work.* Fifth Edition. New York: John Wiley and Sons, Inc., July 1964.

[3] American National Standards Institute. "Standard Test Method for Relative Work for Straight-Line Movement of Cleaners While Cleaning Carpet ANSI/ASTM F 557–79." In: *Annual Book of ASTM Standards.* Part 46. Philadelphia: American Society of Testing and Materials, 1979.

The American Society for Testing and Materials (ASTM), a national consensus standards group, is the primary source of test methods for materials, products and services in the United States. These standards are used extensively by industry, government, and other interested groups. ASTM committee membership is made up of the nation's experts including researchers, scientists and engineers, and the standards developed by these committees are reviewed by other experts before they receive final approval as ASTM standards.

[4] For example, using the Barnes vacuuming rate of 9400 square feet per hour, an employee using a 24-inch pushbroom would be able to cover twice the area, or 18,800 square feet per hour. Based on the Barnes data, the unadjusted rate of cleaning to be achieved by half-sweeping and half-vacuuming a given area would have been considerably higher than 9,720 square foot per hour (approximately 14,000 square feet per hour). OSHA chose to use the more conservative ASTM figure, and adjusted it even lower to allow for obstructions in the grain elevator workplace.

15% to allow for these variations, resulting in an hourly cleaning rate of 8100 square feet. As an illustration of the area involved and the rate of cleaning assumed, it should be noted that a standard basketball court is approximately 4,050 square feet. A janitor sweeping or vacuuming the court at OSHA's estimated cleaning rate of 8,100 square feet per hour would take a full half hour to complete the job.

As noted above, ADL presented an estimated cleaning rate of 1,000 to 1,500 square feet per hour. Using the basketball court illustration, at a cleaning rate of 1,500 square feet per hour, the janitor would take nearly 3 hours to sweep or vacuum the court; at a rate of 1,000 square feet per hour, the job would take over 4 hours. OSHA concluded that this rate was unrealistically slow. It is important to note that the 1,000–1,500 rate was presented by ADL without any verification or documentation, nor was there any empirical evidence to support it. As ADL described it, "The incremental housekeeping manhours per day were estimated on the basis of average square footage per model facility and an *assumed* cleaning rate of 1000–1500 ft² per operator hour * * *" [5] (emphasis added). There was no further substantiation of this rate or the underlying assumptions in the ADL Report.

The industry has argued that three different experts independently concluded that elevators would be cleaned at the 1,000 to 1,500 square foot per hour rate: ADL; Booz, Allen & Hamilton, Inc. (Booz-Allen); and GEM Consultants, Inc. However, the record makes clear that neither Booz-Allen nor GEM did any analysis of the ADL figure or the assumptions behind it, nor did they make any effort to substantiate the ADL cleaning rate through actual observations or any other empirical data. As Booz-Allen stated, "The estimated values for the surface areas to be cleaned, the *assumed* cleaning rates, and the number of man-hours required to perform the cleaning operation used in this analysis are *based on information compiled by Arthur D. Little, Inc.* * * *" [6] (emphasis added). Similarly, GEM noted in their report that "(t)he cleaning rate is 1,500 square feet/hour.

Note: Surface areas, cleaning rate, and man-hours of required cleaning are based on information compiled by Little. * * *" [7]

The Court in *National Grain* remanded the ⅛-inch requirement to OSHA for further consideration at least in part because "the industry's data is based upon empirical observation, which * * * address(es) practical contingencies." 866 F.2d at 740. The above discussion makes it clear that that data does not have the degree of empirical support which the Court attributes to it. Had the data been as strongly supported by actual observation and experience as the industry asserts, OSHA would have been reasonably confident in its findings on cleaning rates, and certainly would not have felt it necessary to search for other sources of information which did have sufficient empirical support. It is noteworthy that even though the Court chose to remand the issue of economic feasibility to the Agency, it expressed no view as to the validity of the industry's evidence on the appropriate cleaning rate for grain elevators. OSHA believes that it has demonstrated that the Agency was correct in not relying upon the industry evidence on cleaning rates, and that the evidence which OSHA did rely on constituted the best available evidence, in accordance with the OSH Act.

Because the ADL assumptions were unsupported and not based on empirical data, OSHA sought and found a basis for a reasoned calculation of cleaning rates in studies designed to reflect the ergonomics and technology of vacuuming technique. Further, it is clear that OSHA did not blindly accept the data from the studies, but adjusted its estimates significantly in recognition of the less-than-optimal conditions for cleaning which may be found in many grain elevators. OSHA believes that these studies represent the best available evidence in this area, and that the Agency has met its burden in demonstrating the reasonableness of its determinations on both the appropriate cleaning rate and the costs of the standard.

III. Economic Feasibility.

As noted in section II of this document, OSHA maintains that its estimates of average cleaning rates are based on the best available evidence. However, in response to the Court's remand, OSHA has recalculated the total cost of the ⅛-inch action level requirement for priority housekeeping areas, using the industry's suggested cleaning rate of 1,500 square feet per hour, as found in the ADL report. Not surprisingly, the costs are significantly higher, based on the lower cleaning rate. Nonetheless, in applying the tests for economic feasibility set forth by the Supreme Court in *American Textile Manufacturers Institute* v. *Donovan*, 452 U.S. 490 (1981), and as applied by the Fifth Circuit in *National Grain and Feed Association* v. *OSHA*, 866 F. 2d 717 (5th Cir. 1989), and *Asbestos Information Association of North America* v. *OSHA*, 727 F. 2d 415 (5th Cir. 1984), OSHA has determined that the standard is economically feasible for the grain industry, even at an assumed cleaning rate of 1,500 square feet per hour, for reasons set forth below.

As noted, OSHA has recalculated the costs of the ⅛-inch action level in priority areas by reducing the estimated cleaning rate from the Agency's 8,100 square foot per hour figure, to the industry-endorsed ADL figure of 1,500 square feet per hour. This adjustment would raise the estimated total annual cost of the standard from the original figure of between $35.7 and $63.1 million to a revised figure of between $91.0 and $232.8 million. However, OSHA has made one further adjustment to the cleaning rate in accordance with the ADL estimates. In its RIA for the final rule, OSHA calculated the costs to be imposed by the standard for cleaning in all priority housekeeping areas, on the assumption that no housekeeping was currently carried on in those areas.[8] Although OSHA was aware that some housekeeping was, in fact, currently being performed, the Agency did not attempt to quantify the extent of this cleaning in priority areas. Accordingly, to the extent that cleaning was currently taking place in priority areas, the cost estimates of the standard included some costs which the industry was already incurring, and which would not be attributable to the standard.

In reviewing and recalculating the cost figures in response to the remand, OSHA has reconsidered these assumptions by incorporating ADL's estimate [9] of the degree to which housekeeping is currently being performed in grain elevators, in order to provide a baseline for determining the additional housekeeping costs imposed

[5] Arthur D. Little, Inc., Report, page VI–38.

[6] Booz, Allen & Hamilton, Inc., *Some Impacts of a Proposed OSHA Standard on Grain Handling Facilities*. Washington, DC, April 1984, page I–37. (Docket No. H–117, Exhibit #16.) It should be noted that although Arthur D. Little and Booz, Allen made site visits, there is nothing in either of their reports to tie the 1500 square foot/hour rate to their observations during the site visits.

[7] GEM Consultants, Inc., and Midwest Research Institute, *Evaluation of the Proposed OSHA Standard for Grain Handling Facilities*, Washington, DC, May 30, 1984, page 25. (Docket No. H–117, Exhibit #18.)

[8] Final Regulatory Impact Analysis, page VI–25.

[9] Arthur D. Little, Inc., p. VI–30.

by the ⅛-inch action level requirement in priority areas.[10] ADL estimated, for example, that export elevators, high-throughput elevators and inland terminal elevators, respectively, currently assign an average of 9, 1.5 and 1 full-time employees per shift to perform housekeeping.

The concept of priority housekeeping areas was developed after the ADL report was prepared. Thus, ADL's estimate of current housekeeping practices covers the entire grain elevator and the report does not indicate how much housekeeping is taking place in priority areas as opposed to other areas of the facility. The available evidence, however, indicates that a high percentage of current dust control efforts takes place in priority areas; although there are no direct measures of the exact amount. OSHA believes that it is reasonable to assume that grain elevator employers, in order to maximize the effectiveness of their current dust control efforts, would choose to concentrate efforts in those areas that are the most hazardous. For the purpose of this analysis, however, OSHA has conservatively assumed that the percentage of the total cleaning effort that is taking place within priority areas is just equal to the percentage of the facility floor space that is within priority areas. Since the record contains estimates of the dimensions of both priority areas and total elevator areas,[11] OSHA has used these data to develop an estimate of the amount of housekeeping that is currently performed in priority areas.[12]

Applying the above assumptions that some dust removal activity is currently taking place in priority areas, and that these areas are cleaned at a rate of 1,500 square feet per hour, the total annual costs of the standard amount to between $78.6 and $217.7 million. Because the previous cost estimate of between $91.0 and $232.8 million included housekeeping activities which are already taking place, this compliance adjustment provides a more accurate assessment of the true impact of the standard on the grain industry.

The methodology for OSHA's new calculations of the costs and economic impacts of the standard is identical to that used in the Final Rule, with the two modifications as noted: the use of the lower ADL cleaning rate of 1,500 square feet per hour and the ADL estimates of current housekeeping efforts currently taking place in large elevators. Assuming that grain elevators would need to clean priority areas from one to three times per 8-hour shift, these modifications have the net effect of raising the estimated gross costs of the standard for grain elevators from the original estimate of between $35.7 and $63.1 million per year, to the revised estimate of between $78.6 and $217.7 million per year. The impact of both the slower cleaning rate and the inclusion of current housekeeping on total costs is shown in Table I.

[10] It must be emphasized that OSHA's rejection of the ADL sweeping rate does not involve a wholesale rejection of all other estimates and computations contained in the ADL report. As noted earlier, the ADL sweeping rate was rejected by OSHA because it was not supported by empirical data in the record. By contrast, there is record evidence to indicate that the varying amounts of housekeeping carried out in grain handling facilities were in line with the ADL estimates.

[11] Final Regulatory Impact Analysis, page VI-26.

[12] In the absence of specific data to indicate the extent of current dust control in priority areas, OSHA assumed no special emphasis in these areas. By way of example, it was estimated that less than one-sixth of the floor area within export elevators would be designated as priority areas. Thus, OSHA calculates that roughly one-sixth of the ADL estimate of current housekeeping, or 1.5 employees per shift, are currently devoted to cleaning priority areas in export elevators. The additional requirements for these facilities amount to 12,200 manhours annually.

TABLE I—COMPLIANCE COSTS OF GRAIN HANDLING STANDARD

[In thousands of dollars]

	At 8,100 sq ft/hr. no current housekeeping [1]		At 1,500 sq ft/hr. no current housekeeping [2]		At 1,500 sq ft/hr with some current housekeeping [3]	
	low	high	low	high	low	high
Industry Segment						
Country Elevators:						
0 to 749,999	20,834	32,914	44,349	106,314	44,349	106,314
750,000 to 999,999	3,607	6,962	10,134	26,932	10,135	26,932
1,000,000 and over	5,390	10,243	15,467	40,570	15,467	40,570
Inland Elevators	2,254	3,909	5,537	14,059	3,664	12,186
High Throughput:						
0 to 749,999	122	324	558	1,637	274	1,352
750,000 to 999,999	65	173	298	873	146	721
1,000,000 to 2,000,000	163	406	687	1,981	345	1,640
2,000,000 and over	1,895	4,715	7,974	23,005	4,007	19,038
Export Terminals:						
0 to 749,999	31	88	155	460	3	233
1,000,000 to 2,000,000	233	602	1,035	3,018	45	1,543
2,000,000 and over	1,076	2,781	4,778	13,928	209	7,122
Total	35,670	63,116	90,972	232,777	78,644	217,652

[1] The housekeeping labor costs for each industry segment were derived as follows: Total costs of manual housekeeping in priority areas = Size of avg. priority area × # of priority areas per facility × Cleaning rate × Hourly wage rate × # of facilities = [Sq. ft. of facility priority areas × (1 hr./8100 sq. ft.)] × Wage rate × # of facilities. The size of priority areas was estimated to be 3846.5 sq. ft., with 3 per elevator. For the smaller country elevators, however, the entire floor area was used [RIA, p. VI-26]. Estimated hourly employee compensation is $7.92, $7.41, and $7.48 for small, medium and large country elevators, and $10.12 for all other elevators [RIA, p. VI-32].

[2] Calculation same as for (a), except that cleaning rate is changed to 1 hr./1500 sq. ft.

[3] Calculation same as for (b) except that total manhours are reduced by the amount of current housekeeping estimated for priority areas. The revised calculation is as follows: Total cost of manual housekeeping in priority areas = [(Sq. ft. of facility priority areas × (hr./1500 sq. ft.)) - Current compliance × Hourly wage rate × # of facilities where: Current compliance = Manhrs. of current housekeeping × (Sq. ft. of facility priority areas/Sq. ft. of total facility). As described in the text, this adjustment assumes that the proportion of current housekeeping in priority areas is equivalent to the fraction of the facility square footage that is found in priority areas.

Source: U.S. Department of Labor, Occupational Safety and Health Administration, Office of Regulatory Analysis.

The revised compliance cost estimates for this standard amount to considerably less than one percent of the $34.8 billion in total grain sales handled by grain elevators in the United States.[13] This is far below the impact which was judged to be reasonable by the Fifth Circuit in *Asbestos Information Association*, which involved compliance costs equaling 7.2% of total sales. Further, a more direct measure of the impact of this standard can be gauged by its projected effect on grain industry profitability. Since limited financial data from private grain companies were made available, OSHA's RIA used 1983 USDA data from grain cooperatives [14] to project the impact on industry profits from increased operating costs of this standard, assuming that these costs could not be passed along in higher prices. The number of facilities projected to have economic losses due to the standard was estimated by assuming a normal distribution of industry profits among facilities. The primary approach was to take the average compliance cost per elevator in a given sector and subtract that cost from the mean operating profit.

OSHA originally estimated that from 77 to 129 grain elevators that otherwise would have earned net profits would now experience net losses due to the standard. These facilities make up about 0.6 to 0.9 percent of all U.S. grain elevators. OSHA's revised cost estimates using the ADL cleaning rate would indicate an increase to between 192 and 470 elevators having net losses as a result of the standard, or between 1.4 and 3.4 percent of the total number of elevators.

OSHA's RIA for the Final Rule also presented a "worst case" scenario which assumed that marginal elevators would have difficulty in obtaining long-term financing and would have to absorb half of the capital costs of the standard in the first year. This scenario also assumed zero current compliance with all provisions of the standard, and three cleaning passes per shift. Under this scenario, OSHA projected that about 183 facilities, or just over one percent of U.S. elevators would experience net losses as a result of the added compliance costs for the first year. Applying the new ADL assumptions raises this figure to 670 facilities, indicating that 4.8 percent of U.S. elevators might have net losses as a result of the standard. OSHA notes, however, that this scenario is unrealistically pessimistic in that it assumes that *no* elevators are performing *any* housekeeping, while the ADL report and the record in general demonstrate the widespread existence of manual housekeeping and pneumatic cleaning systems.[15]

The above estimates are displayed by elevator type and size in Table II. Large, high-throughput elevators are projected to experience the greatest losses, although the absolute number of such elevators is small. However, even these projections probably overstate the actual economic impacts on these elevators. First, as described above, OSHA believes that the ADL cleaning rate is too low. Second, the cleaning estimates do not take into account the use of pneumatic dust control systems, which reduce the need for frequent manual cleaning with vacuums or brooms.[16] Third, the projected economic impacts are based on data for grain elevator profit levels in 1983, a comparatively poor year. The industry's financial strength was greater both before and after 1983. During the 1984–1987 period, the industry's strength improved, due to the relative decline in the U.S. dollar and the increasing worldwide demand for grain. This pattern, established in the record, is consistent with post-rulemaking developments.[17] Fourth, the estimates of economic impact do not account for the savings to employers that will result from the reduced property and personnel costs associated with the reduction in fires and explosions, estimated at $32 million per year. To the extent that the standard reduces these costs for the economically marginal elevators, the true impact on the market structure of the industry will be smaller than the projections indicate.

[13] U.S. Department of Agriculture, "National Financial Summary," *Economic Indicators of the Farm Sector*, October 1987.

[14] U.S. Department of Agriculture, Agricultural Cooperative Service. *Financial Profile of Cooperatives Handling Grain: First Handlers, $5 Million to $14.9 Million* and *$15 Million Sales or Larger*. ACS Research Report No. 55. Washington, DC Government Printing Office. May 1986.

[15] Indeed, both the OSH Act's general duty clause and OSHA's general industry housekeeping regulations require dust control in grain handling facilities, and OSHA has enforced both provisions as a means to move the industry towards safer practices. *National Grain and Feed Association* v. *OSHA*, 866 F.2d 717, 721 and n. 5 (5th Cir. 1989) (discussing grain dust housekeeping enforcement under section 5(a)(1) of the OSH Act, 29 U.S.C. 654(a)(1), and 29 CFR 1910.22(a)(1)).

[16] Both the ADL report and the rulemaking record indicate that most large export elevators have pneumatic dust control systems in place as a means for minimizing the accumulation of grain dust.

[17] The latest available USDA data show that the net income of farmer cooperatives in 1987 was 50 percent greater than in 1983. (U.S. Department of Agriculture. Agricultral Cooperative Service. "Cooperative Net Income of $1.5 Billion Highest Since 1980: Assets Also Up," *Farmer Cooperatives*. April 1989.) Moreover, 1987 real net farm income advanced 300 percent since 1983, with similar farm income forecast for 1989. (U.S. Department of Agriculture. *Agricultural Outlook*, April 1989.)

TABLE II—ESTIMATED IMPACT OF ⅛" PRIORITY AREA REQUIREMENT, ASSUMING 1,500 SQ FT SWEEP RATE

Industry segment and storage capacity in bushels	Compliance Cost/Facility (low)	Compliance Cost/Facility (high)	Number of facilities	No. (%) of Facilities with losses due to compliance (low estimate)	No. (%) of Facilities with losses due to compliance (high estimate)	No. (%) of Facilities with losses due to compliance (worst case estimate)
Country Elevators:						
<750,000	$4,183	$10,027	10,603	135 (1.3)	304 (2.9)	422 (4.0)
750,000 to 999,999	7,102	18,873	1,427	26 (1.8)	73 (5.1)	90 (6.2)
>1,000,000	12,965	34,007	1,193	21 (1.8)	61 (5.1)	79 (6.5)
Inland Terminals:						
>2,000,000	8,106	26,950	452	3 (0.4)	10 (2.2)	31 (6.6)
High Throughput:						
<1,500,000	18,242	90,160	33	1 (3.0)	3 (6.1)	5 (15.2)
1,500,000 to 2,499,000	18,242	90,160	24	0 (0.0)	3 (8.3)	5 (20.8)
>2,500,000	19,173	91,092	190	6 (3.2)	8 (4.2)	19 (10.0)
Export Terminals:						
<1,500,000	1,343	116,556	11	0 (0.0)	1 (9.1)	4 (27.3)
1,500,000 to 2,499,000	3,486	118,698	19	0 (0.0)	3 (15.8)	8 (36.8)
>2,500,000	3,486	118,698	44	0 (0.0)	3 (4.5)	8 (15.9)
Total			13,996	192 (1.4)	470 (3.4)	670 (4.8)

Source: U.S. Department of Labor, Occupational Safety and Health Administration, Office of Regulatory Analysis.

In sum, OSHA finds the standard to be economically feasible for the industry as a whole, even when using the industry's recommended rates for removal of grain dust from priority housekeeping areas. In the worst case situation, the standard would cause fewer than 5 percent of all grain elevator facilities to become unprofitable. OSHA concludes that these projections clearly demonstrate the economic feasibility of the standard for the great majority of firms in the industry.

In *National Grain*, the Fifth Circuit noted that "[t]he salutary impact of grain dust standards upon worker safety suggests that immediate implementation of the standards—even at the levels proposed by the agency—would be desirable. A stay is called for, however, unless and until economic feasibility can be established, as the law requires." 866 F.2d at 740 fn.41. On the question of economic feasibility, the Court, citing *Forging Industry Association* v. *Department of Labor*, 773 F.2d 1436 (4th Cir. 1985), established the scope of the Court's inquiry into the Agency's feasibility determinations:

> The relevent inquiry, then, is "whether OSHA has constructed 'a reasonable estimate of compliance costs and demonstrate[d] 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.' " [*Forging Industry Ass'n* v. *Secretary of Labor*, 773 F.2d 1436, 1453] (quoting *United Steelworkers* [v. *Marshall*], 647 F.2d at 1272).
>
> 866 F.2d at 738.

OSHA has established that even when the costs of compliance with this standard are revised to reflect the 1500 square foot per hour cleaning rate supported by the regulated industry, the economic impacts of the grain handling standard are well within the parameters set forth by the Court in *National Grain*. The Court has already recognized the significance of the risks to be regulated by this standard, and the effectiveness of the ⅛-inch action level in reducing those risks. In accordance with the Court's mandate, OSHA believes that it has now demonstrated that the ⅛-inch action level in the Final Rule is economically feasible, at least insofar as its application to priority housekeeping areas. Further action by the Agency on the second element of the Court's remand, namely, consideration of whether the ⅛-inch action level should be extended to the entire grain facility, must first await the Court's review of the feasibility determinations contained in this document. If the Court agrees to lift the stay of the action level as it applies to priority housekeeping areas, OSHA intends to publish a notice to that effect in the **Federal Register**. Shortly thereafter, in response to the second issue remanded by the Court, OSHA will address the questions of the need for and feasibility of extending the action level to apply to the entire grain elevator.

IV. Authority

This document was prepared under the direction of Gerard F. Scannell, Assistant Secretary of Labor for Occupational Safety and Health, 200 Constitution Avenue, NW., Washington, DC 20210. It is issued in response to the order of the U.S. Court of Appeals for the Fifth Circuit in *National Grain and Feed Association* v. *McLaughlin*, 866 F.2d 717 (5th Cir. 1989). That decision reviewed and remanded an occupational safety and health standard issued under section 6(b) of the Occupational Safety and Health Act of 1970 (29 U.S.C. 655(b)); section 41 of the Longshore and Harbor Workers' Compensation Act (33 U.S.C. 941); Secretary of Labor's Order No. 9–83 (48 FR 35736); and 29 CFR part 1911.

Signed at Washington, DC, this 29th day of November, 1989.

G.F. Scannell,

Assistant Secretary of Labor.

[FR Doc. 89–28279 Filed 12–1–89; 8:45 am]

BILLING CODE 4510–26–M

COPYRIGHT ROYALTY TRIBUNAL

37 CFR Part 304

Cost of Living Adjustment for Performance of Musical Compositions by Public Broadcasting Entities Licensed to Colleges and Universities

AGENCY: Copyright Royalty Tribunal.

ACTION: Final rule.

SUMMARY: The Copyright Royalty Tribunal announces a cost of living adjustment of 4.5% in the royalty rates to be paid by public broadcasting entities licensed to colleges, universities or other nonprofit educational institutions which are not affiliated with National Public Radio for the use of copyrighted published nondramatic musical compositions. The cost of living adjustment is an annual adjustment required by 37 CFR 304.10(b) of the Tribunal's rules.

EFFECTIVE DATE: January 3, 1990.

FOR FURTHER INFORMATION CONTACT: Robert Cassler, General Counsel, Copyright Royalty Tribunal, 1111 20th Street, NW., Suite 450, Washington, DC 20036, (202) 653–5175.

SUPPLEMENTARY INFORMATION: On December 29, 1987, the Copyright Royalty Tribunal published in the **Federal Register** the rates and terms for the copyright compulsory license applicable to the use by public broadcasting entities of published nondramatic musical works and published pictorial, graphic and sculptural works. 52 FR 49010. It was determined in that proceeding that the royalty rate to be paid by public broadcasting entities licensed to colleges, universities or other nonprofit educational institutions which are not affiliated with National Public Radio for the use of copyrighted published nondramatic musical compositions would be adjusted each year according to changes in the Consumer Price Index. 37 CFR 304.10.

The change in the cost of living as determined by the Consumer Price Index from the last Index published prior to December 1, 1988 to the last Index published prior to December 1, 1989 was 4.5% (1989's figure was 125.6; 1988's figure was 120.2, based on 1982–1984 equalling 100). Rounding off to the nearest dollar, the Tribunal announces an adjustment in the royalty rate to apply to use of musical compositions in the reperatory of ASCAP and BMI of $173, each, and $41 for the use of musical compositions in the repertory of SESAC.

List of Subjects in 37 CFR Part 304

Copyrights, Music, Radio, Television.

PART 304—[AMENDED]

1. The authority citation for part 304 continues to read as follows:

Authority: 17 U.S.C. 118 and 801 (1976).

§ 304.5 [Amended]

2. 37 CFR 304.5(c) is amended by revising paragraphs (c)(1) through (c)(4).

* * * * *

(c) * * *

(1) For all such compositions in the repertory of ASCAP annually: $173
(2) For all such compositions in the repertory of BMI annually: $173
(3) For all such compositions in the repertory of SESAC annually: $41
(4) For the performances of any other such composition: $1

* * * * *

Dated: November 29, 1989.

J.C. Argetsinger,

Acting Chairman.

[FR Doc. 89–28326 Filed 12–1–89; 8:45 am]

BILLING CODE 1410–09–M

DEPARTMENT OF VETERANS AFFAIRS

DEPARTMENT OF DEFENSE

38 CFR Part 21

RIN 2900–AD62

Veterans Education; Restrictions on Making VEAP Payments to Servicepersons

AGENCIES: Department of Veterans Affairs and Department of Defense.

ACTION: Final regulations.

SUMMARY: The law requires that, generally, an individual must contribute to the Post-Vietnam Veterans Education Assistance Program (VEAP) fund for twelve months in order to receive educational assistance. So as to encourage participation by servicemembers, the Department of Veterans Affairs (VA) has permitted a servicemember who meets all the other eligibility requirements to receive educational assistance after he or she has completed three months of contributions to the fund or has made a lump-sum payment which is the equivalent of at least three months of contributions to the fund. In order to comply with the law it has been VA's policy to require these servicemembers to establish a continuing allotment so that they eventually will contribute to the fund for twelve months. However, the regulation which mentions the three months' contributions does not mention the twelve months' participation requirement. This has led to instances where servicemembers, who have been paid educational assistance, have never participated for twelve months. The effect of this regulatory amendment is to correct this by putting both requirements in the same regulation.

EFFECTIVE DATE: January 3, 1990.

FOR FURTHER INFORMATION CONTACT: William G. Susling, Jr., Acting Assistant Director for Education Policy and Program Administration (225), Vocational Rehabilitation and Education Service, Veterans Benefits Administration, Department of Veterans Affairs, 810 Vermont Avenue NW., Washington, DC 20420, (202) 233–2668.

SUPPLEMENTARY INFORMATION: On pages 13702–13703 of the **Federal Register** of April 5, 1989(54 FR 13702), there was published a notice of intent to amend part 21 in order to clarify that servicepersons must commit themselves to 12 months of contributions to the VEAP fund or its equivalent before they may be paid benefits under VEAP while on active duty. Interested people were given 30 days to submit comments, suggestions or objections. VA received no comments, suggestions or objections. Accordingly, VA is making the proposal final.

The Department of Veterans Affairs and the Department of Defense have determined that this amended regulation does not contain a major rule as that term is defined by E.O. 12291, entitled Federal Regulation. The regulation will not have a $100 million annual effect on the economy, and will not cause a major increase in costs or prices for anyone. It will have no significant adverse effects on competition, employment, investment, productivity, innovation, or on the ability of United States-based enterprises to compete with foreign-based enterprises in domestic or export markets.

The Secretary of Veterans Affairs and the Secretary of Defense certify that this amended regulation will not have a significant economic impact on a substantial number of small entities as they are defined in the Regulatory Flexibility Act (RFA), 5 U.S.C. 601–612. Pursuant to 5 U.S.C. 605(b), the amended regulation, therefore, is exempt from the initial and final regulatory flexibility analyses requirements of §§ 603 and 604.

This certification can be made because the regulation affects only individuals. It will have no significant economic impact on small entities; i.e., small businesses, small private and nonprofit organizations and small governmental jurisdictions.

The Catalog of Federal Domestic Assistance number for the program affected by this regulation is 64.120.

List of Subjects in 38 CFR Part 21

Civil rights, Claims, Education, Grant programs-education, Loan programs-education, Reporting and recordkeeping requirements, Schools, Veterans, Vocational education, Vocational rehabilitation.

Approved: September 8, 1989.

Edward J. Derwinski,

Secretary of Veterans Affairs.

Approved: October 25, 1989.

Matthew De Vore,

Colonel, USA, Acting Deputy Assistant Secretary of Defense (Military Manpower & Personnel Policy).

PART 21—[AMENDED]

In 38 CFR part 21, Vocational Rehabilitation and Education, § 21.5143 is amended by revising paragraphs (a) and (b) and adding paragraph (c) to read as follows:

§ 21.5134 Restrictions on paying benefits to servicepersons.

* * * * *

(a) Has completed 3 months of contributions to the fund or has made a lump-sum payment which is the equivalent of at least 3 months of contributions to the fund;

(b) Has agreed either to have a monthly deduction from his or her military pay, or has made a lump-sum contribution to the fund, or both, so that the 12 months participation requirement of § 21.5052(a) of this part will be met; and

(c) Is serving on active duty in an enlistment period subsequent to the initial period of active duty defined in § 21.5040(b)(3) of this part.

(Authority: 38 U.S.C. 1621, 1631, Pub. L. 94–502)

[FR Doc. 89–28066 Filed 12–1–89; 8:45 am]

BILLING CODE 8320–01–M

POSTAL SERVICE

39 CFR Part 111

Nonmailability of Certain Plants, Plant Products, and Related Articles

AGENCY: Postal Service.

ACTION: Final rule.

SUMMARY: This rule amends postal regulations to reflect the provisions of 39 U.S.C. 3014, declaring that plants, plant products, and related articles prohibited by U.S. Department of Agriculture quarantines from moving by common carrier are nonmailable from the respective quarantined areas. The law requires the Postal Service to establish, by regulation, an exception for plant articles whose movement is allowed under conditions prescribed in the notice of quarantine or other Department of Agriculture regulations. The law also provides that notices of such quarantines must be displayed prominently at post offices in the respective quarantined areas. Another part of the new law establishes criminal penalties for knowingly mailing anything which is nonmailable under the regulations implementing 39 U.S.C. 3014.

EFFECTIVE DATE: January 3, 1990.

FOR FURTHER INFORMATION CONTACT: Mr. F.E. Gardner, (202) 268–5178.

SUPPLEMENTARY INFORMATION: On September 15, 1989, the Postal Service published in the **Federal Register** (54 FR 38255) and invited public comments on a proposal to amend its regulations on nonmailable articles and substances based on the legislation referred to in the Summary. These amendments were enacted as Public Law 100–574 on October 31, 1988, a full explanation of which was given in the proposal and is not repeated here.

The Postal Service received comments from two sources in response to the invitation, one from USDA's Animal and Plant Health Inspection Service (APHIS), and the other from the Division of Plant Industry of California's Department of Food and Agriculture (CDFA). These comments have been considered carefully, and a discussion of them follows.

While expressing no disagreement with the proposed regulatory formulation as far as it goes, both agencies focused their comments on measures to enforce the law and regulations. Both reiterated strongly held views that enforcement will be inadequate to prevent transmission of dangerous plant diseases or infestations by mail, unless additional measures are taken to provide for "profiling" and detention of mail suspected to contain plant material. The Postal Service appreciates the concerns which these agencies have previously made known to the Postal Service and to the Congress during the legislative deliberations which led to enactment of Public Law 100–574. We acknowledge that the Domestic Mail Manual amendments adopted in this rulemaking do not address mail detention or investigative profiles, and do not think that the kinds of enforcement provisions sought by the two agricultural agencies can appropriately be added to these regulations in this rulemaking.

While new 39 U.S.C. 3014 has added quarantined plant material to the long list of items made nonmailable by law, the statute did not change existing law concerning the detention of mail if suspected to contain nonmailable matter. In accordance with Fourth Amendment precepts, those classes of mail which are sealed against inspection can be detained for a brief period of time in order to assemble, without avoidable delay, evidence sufficient to satisfy the probable cause requirement for a search warrant, and to apply for, obtain, and execute the warrant. Current Postal Service regulations (part 115, Domestic Mail Manual) provide the procedural framework for detention to enforce various nonmailability laws, while observing Fourth Amendment restrictions.

The APHIS comments also suggested an amendment to Domestic Mail Manual 115.92b, concerning certain inspections in Hawaii and Puerto Rico of mail reasonably suspected of containing plant matter or pests, when the mail is not sealed against inspection or when the sender consents to inspection. The suggestion was that the provision should be extended to any area of the country where a Federal plant quarantine is in effect, in light of enactment of 39 U.S.C. 3014 which does not limit itself to Hawaii and Puerto Rico. This provision of the Manual, put in place a number of years prior to enactment of section 3014, has served to assist in the enforcement of the preexisting plant quarantine laws which also are not limited by their own terms to Hawaii and Puerto Rico. It has been our understanding that the focus on those two places for this purpose has effectively covered the serious problem areas. While we would be willing to consider any showing that this coverage falls short in actual practice, we see no purpose to extending the procedures to areas where they are not demonstrated to be warranted in fact.

"Profiling" techniques for use by law enforcement personnel are not appropriate subjects for regulations in the Domestic Mail Manual as suggested in the comments. The Postal Service and the agricultural enforcement agencies have shared their respective concerns about profiles and other aspects of enforcement procedures on previous occasions. We expect to continue to work with these agencies and other interested authorities, within applicable legal constraints.

The particular formulation for an investigative profile suggested in the CDFA comment focused on identification of plant material, in general, in the mailstream, not on specifically quarantined material. Under current law, only the specific types of plant material which are covered by applicable quarantines are nonmailable and subject to postal enforcement measures. The Postal Service has suggested both to the two agencies and to interested legislative officials that a statute which made nonmailable *all* unlicensed plant material coming from the two areas (Hawaii and Puerto Rico) whose semitropical environments entail the greatest risk might offer an opportunity for improved enforcement.

The APHIS comment letter questioned the statement in the preamble to the proposed rule that the Postal Service had met the consultation requirement in 39 U.S.C. 3014(c). This provision requires the Postal Service to adopt, by regulation, after consultations with USDA, an exception to the general restrictions on mailing quarantined plant matter, so that mailings complying with APHIS regulations under the Plant Quarantine Act will continue to be permitted. APHIS was provided an opportunity to review drafts of the new Postal Service Publication 14, which contains the detailed provisions concerning the quarantine requirements. Implementation of the new law was also discussed at a March 30, 1989 meeting of Postal Service and USDA representatives. We have heard no objection to the manner in which the regulations adopted today accomplish the regulatory exception required by section 3014(c). The concerns expressed during consultation and in the comments have related to procedures for enforcement against items which are not excepted from the mailing prohibitions. These same matters have been explored on many occasions, and all three agencies are aware of the others' concerns.

Last, CDFA's comment asked why Publication 14, which is incorporated by reference in the Domestic Mail Manual regulations and was made available in conjunction with the proposed rule, provides that a plant or plant product inspected under the Terminal Inspection

Act, 7 U.S.C. 166, and found to be subject to a plant-quarantine law or regulation prohibiting its movement will be returned to the sender upon his payment of the return-postage cost, and does not say instead that it will be seized as evidence that 18 U.S.C. 1716B has been violated. This provision simply follows the statutory language in 7 U.S.C. 166, which provides that when a terminal inspection identifies quarantined material the postmaster "shall promptly notify the sender of said plants or plant products that they will be returned to him upon his request and at his expense."

After carefully considering the comments received, the Postal Service finds good reason to adopt the regulations as proposed, except, in the interest of clarity, for a word order change in the heading of § 124.66 of the Domestic Mail Manual and in the title of Postal Publication 14.

Accordingly, the Postal Service adopts the following amendments to part 124 of the Domestic Mail Manual, which is incorporated by reference in the Code of Federal Regulations. See 39 CFR 111.1.

List of Subjects in 39 CFR Part 111

Postal Service.

PART 111—[AMENDED]

1. The authority citation for part 111 continues to read as follows:

Authority: 5 U.S.C. 552(a); 39 U.S.C. 101, 401, 403, 404, 3001–3011, 3201–3219, 3403–3406, 3621, 5001.

2. Revise 124.66 to read as follows:

PART 124—NONMAILABLE MATTER—ARTICLES AND SUBSTANCES; SPECIAL MAILING RULES

* * * * *

§ 124.66 Mailing Plants (39 U.S.C. 3014; 18 U.S.C. 1716B).

.661 General. In general, plants and plant products are mailable within the United States and its Territories and Possessions. However, to prevent the spread of plant pests, diseases, and insect infestations, the movement of plants, plant pests, plant products, and other related matter, through the mail and otherwise, is subject to certain restrictions and prohibitions of the U.S. Department of Agriculture (USDA).

.662 Mailing Restrictions. As provided by 39 U.S.C. 3014(b), any plant, plant product, or other article capable of carrying a dangerous plant disease or insect infestation is nonmailable from a quarantined area, if the movement of any such item by common carrier is prohibited by a USDA quarantine that has been established pursuant to 7 U.S.C. 161.

.663 Exceptions. Any such plant, plant product or other article is mailable from a quarantined area if (1) its movement by common carrier is allowed under conditions prescribed in the notice of quarantine or in other USDA regulations, issued under 7 U.S.C. 161, governing its inspection, disinfection, certification, and other conditions for its movement and (2) if its movement by mail complies with all such conditions.

.664 Penalties. 18 U.S.C. 1716B provides criminal penalties for mailing anything nonmailable under 39 U.S.C. 3014(b), unless the item is excepted under postal regulations.

.665 USPS Regulations. Publication 14, *Mailing Plants*, describes pertinent portions of these restrictions and prohibitions, and prescribes procedures for their application consistent with the mail security regulations in DMM 115. It also prescribes packaging requirements for plants allowed in the mail.

.666 USDA Notices and Regulations. USDA quarantine notices, issued under 7 U.S.C. 161, are prominently displayed at post offices within the respective quarantined areas. They are also published in the **Federal Register** and codified in 7 CFR (see, e.g., 7 CFR parts 301 and 318). Detailed information concerning them, as well as other USDA regulations, may be obtained by writing to: U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Plant Protection and Quarantine Programs, Hyattsville, MD 20782—2011.

A transmittal letter making these changes in the Domestic Mail Manual will be published and will be transmitted automatically to subscribers. Notice of issuance of the transmittal letter will be published in the **Federal Register** as provided by 39 CFR 111.3.

Fred Eggleston,

Assistant General Counsel Legislative Division.

[FR Doc. 89–28204 Filed 12–1–89; 8:45 am]

BILLING CODE 7710–12–M

FEDERAL COMMUNICATIONS COMMISSION

47 CFR Parts 2, 25, 80, and 87

[GEN Docket No. 89–103; FCC 89–282]

Mobile Radio Services; Implementation of Final Acts of Work Administrative Radio Conference

AGENCY: Federal Communications Commission.

ACTION: Final rule.

SUMMARY: This Report and Order is the first in a series of rulemaking proceedings implementing the Final Acts of the 1987 World Administrative Radio Conference for Mobile Services (1987 Mobile WARC) into the Commission's Rules. This proceeding addresses those revisions of the International Radio Regulations that became effective on October 3, 1989. It amends the Table of Frequency Allocations (47 CFR 2.106), the Radiodetermination Satellite Service (RDSS), and certain maritime mobile and aeronautical mobile service rules. Those revisions that become effective on July 1, 1991, *i.e.*, changes to the high frequency (HF) maritime mobile band (4000–27500 kHz) and revisions to implement the Global Maritime Distress and Safety System (GMDSS), will be addressed in 2 separate follow-on proceedings.

EFFECTIVE DATE: January 3, 1990.

ADDRESSES: Federal Communications Commission, 1919 M Street NW., Washington, DC 20554.

FOR FURTHER INFORMATION CONTACT: Kathryn S. Hosford, Special Services Division, Private Radio Bureau, Federal Communications Commission, Washington, DC 20554; or telephone (202) 632–7197.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's Report and Order, GEN Docket No. 89–103, adopted September 29, 1989, and released October 19, 1989. The complete text of the Report and Order is available for inspection and copying during normal business hours in the FCC Dockets Branch (Room 230), 1919 M Street, NW., Washington, DC. The full text also may be purchased from the Commission's copy contractor: International Transcription Service, 2100 M Street NW., Suite 140, Washington, DC, 20037; telephone 202–857–3800.

Summary of Report and Order

1. This Report and Order amends the U.S. Table of Frequency Allocations contained in Part 2 of the Commission's Rules and, except for the spectrum allocated for the Mobile Satellite Service (MSS), it reflects the frequency allocation changes adopted internationally. The MSS allocated in the bands 1530–1559/1626.5–1660.5 MHz (L-band) was fully reconsidered by the Commission on May 31, 1989, and no changes were made to the domestic MSS allocation. Because the comments and reply comments were essentially a reiteration of the previous arguments raised, no changes to the domestic

allocation at L-band were adopted by this Report and Order.

2. The Report and Order also includes a change in the feeder downlink allocation for the Radiodetermination Satellite Service (RDSS). Except for a change in the feeder downlink at 5 GHz, the RDSS was established in accordance with U.S. proposals. The change in the feeder down-link was supported by the current RDSS licensee, Geostar Positioning Corporation (GPC). GPC also proposed that Part 25 be amended to expand the RDSS feeder uplink from 6525–6541.5 MHz to 6525–6607 MHz. Because feeder uplinks are already permitted under the fixed satellite service allocated in Part 2 and this proposal did not stem from any action taken at the 1987 Mobile WARC, no change was made to the RDSS feeder uplink at 6 GHz by this proceeding. The Commission stated that this matter can best be examined during the processing of GPC's application currently on file.

3. Several other changes to the maritime mobile and aeronautical mobile services were adopted also. Of particular concern to the commenting parties was the new 10 Hz frequency tolerance for ship and coast stations using automated maritime data transmitters. Five parties requested clarification of the implementation date with regard to existing equipment. After reviewing the comments, the proposed rules were rewritten to clarify that existing transmitters used for narrow-band direct-printing (NBDP) and installed before January 2, 1992, may continue to be used indefinitely. This is in accordance with the international requirements. Likewise, the proposed rule for ship transmitters used for digital selective calling (DSC) was rewritten to permit transmitters installed before January 2, 1992, to continue to be used until February 2, 1999.

4. For coast stations using DSC transmitters, however, the Commission maintained the January 1, 1990, date currently in the Rules. It indicates that this requirement is reasonable and in the public interest. First, considering that January 1, 1990, is fast approaching, any coast station planning to add DSC equipment in the early 1990's would have already considered its equipment needs based on existing Commission Rules. Second, reliable communications can be enhanced by initially requiring this improvement on a small number of coast stations rather than the more numerous ship stations. Third, the cost of replacing equipment purchased in 1990 under old specifications is avoided. The Report and Order also clarifies that adding a separate NBDP or DSC facility to existing transmitters in use under the existing tolerances will not be considered a newly installed transmitter. Thus, such an arrangement could be used indefinitely for NBDP and until February 2, 1999, for DSC.

5. The Commission also declined, at this time, to restrict the use of frequency 156.8 MHz (channel 16) by aircraft for general calling purposes. It noted that its proposal was simply to clarify the rule and any amendment to restrict the use of 156.8 MHz below 1000 feet was outside the scope of this proceeding. The Commission stated, however, that a future proceeding would consider the matter if it is shown that continued use of 156.8 MHz by aircraft is causing serious degradation of maritime safety communications. No changes to 47 CFR 80.379 and 87.187 were adopted at this time

6. The Commission also adopted a new emission limit of 28 dB relative to the mean power for single-sideband radiotelephone transmitters operating in the bands 1605–27500 kHz. It specified additional frequencies below 4 MHz for DSC and radiotelephony calling. Detailed technical requirements for NBDP operations were replaced by references to the appropriate International Radio Consultative Committee (CCIR) Recommendations. They will ensure that future equipment meets or exeeds the international standards. New definitions were adopted for aeronautical mobile route (R) and off-route (OR) services, aeronautical mobile satellite (R) and (OR) services, land earth station, base earth station, and land mobile earth station. The definition of RDSS was amended also. The proposed editorial changes to 47 CFR 87.187 (o) and (x) were adopted. Finally, the emissions designators in 47 CFR 80.359 were moved to 47 CFR 80.207. These changes reflect the revisions to the Radio regulations adopted at the 1987 Mobile WARC, or earlier conferences.

7. The decisions contained herein have been analyzed with respect to the Paperwork Reduction Act of 1980 and found to contain no new or modified form, information collection, record keeping, labeling, disclosure, or record retention requirements, and will not increase or decrease the burden hours imposed on the public.

8. Accordingly, *it is ordered*, That pursuant to the authority contained in Sections 4(i) and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. 154(i) and 303(r), parts 2, 25, 80, and 87 of the Commission's Rules are amended as set forth at the end of this document, effective

9. *It is further ordered*, That a copy of this Report and Order be sent to the Chief Counsel for Advocacy of the Small Business Administration.

10. *It is further ordered*, That this proceeding is terminated.

List of Subjects

47 CFR Part 2

Frequency allocations, Radio, Treaties.

47 CFR Part 25

Radio, Satellite radio communications, Satellites.

47 CFR Part 80

Coast stations, Communications equipment, Marine safety, Radio, Ship stations, Telegraph, Telephone.

47 CFR Part 87

Aeronautical stations, Air transportation, Communications equipment, General aviation, Radio.

Federal Communications Commission.

Donna R. Searcy,

Secretary.

Rule Changes

Parts 2, 25, 80 and 87 of title 47 of the Code of Federal Regulations are amended as follows:

PART 2—[AMENDED]

1. The authority citation for part 2 continues to read as follows:

Authority: Secs. 4, 302, 303, 307, 48 stat. 1066, 1082, as amended; 47 U.S.C. 154, 302, 303, 307, unless otherwise noted.

2. Section 2.1(c) is amended by revising the definition for *Radiodetermination-Satellite Service* and adding the others in the correct alphabetical position to read as follows:

§ 2.1 Terms and definitions.

* * * * *

(c) * * *

Aeronautical Mobile Off-Route (OR) Service. An aeronautical mobile service intended for communications, including those relating to flight coordination, primarily outside national or international civil air routes. (RR)

Aeronautical Mobile Route (R) Service. An aeronautical mobile service reserved for communications relating to safety and regularity of flight, primarily along national or international civil air routes. (RR)

Aeronautical Mobile-Satellite Off-Route (OR) Service. An aeronautical mobile-satellite service intended for communications, including those

relating to flight coordination, primarily outside national and international civil air routes. (RR)

Aeronautical Mobile-Satellite Route (R) Service. An aeronautical mobile-satellite service reserved for communications relating to safety and regularity of flights, primarily along national or international civil air routes. (RR)

* * * * *

Base Earth Station. An earth station in the fixed-satellite service or, in some cases, in the land mobile-satellite service, located at a specified fixed point or within a specified area on land to provide a feeder link for the land mobile-satellite service. (RR)

* * * * *

Land Earth Station. An earth station in the fixed-satellite service or, in some cases, in the mobile-satellite service, located at a specified fixed point or within a specified area on land to provide a feeder link for the mobile-satellite service. (RR)

Land Mobile Earth Station. A mobile earth station in the land mobile-satellite service capable of surface movement within the geographical limits of a country or continent. (RR)

* * * * *

Radiodetermination-Satellite Service. A radiocommunication service for the purpose of radiodetermination involving the use or one of more space stations. This service may also include feeder links necessary for its own operation. (RR)

3. In § 2.104, paragraph (c)(3) is revised to read as follows:

§ 2.104 International Table of Frequency Allocations.

* * * * *

(c) * * *

(3) The "European Maritime Area" is bounded to the north by a line extending along parallel 72° North from its intersection with meridian 55° East of Greenwich to its intersection with meridian 5° West, then along meridian 5° West to its intersection with parallel 67° North, thence along parallel 67° North to its intersection with meridian 32° West; to the west by a line extending along meridian 32° West to its intersection with parallel 30° North; to the south by a line extending along parallel 30° North to its intersection with meridian 43° East; to the east by a line extending along meridian 43° East to its intersection with parallel 60° North, thence along parallel 60° North to its intersection with meridian 55° East and thence along meridian 55° East to its intersection with parallel 72° North.

* * * * *

4. Section 2.106 is amended by removing Footnotes 458, 473, 583, 590, 680, 681, 698, 699, 728, 774, 775, 776, US39, US232, US241, US248, US280, and US288 in their entirety, and by amending the Table of Frequency Allocations and the subsequent Footnotes, to read as follows:

§ 2.106 Table of Frequency Allocations

International table			United States table		FCC use designators	
Region 1 allocation kHz	Region 2 allocation kHz	Region 3 allocation kHz	Government Allocation kHz	Non-Government Allocation kHz	Rule Part(s)	Special-Use Frequencies
(1)	(2)	(3)	(4)	(5)	(6)	(7)
* * *	* * *	* * *	* * *	* * *	* * *	* * *
14–19.95			14–19.95	14–19.95		
			Fixed maritime mobile.	Fixed		
			448 US294	448 US294		
* * *	* * *	* * *	* * *	* * *	* * *	* * *
20.05–70			20.05–59	20.05–59		
			Fixed maritime mobile.	Fixed		
			448 US294	448 US294		
			59–61	59–61		
			* * *	* * *		
			61–70	61–70		
			Fixed maritime mobile.	Fixed		
			448 US294	448 US294		
70–72	70–90	70–72	70–90	70–90		
* * *	* * *	* * *	Fixed maritime mobile radiolocation.	Fixed radiolocation		
72–84		72–84				
* * *		* * *				
84–86		84–86				
* * *		* * *				
86–90		86–90				
* * *		* * *				
90–110			448 451 US294	448 451 US294		
	Radionavigation 453 Fixed.		90–110	90–110		
			* * *	* * *	* * *	
	453A 454					
110–112	110–130	110–112	110–130	110–130		
* * *	* * *	* * *	Fixed maritime mobile radiolocation.	Fixed maritime mobile radiolocation.	* * *	
112–115		112–117.6				
* * *		* * *				
115–117.6						
* * *						
117.6–126		117.6–126				
* * *		* * *				
126–129		126–129				
* * *		* * *				

International table			United States table		FCC use designators	
Region 1 allocation kHz	Region 2 allocation kHz	Region 3 allocation kHz	Government Allocation kHz	Non-Government Allocation kHz	Rule Part(s)	Special-Use Frequencies
(1)	(2)	(3)	(4)	(5)	(6)	(7)
129–130		129–130				
• • •		• • •	451 454 US294	451 454 US294		
130–148.5	130–160	130–160	130–160	130–160		
Maritime mobile/ fixed/.	• • •	• • •	• • •	• • •	• • •	
454 457						
148.5–255						
Broadcasting						
	160–190	160–190	160–190	160–190		
	• • •	• • •	• • •	• • •	• • •	
	190–200		190–200	190–200		
	• • •	• • •	• • •	• • •		
	200–275	200–285	200–275	200–275		
	Aeronautical radionavigation aeronautical mobile.	Aeronautical radionavigation aeronautical mobile.	• • •	• • •	• • •	
460 461 462						
255–283.5						
Broadcasting/ aeronautical radionavigation/ 463.						
	275–285		275–285	275–285		
	Aeronautical radionavigation aeronautical mobile maritime radionavigation (radiobeacons).		• • •	• • •		
462 464 464A						
283.5–315						
Maritime radionavigation (radiobeacons) 466 /aeronautical radionavigation/.	285–315		285–325	285–325		
	• • •		• • •	• • •	• • •	
464A 465 466A						
315–325	315–325	315–325				
• • •	• • •	• • •				
•	•	•	•	•	•	•
415–435	415–495		415–435	415–435		
• • •	Maritime mobile 470 aeronautical radionavigation 470A.	Aeronautical radionavigation maritime mobile 470.	Aeronautical radionavigation maritime mobile 470.	• • •		
		469A US294	469A US294			
435–495			435–495	435–495		
Maritime Mobile 470 aeronautical radionavigation.			Maritime mobile 470 aeronautical radionavigation.	Maritime mobile 470	• • •	
465 471 472A	469 469A 471 472A.	471 US231 472A US294.	471 US231 472A US294.			
•	•	•	•	•	•	•
505–526.5	505–510	505–526.5	505–510	505–510		
Maritime mobile 470/ aeronautical radionavigation/.	• • •	Maritime mobile 470 474/aeronautical radionavigation/ aeronautical mobile land mobile.	• • •	• • •	• • •	
	510–525		510–525	510–525		
	Mobile 474 aeronautical radionavigation.		Aeronautical radionavigation (radiobeacons) maritime mobile (ships only).	Aeronautical radionavigation (radiobeacons) maritime mobile (ships only).	• • •	518 kHz is used for international NAVTEX in the maritime mobile service.
465 471 474 475 476.						
		471	474 US14 US18 US225.	474 US14 US18 US225.		
	525–535		525–535	525–535		
	• • •		• • •	• • •	• • •	• • •
526.5–1 606.5		526.5–535				
• • •		• • •				
	535–1 605	535–1 606.5	535–1 605	535–1 605		

International table			United States table		FCC use designators	
Region 1 allocation kHz	Region 2 allocation kHz	Region 3 allocation kHz	Government Allocation kHz	Non-Government Allocation kHz	Rule Part(s)	Special-Use Frequencies
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	• • •	• • •		• • •	• • •	
	1 605–1 625		1 605–1 615	1 605–1 615		
	Broadcasting 480		• • •	• • •	• • •	• • •
1 606.5–1 625		1 606.5–1 800				
Maritime Mobile 480A/Fixed/ /land Mobile/.		• • •				
			1 615–1 625	1 615–1 625		
483 484	480A 481		• • •	• • •	• • •	
1 625–1 635	1 625–1 705		1 625–1 705	1 625–1 705		
• • •	Broadcasting 480/ fixed/ /mobile/ radiolocation 480A 481.		• • •	• • •	• • •	
1 635–1 800	1 705–1 800		1 705–1 800	1 705–1 800		
Maritime mobile 480A /fixed/ /land mobile/.	• • •		• • •	• • •		
483–484–488						
1 800–1 810	1 800–1 850	1 800–2 000	1 800–1 900	1 800–1 900		
• • •	Amateur	• • •		• • •	• • •	
1 810–1 850						
• • •						
1 850–2 000	1 850–2 000		1 900–2 000	1 900–2 000		
• • •	Amateur fixed mobile except aeronautical mobile radiolocation radionavigation.		• • •	• • •	• • •	
	494					
	•	•	•	•	•	
2 173.5–2 190.5			2 173.5–2 190.5	2 173.5–2 190.5		
	Mobile (distress and calling).		Mobile (distress and calling).	Mobile (distress and calling).	• • •	• • •
	500 501 500A 500B		500 501 US279 500A 500B.	500 501 US279 500A 500B.		
	•	•	•	•	•	

§ 2.106 Table of Frequency Allocations

International table			United States table		FCC use designators	
Region 1 allocation MHz	Region 2 allocation MHz	Region 3 allocation MHz	Government Allocation MHz	Non-Government Allocation MHz	Rule Part(s)	Special-Use Frequencies
(1)	(2)	(3)	(4)	(5)	(6)	(7)
74.8–75.2			74.8–75.2	74.8–75.2		
	Aeronautical radionavigation.		• • •	• • •	• • •	• • •
	572 572A					
75.2–87.5	75.2–75.4		75.2–75.4	75.2–75.4		
• • •	• • •	• • •	• • •			
	75.4–76	75.4–87	75.4–76	75.4–76		
	• • •	• • •		• • •	• • •	
	76–88		76–88	76–88		
			• • •	• • •	• • •	
	• • •					
		87–100				
		• • •				
87.5–100						
• • •						
	88–100		88–108	88–108		
	• • •		• • •	• • •	• • •	
100–108						
	Broadcasting					
	582 584 585					
	586 587 588 589					
108–117.975			108–117.975	108–117.975		
	Aeronautical radionavigation.	• • •	• • •			

International table			United States table		FCC use designators	
Region 1 allocation MHz	Region 2 allocation MHz	Region 3 allocation MHz	Government Allocation MHz	Non-Government Allocation MHz	Rule Part(s)	Special-Use Frequencies
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	590A					
*	*	*	*	*	*	*
136–137			136–137	136–137		
	Aeronautical mobile (R), fixed, Mobile except aeronautical mobile (R).	* * *	* * *	* * *		
	591 595 594A					
*	*	*	*	*	*	*
149.9–150.05			149.9–150.05	149.9–150.05		
	Radionavigation-satellite..		Radionavigation-satellite..	Radionavigation-satellite..		
	609 609A		609A	609A		
150.05–153	150.05–156.7625		150.05–150.8	150.05–150.8		
* * *	Fixed mobile		* * *	* * *		
			150.8–156.2475	150.8–152		
				* * *	* * *	
				152–152.255		
	611 613 613A		* * *	* * *	* * *	
				152.255–152.495		
				* * *	* * *	
				152.495–152.855		
				* * *	* * *	
				152.855–156.2475		
				* * *	* * *	
153–154						
* * *						
154–156.7625						
Fixed mobile except aeronautical mobile (R).						
613 613A						
			156.2475–157.0375	156.2475–157.0375		
				Maritime mobile NG117.		
156.7625–156.8375						
	* * *					
156.8375–174	156.8375–174					
Fixed mobile except aeronautical mobile.	* * *		613 613A US77 US106 US107 US266	613 613A US77 US106 US107 US266		
			157.0375–157.1875	157.0375–157.1875		
613 613B 614 615.			* * *	* * *	* * *	
*	*	*	*	*	*	*
174–223	174–216	174–223	174–216	174–216		
* * *	* * *	* * *	* * *	* * *	* * *	
	216–220		216–220	216–220		
	Fixed maritime mobile radiolocation 627.		* * *	* * *	* * *	
	627A					
*	*	*	*	*	*	*
328.6–335.4			328.6–335.4	328.8–335.4		
	Aeronautical radionavigation.		* * *	* * *		
	645 645A					
*	*	*	*	*	*	*
399.9–400.05			399.9–400.5	399.9–400.05		
	Radionavigation-satellite.		Radionavigation satellite.	Radionavigation satellite.		
	609 645B		645B	645B		
*	*	*	*	*	*	*
406–406.1			406–406.1	406–406.1		
	Mobile-satellite (Earth-to-space).		Mobile-satellite (Earth-to-space).	Mobile-satellite (Earth-to-space).		
	649 649A		649 649A	649 649A		
*	*	*	*	*	*	*
420–430			420–450	420–450		
	* * *		* * *	* * *	* * *	
430–440	430–440					
* * *	Radiolocation amateur.					
	653 658 659 660 660A 663 664.					

International table			United States table		FCC use designators	
Region 1 allocation MHz	Region 2 allocation MHz	Region 3 allocation MHz	Government Allocation MHz	Non-Government Allocation MHz	Rule Part(s)	Special-Use Frequencies
(1)	(2)	(3)	(4)	(5)	(6)	(7)
440–450						
	• • •					
	•	•	•	•	•	
470–790	470–512	470–585	470–512	470–512		
Broadcasting	• • •	• • •		• • •	• • •	
	512–608		512–608	512–608		
	• • •	585–610		• • •	• • •	
		• • •				
	608–614		608–614	608–614		
676 667A 682	• • •		• • •	• • •		
683 684 685						
686 686A 687						
689 693 694.						
		610–890				
		• • •				
	614–806		614–806	614–806		
	Broadcasting fixed mobile.			• • •	• • •	
790–862						
Fixed broadcasting	675 692 692A 693.					
	806–890		806–902	806–821		
694 695 695A 696 697 702.	Fixed mobile broadcasting.		• • •	• • •	• • •	
862–890						
Fixed mobile except aeronautical mobile.				821–824		
Broadcasting 703				• • •	• • •	
704	692A 700					
	•	•	•	•	•	
890–942	890–902	890–942		894–896		
• • •	Fixed mobile except aeronautical mobile.			896–901		
	Radiolocation			• • •	• • •	
				901–902		
	704A 705			• • •	• • •	
	902–928		902–928	902–928		
	Fixed amateur mobile except aeronautical mobile.					
	Radiolocation 705 707 707A.		• • •	• • •	• • •	• • •
	928–942		928–932	928–929		
	• • •		• • •	• • •	• • •	
				929–932		
				• • •	• • •	
			932–935	932–935		
			• • •	• • •	• • •	
			935–941	935–940		
			• • •	• • •	• • •	
				940–941		
				• • •	• • •	
			941–944	941–944		
942–960	942–960	942–960				
			• • •	• • •		
Fixed mobile except aeronautical mobile broadcasting 703.	• • •	• • •	944–960	944–960		
				• • •	• • •	
	•	•	•	•	•	
704						
		•	•	•	•	•
1 215–1 240			1 215–1 240	1 215–1 240		
	Radiolocation; radionavigation-satellite (space-to-Earth) 710 711 712 712A 713.		• • •	• • •		
1 240–1 260			1 240–1 300	1 240–1 300		

International table			United States table		FCC use designators	
Region 1 allocation MHz	Region 2 allocation MHz	Region 3 allocation MHz	Government	Non-Government	Rule Part(s)	Special-Use Frequencies
			Allocation MHz	Allocation MHz		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Radiolocation; radionavigation-satellite (space-to-earth) 710 711 712 712A 713 714.		• • •	• • •	• • •	
1 260–1 300						
	Radiolocation amateur 664 711 712 712A 713 714.	•	•	•	•	•
1 429–1 525	1429–1525		1 429–1 435	1 429–1 435		
1 525–1 530	1 525–1 530	1 525–1 530	1 435–1 530	1 435–1 530		
• • •	Space operation (space-to-Earth). Earth exploration-satellite Fixed Mobile 723 722 723A	• • •	• • •	• • •	• • •	
1 530–1 533	1 530–1 533		1 530–1 535	1 530–1 535		
Space Operation (space-to-Earth) Maritime Mobile-Satellite (space-to-Earth) Earth exploration-satellite Fixed Mobile except aeronautical mobile Land Mobile-Satellite (space-to-Earth) 722 726 726A	Space operation (space-to-Earth) Maritime mobile-satellite (space-to-Earth) Earth exploration-satellite Fixed Mobile 723 Land mobile-satellite (space-to-Earth) 722 726 726A		Maritime mobile satellite (space-to-Earth) Mobile (aeronautical telemetering)	Maritime mobile satellite (space-to-Earth) Mobile (aeronautical telemetering)	• • •	
1533–1535	1533–1535					
Space operation (space-to-Earth). Maritime mobile-satellite (space-to-Earth). Earth exploration-satellite. Fixed Mobile except aeronautical mobile. Land mobile-satellite (space-to-Earth) 726B.	Space operation (space-to-Earth). Maritime mobile-satellite (space-to-Earth). Earth exploration-satellite. Fixed Mobile 723 Land mobile-satellite (space-to-Earth) 726B.					
722 726 726A	722 726 726A		722 726A US78 US272.	722 726A US78 US272.		
1 535–1 544			1 535–1 544	1 535–1 544		
Maritime mobile-satellite (space-to-Earth), Land mobile-satellite (space-to-Earth) 726B.			Maritime mobile-satellite (space-to-Earth).	Maritime mobile satellite (space-to-Earth).	• • •	
722 726A 727			722 726A	722 726A		
1 544–1 545			1 544–1 545	1 544–1 545		
Mobile-satellite (space-to-Earth)			Mobile-satellite (space-to-Earth).	Mobile-satellite (space-to-Earth).	• • •	
722 727 727A			722 727A	722 727A		
1 545–1 555			1 545–1 549.5	1 545–1 549.5		
Aeronautical mobile-satellite (R) (space-to-Earth) 722 726A 727 729 729A 730.			Aeronautical mobile-satellite (R) (space-to-Earth). Mobile-satellite (space-to-Earth). 722 726A US308 US309.	Aeronautical mobile-satellite (R) (space-to-Earth). Mobile-satellite (space-to-Earth). 722 726A US308 US309.	• • •	
			1 549.5–1 558.5	1 549.5–1 558.5		

International table			United States table		FCC use designators	
Region 1 allocation MHz	Region 2 allocation MHz	Region 3 allocation MHz	Government	Non-Government	Rule Part(s)	Special-Use Frequencies
			Allocation MHz	Allocation MHz		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	.....	.....	Aeronautical mobile-satellite (R) (space-to-Earth). Mobile-satellite (space-to-Earth).	Aeronautical mobile-satellite (R) (space-to-Earth). Mobile-satellite (space-to-Earth).	• • •	
	.....	.....	722 726A US308 US309.	722 726A US308 US309.	.....	
1 555–1 559			1 558.5–1 559	1 558.5–1 559	.....	
Land mobile-satellite (space-to-Earth) 722 726A 727 730 730A.....			Aeronautical mobile-satellite (R) (space-to-Earth). 722 726A US308 US309.	Aeronautical mobile-satellite (R) (space-to-Earth). 722 726A US308 US309.	• • •	
1 559–1 610			1 559–1 610	1 559–1 610		
Aeronautical radionavigation radionavigation-satellite (space-to-Earth) 722 727 730 731 731A 731B 731C 731D.			Aeronautical radionavigation-satellite (space-to-Earth). 722 US208 US260..	Aeronautical radionavigation-satellite (space-to-Earth). 722 US208 US260..	• • •	
1 610–626.5	1 610–626.5	1 610–626.5	1 610–1626.5	1 610–1626.5	.....	
Aeronautical radionavigation.	Aeronautical radionavigation.	Aeronautical radionavigation.	Aeronautical radionavigation.	Aeronautical radinavigation.	Aviation (87). satellite communication (25)..	
	Radiodetermination-satellite (Earth-to-space) 733A.	Radiodetermination-satellite (Earth-to-space) 733A.	733E	722 732 733 734 US208 US260 US306.	722 732 733 734 US208 US260 US306.	
722 727 730 731 731A 731B 731D 732 733 733A 733B 733E 733F 734.	722 731B 731C 732 733 733C 733D 734.	722 727 730 731B 731C 732 733 733B 734.	.....	.....	.....	
1 626.5–1 631.5			1 626.5–1 645.5	1 626.5–1 645.5	.....	
	Maritime mobile-satellite (Earth-to-space) Land mobile-satellite 726B (Earth-to-space).	.....	Maritime mobile-satellite (Earth-to-space).	Maritime mobile-satellite (Earth-to-space).	• • •	
	722 726A 727 730.	.....	.....	.....	.....	
1 631.5–1 634.5			.....	.....	.....	
	Maritime mobile-satellite (Earth-to-space).	.....	.....	.....	.....	
	Land mobile-satellite (Earth-to-space).	.....	.....	.....	.....	
	722 726A 727 730 734A.	.....	.....	.....	.....	
1 634.5–1 645.5			.....	.....	.....	
	Maritime mobile-satellite (Earth-to-space).	.....	.....	.....	.....	
	Land mobile-satellite 726B (Earth-to-space).	.....	722 726A	722 726A	.....	
	722 726A 727 730.	.....	.....	.....	.....	
1 645.5–1 646.5			1 645.5–1 646.5	1 645.5–1 646.5	.....	
	Mobile-satellite (Earth-to-space).	.....	Mobile-satellite (Earth-to-space).	Mobile-satellite (Earth-to-space).	• • •	
	722 734B		722 734B	722 734B	.....	
1 646.5–1 656.5			1 646.5–1 651	1 646.5–1 651	.....	
	Aeronautical mobile-satellite (R) (Earth-to-space).	.....	Aeronautical mobile-satellite (R) (Earth-to-space). Mobile-satellite (Earth-to-space).	Aeronautical mobile-satellite (R) (Earth-to-space). Mobile-satellite (Earth-to-space).	• • •	
	722 726A 727 729A 730 735.	.....	722 726A US308 US309.	722 726A US308 US309.	.....	
	.....	.....	1 651–1 660	1 651–1 660	.....	

International table			United States table		FCC use designators	
Region 1 allocation MHz	Region 2 allocation MHz	Region 3 allocation MHz	Government Allocation MHz	Non-Government Allocation MHz	Rule Part(s)	Special-Use Frequencies
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1 656.5–1 660			Aeronautical mobile-satellite (R) (Earth-to-space).	Aeronautical mobile-satellite (R) (Earth-to-space).	• • •	
	Land mobile-satellite (Earth-to-space).		Mobile-satellite (Earth-to-space).	Mobile-satellite (Earth-to-space).		
	722 726A 727 730 730A 734A.		722 726A US308 US309.	722 726A US308 US309.		
1 660–1 660.5			1 660–1 660.5	1 660–1 660.5		
	Radio astronomy land mobile-satellite (Earth-to-space).		Aeronautical mobile-satellite (R) (Earth-to-space).	Aeronautical mobile-satellite (R) (Earth-to-space).	• • •	
			Radio astronomy	Radio astronomy		
	722 726A 730A 736.		722 726A 736 US309.	722 726A 736 US309.		
1 700–1 710	1 700–1 710		1 700–1 710	1 700–1 710		
Fixed meteorological-satellite (space-to-Earth) mobile except aeronautical mobile.	• • •		• • •	• • •		
671 722 743A						
1 710–2 290	1 710–2 290		1 710–1 850	1 710–1 850		
Fixed mobile	• • •		• • •	• • •		
			1 850–1 990	1 850–1 990		
			• • •	• • •	• • •	
722 743A 744 746 747 748 750.			1 990–2 110	1 990–2 200		
			• • •	Mobile fixed	• • •	
			2 110–2 200	US90 US111 US219 US222 NG23 NG118.		
			• • •			
			2 200–2 290	2 200–2 290		
			• • •	• • •		
2 290–2 300	2 290–2 300		2 290–2 300	2 290–2 300		
Fixed space research (space-to-Earth) (deep space) mobile except aeronautical mobile.	• • •		• • •	• • •		
743A						
2 300–2 450	2 300–2 450		2 300–2 310	2 300–2 310		
Fixed amateur mobile radiolocation.	• • •		• • •	• • •	• • •	
			2 310–2 390	2 310–2 390		
			• • •	• • •		
			2 390–2 450	2 390–2 450		
664 743A 752			• • •	• • •	• • •	
2 450–2 483.5	2 450–2 483.5		2 450–2 483.5	2 450–2 483.5		
Fixed mobile radiolocation.	Fixed mobile radiolocation.		• • •	• • •		
752 753	752					
2 483.5–2 500	2 483–2 500	2 483.5–2 500	2 483.5–2 500	2 483.5–2 500		
Fixed mobile radiolocation.	Fixed mobile radiodetermination-satellite 753A (space-to-Earth) Radiolocation.	Fixed mobile radiolocation radiodetermination-satellite (space-to-Earth) 753A.		Radiodetermination-satellite (space-to-Earth).	Satellite communication (25).	
733F 752 753A 753B 753C 753E.	752 753D	752 753C	752 US41	752 US41 NG147		
2 500–2 655	2 500–2 655	2 500–2 535	2 500–2 655	2 500–2 655		
• • •	• • •	Fixed 762 764	• • •	• • •		
		Fixed-satellite (space-to-Earth) 761.				
		Mobile except aeronautical mobile.				
		Broadcasting-satellite 757 760.				
		754 754A				
		2 535–2 655				
		• • •				
2 900–3 100			2 900–3 100	2 900–3 100		

International table			United States table		FCC use designators	
Region 1 allocation MHz	Region 2 allocation MHz	Region 3 allocation MHz	Government Allocation MHz	Non-Government Allocation MHz	Rule Part(s)	Special-Use Frequencies
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Radionavigation 773 Radiolocation.			Maritime radionavigation radiolocation 775A.	Maritime radionavigation radiolocation 775A.	• • •	
772 775A			US44 G56	US44		
3 100–3 300			3 100–3 300	3 100–3 300		
Radiolocation			Radiolocation	Radiolocation		
713 777 778			713 778 US110 G59.	713 778 US110		
•	•	•	•	•	•	•
5 000–5 250			5 000–5 250	5 000–5 250		
Aeronautical Radionavigation.			Aeronautical Radionavigation.	Aeronautical Radionavigation.	Aviation (87) satellite communication (25).	
733 796 797 797A 797B.			733 796 797 797A US211 US260 US307.	733 796 797 797A US211 US260 US307.		
•	•	•	•	•	•	•
5 470–5 650			5 470–5 600	5 470–5 600		
Maritime Radionavigation Radiolocation.			Maritime radionavigation radiolocation.	Maritime radionavigation radiolocation.	• • •	
			US50 US65	US50 US65		
			5 600–5 650	5 600–5 650		
800 801 802			• • •	• • •	• • •	
•	•	•	•	•	•	•
9 200–9 300			9 200–9 300	9 200–9 300		
Radiolocation Maritime Radionavigation 823.			Maritime radionavigation radiolocation.	Maritime radionavigation radiolocation.		
824 824A			US110 G59 823 824A.	US110 823 824A		
9 300–9 500			9 300–9 500	9 300–9 500		
Radionavigation 825A Radiolocation.			Radionavigation 825A meterological aids radiolocation.	Radionavigation 825A meterological aids radiolocation.		
775A 824A 825			775A 824A US51 US66 US67 US71 G56.	775A 824A US51 US66 US67 US71.		
•	•	•	•	•	•	•

International Footnotes

448 The use of the bands 14–19.95 kHz, 20.05–70 kHz, and 70–90 kHz (72–84 kHz and 86–90 kHz in Region 1) by the maritime mobile service is limited to coast radiotelegraph stations (A1A and F1B only). Exceptionally, the use of class J2B or J7B emissions is authorized subject to the necessary bandwidth not exceeding that normally used for class A1A or F1B emissions in the band concerned.

451 In the bands 70–90 kHz (70–86 kHz in Region 1) and 110–130 kHz (112–130 kHz in Region 1), pulsed radionavigation systems may be used on condition that they do not cause harmful interference to other services to which these bands are allocated.

453A In the band 90–110 kHz, the United Kingdom may continue to use its coast radiotelegraph stations in operation on 14 September 1987, on a secondary basis.

464A In Region 1, the change of the band limit from 285 kHz to 283.5 kHz shall take place on 1 February 1990 (see Resolution 500).

466A *Additional Allocation:* in Region 1, the frequency band 285.3–285.7 kHz is also allocated to the maritime radionavigation service (other than radiobeacons) on a permitted basis.

469 *Different category of service:* in Afghanistan, Australia, China, the Overseas French Territories of Region 3, India, Indonesia, the Islamic Republic of Iran, Japan, Pakistan, Papua New Guinea and Sri Lanka, the allocation of the band 415–495 kHz to the aeronautical radionavigation service is on a permitted basis. Administrations in these countries shall take all practical steps necessary to ensure that aeronautical radionavigation stations in the band 435–495 kHz do not cause interference to reception by coast stations of ship stations transmitting on frequencies designated for ship stations on a world-wide basis (see No. 4237).

469A *Different category of service:* in Cuba, the United States of America, and Mexico the allocation of the band 415–435 kHz to the aeronautical radionavigation service is on a primary basis.

470A In Region 2, the use of the band 435–495 kHz by the aeronautical radionavigation service is limited to non-directional beacons not employing voice transmission.

471 The bands 490–495 kHz shall be subject to the provision of No. 3018 until the entry into force of the reduced guardband in accordance with Resolution 210 (Mob-87).

472 The frequency 500 kHz is an international distress and calling frequency for Morse radiotelegraphy. The conditions for its use are prescribed in Articles 37, 38, N 38 and 60.

472A In the maritime mobile service, the frequency 490 kHz is, from the date of full implementation of the GMDSS (see Resolution 331 (Mob-87)), to be used exclusively for the transmission by coast stations of navigational and meteorological warnings and urgent information to ships, by means of narrow-band direct-printing telegraphy. The conditions for use of the frequency 490 kHz are prescribed in Articles N 38 and 60, and Resolution 329 (Mob-87). In using the band 415–495 kHz for the aeronautical radionavigation service, administrations are requested to ensure that no harmful interference is caused to the frequency 490 kHz.

474 The conditions for the use of frequency 518 kHz by the maritime mobile service are prescribed in Articles 38, N 38 and 60 (see Resolution 324 (Mob-87) and Article 14A).

480A In the band 1605–1705 kHz, in cases where a broadcasting station of Region 2 is concerned, the service area of the maritime mobile stations in Region 1 shall be limited to that provided by ground-wave propagation.

489 In Region 3, the Loran system operates either on 1850 kHz or 1950 kHz, the bands occupied being 1825–1875 kHz and 1925–1975 kHz respectively. Other services to which the band 1800–2000 kHz is allocated may use any frequency therein on condition that no harmful interference is caused to the Loran system operating on 1850 kHz or 1950 kHz.

497 In Region 2, except in Greenland, coast stations and ship stations using radiotelegraphy in the band 2065–2107 kHz shall be limited to class R3E or J3E emission and to a peak envelope power not exceeding 1 kW. Preferably, the following carrier frequencies should be used: 2065.0 kHz, 2079.0 kHz, 2082.5 kHz, 2086.0 kHz, 2093.0 kHz, 2096.5 kHz, 2100.0 kHz, 2103.5 kHz. In Argentina, Brazil and Uruguay, the carrier frequencies 2068.5 kHz and 2075.5 kHz are also used for this purpose, while the frequencies within the band 2072–2075.5 kHz are used as provided in No. 4323 BD.

500A The frequencies 2187.5 kHz, 4188 kHz, 6282 kHz, 8375 kHz, 12563 kHz and 16750 kHz are international distress frequencies for digital selective calling. The conditions for the use of these frequencies are prescribed in Article 38.

Note: Effective July 1, 1991, the footnote 500A will read as follows: The frequencies 2187.5 kHz, 4207.5 kHz, 6312 kHz, 8414.5 kHz, 12577 kHz, and 16804.5 kHz are international distress frequencies for digital selective calling. The conditions for the use of these frequencies are prescribed in Article N 38.

500B The frequencies 2174.5 kHz, 4177.5 kHz, 6268 kHz, 8357.5 kHz, 12520 kHz and 16675 kHz are international distress frequencies for narrowband direct-printing telegraphy. The conditions for the use of these frequencies are prescribed in Article 38.

Note: Effective July 1, 1991, the footnote 500B will read as follows: The frequencies 2174.5 kHz, 4177.5 kHz, 6268 kHz, 8376.5 kHz, 12520 kHz, and 16695 kHz are international distress frequencies for narrow-band direct-printing telegraphy. The conditions for the use of these frequencies are prescribed in Article N 38.

554 *Additional allocation:* in Albania, the Federal Republic of Germany, Austria, Belgium, Bulgaria, Cote d'Ivoire, Denmark, Spain, Finland, France, Gabon, Greece, Ireland, Israel, Italy, Jordan, Lebanon, Lybia, Liechtenstein, Luxembourg, Madagascar, Mali, Malta, Morocco, Mauritania, Monaco, Nigeria, Norway, the Netherlands, Poland, the German Democratic Republic, the United Kingdom, Senegal, Sweden, Switzerland, Swaziland, Syria, Togo, Tunisia, Turkey and Yugoslavia, the band 47–68 MHz and in Romania, the band 47–58 MHz, are also allocated to the land mobile service on a permitted basis. However, stations of the land mobile service in the countries mentioned in connection with each band referred to in this footnote shall not cause harmful interference to, or claim protection from, existing or planned broadcasting stations of countries other than those mentioned in connection with the band.

572A *Additional allocation:* in Afghanistan, the Federal Republic of Germany, Austria, Belgium, Cyprus, Denmark, Egypt, Spain, France, Greece, Israel, Italy, Japan, Jordan, Lebanon, Malta, Morocco, Monaco, Norway, the Netherlands, Portugal, the United Kingdom, Sweden, Switzerland, Syria and Turkey, the band 74.8–75.2 MHz is also allocated to the mobile service on a secondary basis subject to agreement obtained under the procedure set forth in Article 14. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of Article 14.

587 *Additional allocation:* in Austria, Bulgaria, Hungary, Israel, Kenya, Mongolia, Poland, Syria, the German Democratic Republic, the United Kingdom, Somalia, Czechoslovakia, Turkey and the USSR, the band 104–108 MHz is also allocated to the mobile, except aeronautical mobile (R), service on a permitted basis until 31 December 1995 and, thereafter, on a secondary basis.

589 *Additional allocation:* in France, Romania, Sweden and Yugoslavia, the band 104–108 MHz is also allocated to the mobile, except aeronautical mobile (R), service on a permitted basis until 31 December 1995.

590A *Additional allocation:* in Afghanistan, the Federal Republic of German, Austria, Cyprus, Denmark, Egypt, Spain, France, Israel, Italy, Japan, Jordan, Lebanon, Malta, Morocco, Monaco, Norway, Pakistan, Portugal, the United Kingdom, Sweden, Switzerland, Syria and Turkey, the band 108–111.975 MHz is also allocated to the mobile service on a secondary basis subject to agreement obtained under the procedure set forth in Article 14. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administrations which may be identified in the application of Article 14.

593 In the band 117.975–136 MHz, the frequency 121.5 MHz is the aeronautical emergency frequency and, where required, the frequency 123.1 MHz is the aeronautical frequency auxiliary to 121.5 MHz. Mobile stations of the maritime mobile service may communicate on these frequencies under the conditions laid down in Articles 38 and N 38 for distress and safety purposes with stations of the aeronautical mobile service.

594A *Different category of service:* as from 1 January 1990, in Bulgaria, Poland, German Democratic Republic, Romania, Czechoslovakia, Turkey and the USSR, the allocation of the band 136–137 MHz to the aeronautical mobile (OR) service is on a permitted basis.

595 Until 1 January 1990, the band 136–137 MHz is also allocated to the space operation service (space-to-Earth), meterological-satellite service (space-to-Earth) and the space research service (space-to-Earth) on a primary basis. The introduction of stations of the aeronautical mobile (R) service shall only occur after that date. After 1 January 1990, the band 136–137 MHz will also be allocated to the above-mentioned space radiocommunication services on a secondary basis (see Resolution 408 (Mob-87).

609A Recognizing that the use of the band 149.9–150.05 MHz by the fixed and mobile services may cause harmful interference to the radionavigation-satellite service, administrations are urged not to authorize such use in application No. 342.

613 The frequency 156.8 MHz is the international distress, safety and calling frequency for the maritime mobile VHF radiotelephone service. The conditions for the use of this frequency are contained in Articles 38 and N 38.

In the bands 156–156.7625 MHz, 156.8375–157.45 MHz, 160.6–160.975 MHz and 161.475–162.05 MHz, each administration shall give priority to the maritime mobile service on only such frequencies as are assigned to stations of the maritime mobile service by the administration (see Articles 38, N 38 and 60).

Any use of frequencies in these bands by station of other services to which they are allocated should be avoided in areas where such use might cause harmful interference to the maritime mobile VHF radiocommunication service.

However, the frequency 156.8 MHz and the frequency bands in which priority is given to the maritime mobile service may be used for radiocommunications on inland waterways subject to agreement between interested and affected administrations and taking into account current frequency usage and existing agreements.

613A In the maritime mobile VHF service the frequency 156.525 MHz is to be used exclusively for digital selective calling for distress, safety and calling (see Resolution 323 (Mob–87)). The conditions for the use of this frequency are prescribed in Articles 38, N 38 and 60 and in Appendix 18.

613B *Additional allocation*: in Ireland and in the United Kingdom, the band 161.3875–161.4125 MHz is also allocated to the maritime radionavigation service on a primary basis, subject to agreement obtained under the procedure set forth in Article 14.

621 *Additional allocation*: in the Federal Republic of Germany, Austria, Belgium, Denmark, Spain, Finland, France, Israel, Italy, Liechtenstein, Monaco, Norway, the Netherlands, the United Kingdom, Sweden, Switzerland and Yemen (P.D.R. of), the band 174–223 MHz is also allocated to the land mobile service on a permitted basis. However, the stations of the land mobile service shall not cause harmful interference to, nor claim protection from, broadcasting stations, existing or planned, in countries other than those listed in this footnote.

627A *Additional allocation*: in Canada, the band 216–220 MHz is also allocated to the land mobile service on a primary basis.

642 The frequency 243 MHz is the frequency in this band for use by survival craft stations and equipment used for survival purposes (see Article 38).

645A *Additional allocation*: In Afghanistan, the Federal Republic of Germany, Austria, Belgium, Cyprus, Denmark, Egypt, Spain, France, Greece, Israel, Italy, Japan, Jordan, Malta, Morocco, Monaco, Norway, the Netherlands, Portugal, the United Kingdom, Sweden, Switzerland, Syria and Turkey, the band 328.6–335.4 MHz is also allocated to the mobile service on a

secondary basis subject to agreement obtained under the procedure set forth in Article 14. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of Article 14.

645B Recognizing that the use of the band 399.9–400.05 MHz by the fixed and mobile service may cause harmful interference to the radionavigation satellite service, administrations are urged not to authorize such use in application of No. 342.

649 The use of the band 406–406.1 MHz by the mobile-satellite service is limited to low power satellite emergency position-indicating radiobeacons (see also Articles 38 and N 38).

649A Any emission capable of causing harmful interference to the authorized uses of the band 406–406.1 MHz is prohibited.

660A *Additional allocation*: in Mexico, the bands 430–435 MHz and 438–440 MHz are also allocated on a primary basis to the land mobile service, subject to agreement obtained under the procedure set forth in Article 14.

674 *Different category of service*: in Mexico and Venezuela, the allocation of the band 470–512 MHz to the fixed and mobile service, and in Argentina and Uruguay to the mobile service, is on a primary basis (see No. 425), subject to agreement obtained under the procedure set forth in Article 14.

677A *Additional allocation*: in the Federal Republic of Germany, Austria, Belgium, Cyprus, Denmark, Spain, Finland, France, Ireland, Israel, Italy, Libya, Malta, Morocco, Monaco, Norway, the Netherlands, Portugal, the United Kingdom, Sweden, Switzerland, Swaziland, Syria, Tunisia and Turkey, the band 470–790 MHz is also allocated on a secondary basis to the land mobile service, intended for applications ancillary to broadcasting. Stations of the land mobile service in the countries mentioned in this footnote, shall not cause harmful interference to existing or planned stations operating in accordance with the Table of Frequency Allocations in countries other than those listed in this footnote.

686A *Additional allocation*: in the United Kingdom, the band 598–606 MHz is also allocated to the aeronautical radionavigation service on a primary basis until 31 December 1994. All new assignments to stations in the aeronautical radionavigation service in this band are subject to the agreement of the Administrations of the following countries: the Federal Republic of Germany, Belgium, Denmark, Spain, France, Ireland, Luxembourg, Morocco, Norway and the Netherlands.

692A *Additional allocation*: in Cuba, the band 614–890 MHz is also allocated to the radionavigation service on a primary basis, subject to agreement obtained under the procedure set forth in Article 14.

695A *Additional allocation*: in Austria, Italy, the United Kingdom and Swaziland, the band 790–862 MHz is also allocated to the land mobile service on a secondary basis.

697 *Additional allocation:* In the Federal Republic of Germany, Denmark, Egypt, Finland, Israel, Kenya, Libya, Liechtenstein, Monaco, Norway, the Netherlands, Sweden, Switzerland and Yugoslavia, the band 790–830 MHz, and in these same countries and in Spain, France, Malta and Syria, the band 830–862 MHz, are also allocated to the mobile, except aeronautical mobile, service in the countries mentioned in connection with each band referred to in this footnote shall not cause harmful interference, or claim protection from, stations or services operating in accordance with the Table in countries other than those mentioned in connection with the band.

700 *Additional allocation:* in Region 2, the band 806–890 MHz is also allocated to the mobile-satellite service on a primary basis. The use of this service is intended for operation within national boundaries and subject to agreement obtained under the procedure set forth in Article 14.

701 *Additional allocation:* in Region 3, the bands 806–890 MHz and 942–960 MHz are also allocated to the mobile-satellite, except aeronautical mobile-satellite (R), service on a primary basis. The use of this service is limited to operation within national boundaries and subject to agreement obtained under the procedure set forth in Article 14. In seeking such agreement, appropriate protection shall be afforded to services operating in accordance with the Table, to ensure that no harmful interference is caused to such services.

704A *Additional allocation:* in Brazil, Canada and the United States of America, the band 890–896 MHz is also allocated to the mobile-satellite service on a primary basis. The use of this service is intended for operation within national boundaries and subject to agreement obtained under the procedure set forth in Article 14. In seeking such agreement, appropriate protection shall be afforded to services operating in accordance with the Table.

707A *Different category of service:* in Chile, the band 903–905 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis and is subject to agreement obtained under the procedure set forth in Article 14.

712A *Additional allocation:* in Cuba, the band 1215–1300 MHz is also allocated to the radionavigation service on a primary basis subject to the agreement obtained under the procedure set forth in Article 14.

723A *Different category of service:* in Cuba, the band 1525–1530 MHz is allocated to the aeronautical mobile service on a primary basis, under the conditions specified in No. 723.

726A The bands 1530–1544 MHz, 1545–1559 MHz, 1626.5–1645.5 MHz and 1646.5–1660.5 MHz shall not be used for feeder links of any service. In exceptional circumstances, however, an earth station at a specified fixed point in any of the mobile-satellite services may be authorized by an administration to communicate via space stations using these bands.

726B The use of the bands 1533–1544, 1626.5–1631.5 and 1634.5–1645.5 MHz by the land mobile-satellite service is limited to non-speech low bit-rate data transmissions.

727A The use of the band 1544–1545 MHz by the mobile-satellite service (space-to-earth) is limited to distress and safety communications (see Article N 38).

729 Transmissions in the band 1545–1555 MHz from terrestrial aeronautical stations directly to aircraft stations, or between aircraft stations, in the aeronautical mobile (R) service are also authorized when such transmissions are used to extend or supplement the satellite-to-aircraft links.

729A Notwithstanding any other provisions of the Radio Regulations relating to restrictions in the use of the bands allocated to the aeronautical mobile-satellite (R) service for public correspondence, the bands 1545–1555 MHz and 1646.5–1656.5 MHz may be authorized by administrations for public correspondence with aircraft earth stations. Such communications must cease immediately, if necessary, to permit transmission of messages with priority 1 to 6 in Article 51.

730A In the bands 1555–1559 and 1656.5–1660.5 MHz administrations may also authorize aircraft earth stations and ship earth stations to communicate with space stations in the land mobile-satellite service (see Resolution 208 (Mob–87)).

731 *Alternative allocation:* in Sweden, the band 1590–1626.5 MHz is allocated to the aeronautical radionavigation service on a primary basis.

731A In Region 1, stations of the aeronautical mobile service using the bands 1593–1594 MHz and 1625.5–1626.5 MHz shall not claim protection from, or cause harmful interference to, stations of the aeronautical radionavigation and radionavigation services, as applicable.

731B *Additional allocation:* the bands 1593–1594 MHz and 1625.5–1626.5 MHz are also allocated to the aeronautical mobile service in Region 1 (except in Syria and Tunisia) on a primary basis, and in Regions 2 and 3 (and in Syria and Tunisia) on a secondary basis. The use of these bands in the aeronautical mobile service is limited to public correspondence with aircraft (see Recommendation 408 (Mob–87)). The use of the band 1593–1594 MHz is limited to transmissions from aeronautical stations and the use of the band 1625.5–1626.5 MHz is limited to transmissions from aircraft stations.

731C *Different category of service:* the bands listed in No. 731B are allocated, subject to agreement obtained in accordance with the procedures set forth in Article 14, to the aeronautical mobile service on a primary basis in Greenland, the French Overseas Territories in Regions 2 and 3, Bermuda, British Virgin Islands, Cayman Islands, Montserrat and Pitcairn Island (see Recommendation 408 (Mob-87)).

731D In Region 1, stations of the aeronautical mobile service using the bands 1593–1594 MHz and 1625.5–1626.5 MHz shall not cause harmful interference to stations of the fixed service operating in the countries listed in No. 730.

733A In respect of the radiodetermination-satellite service the provisions of No. 953 do not apply in the frequency band 1610–1626.5 MHz.

733B *Different category of service:* in Angola, Australia, Burundi, Cote d'Ivoire, Ethiopia, India, Islamic Republic of Iran, Israel, Italy, Jordan, Kenya, Lebanon, Liberia,

Libya, Madagascar, Mali, Pakistan, Papua New Guinea, Senegal, Sudan, Swaziland, Syria, Tanzania, Thailand, Togo, Zaire and Zambia the allocation of the band 1610–1626.5 MHz to the radiodetermination-satellite service (Earth-to-space) is on a primary basis (see No. 425) subject to agreement obtained under the procedure set forth in Article 14 with other countries not listed in this provision.

733C *Different category of service:* in Venezuela, the allocation to the radiodetermination-satellite service in the band 1610–1626.5 MHz is allocated exclusively to the aeronautical radionavigation service on a secondary basis.

733D *Alternative allocation:* in Cuba, the band 1610-1626.5 MHz is allocated exclusively to the aeronautical radionavigation service on a primary basis.

733E In Regions 1 through 3 harmful interference shall not be caused to stations of the radioastronomy service using the band 1610.6–1613.8 MHz by stations of the radiodetermination-satellite service.

733F In Region 1, the bands 1610–1626.5 MHz (Earth-to-space) and 2483.5–2500 MHz (space-to-Earth) are also allocated to the radiodetermination-satellite service on a secondary basis.

734A Land earth stations and ship earth stations in the mobile-satellite services operating in the bands 1631.5–1634.5 and 1656.5–1660 MHz shall not cause harmful interference to the stations in the fixed service operating in the countries listed in No. 730.

734B The use of the band 1645.5–1646.5 MHz by the mobile satellite service (Earth-to-space) and for inter-satellite links is limited to distress and safety communications (see Article N 38).

735 Transmissions in the band 1646.5–1656.5 MHz from aircraft stations in the aeronautical mobile (R) service directly to terrestrial aeronautical stations, or between aircraft stations, are also authorized when such transmissions are used to extend or supplement the aircraft-to-satellite links.

743A *Different category of service:* in the Federal Republic of Germany, Austria, Denmark, Finland, Israel, Norway, the Netherlands, the United Kingdom, Switzerland and Syria, in the band 1700–2450 MHz, in Sweden in the bands 1700–1710 MHz and 2290–2450 MHz and in Yugoslavia in the band 2300–2450 MHz, the allocation to the land mobile service is on a primary basis (see No. 425), subject to agreement obtained under the procedure set forth in Article 14.

753 *Alternative allocation:* in France, the bands 2450–2483.5 MHz and 2500–2550 MHz are allocated on a primary basis to the radiolocation service and on a secondary basis to the fixed and mobile services (see Nos. 424 and 425). Such use is subject to agreement with the administrations having services operating or planned to operate in accordance with the Table which may be affected.

753A In respect of the radiodetermination-satellite service in the band 2483.5–2500 MHz, the provisions of No. 953 do not apply.

753B In Region 1, in countries other than those listed in No. 753C, harmful interference shall not be caused to, or protection shall not be claimed from, stations of the radiolocation service by stations of the radiodetermination-satellite service.

753C *Different category of service:* in Angola, Australia, Burundi, Cote d'Ivoire, Ethiopia, India, Islamic Republic of Iran, Israel, Italy, Jordan, Kenya, Lebanon, Liberia, Libya, Madagascar, Mali, Pakistan, Papua New Guinea, Senegal, Sudan, Swaziland, Syria, Tanzania, Thailand, Togo, Zaire and Zambia, the allocation of the band 2483.5–2500 MHz to the radiodetermination-satellite service (space-to-Earth) is on a primary basis (see No. 425) subject to agreement obtained under the procedure of Article 14 with other countries not listed in this provision.

753D *Alternative allocation:* in Cuba, the band 2483.5–2500 MHz is allocated only to fixed, mobile and radiolocation services on a primary basis.

753E *Alternative allocation:* in France, the band 2483.5–2500 MHz is allocated on a primary basis to the radiolocation service and on a secondary basis to the mobile service (see Nos. 424 and 425). Such use is subject to agreement with the administrations having services operating or planned to operate in accordance with the Table which may be affected.

754A *Additional allocation*: subject to agreement obtained under the procedure set forth in Article 14, the band 2500–2516.5 MHz may also be used in India, the Islamic Republic of Iran, Papua New Guinea and Thailand for the radiodetermination-satellite service (space-to-Earth) for operation limited to within national boundaries.

772 In the band 2900–3100 MHz, the use of the shipborne interrogator-transponder system (SIT) shall be confined to the sub-band 2930–2950 MHz.

775A In the bands 2900–3100 MHz and 9300–9500 MHz, the response from radar transponders shall not be capable of being confused with the response from radar beacons (racons) and shall not cause interference for ship or aeronautical radars in the radionavigation service, having regard, however, to No. 347 of these Regulations.

797A *Additional allocation*: in the countries listed in Nos. 733B and 753C, and subject to agreement obtained under the procedure set forth in Article 14, and band 5150–5216 MHz is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis. In Region 2, the band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis. In regions 1 and 3, except those countries listed in Nos. 733B and 753C, the band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a secondary basis. The use by the radiodetermination-satellite service is limited to feeder links in conjunction with the radiodetermination-satellite service operating in the bands 1610–1626.5 MHz and/or 2483.5–2500 MHz. The total power flux-density at the Earth's surface shall in no case exceed −159 dBW/m² in any 4 kHz band for all angles of arrival.

797B *Additional allocation*: in the Federal Republic of Germany, Austria, Denmark, Spain, France, Finland, Israel, Italy, Jordan, Morocco, Norway, the Netherlands, Pakistan, the United Kingdom, Sweden, Switzerland, Syria and Tunisia, the band 5150–5250 MHz is also allocated to the mobile service, on a primary basis, subject to the agreement obtained under the procedure set forth in Article 14.

824A In the band 9200–9500 MHz, search and rescue transponders (SART) may be used, having due regard to the appropriate CCIR Recommendation (see also Article N 38).

825A In the band 9300–9320 MHz in the radionavigation service, the use of shipborne radars, other than those existing on 1 January 1976, is not permitted until 1 January 2001.

United States (US) Footnotes

US14 When 500 kHz is being used for distress purposes, ship and coast stations using morse telegraph may use 512 kHz for calling.

US82 Until July 1, 1991, the assignable frequencies in the bands 4143.6–4146.6 kHz, 6218.6–6224.6 kHz, 8291.1–8297.3 kHz, 12429.2–12439.5 kHz, 16587.1–16596.4 kHz and 22124–22139.5 kHz may be authorized on a shared nonpriority basis to Government and non-Government ship and coast stations (SSB telephony, with peak envelope power not to exceed 1 kW). Effective July 1, 1991, the assignable frequencies in the bands 4146–4152 kHz, 6224–6233 kHz, 8294–8300 kHz, 12353–12368 kHz, 16528–16549 kHz, 18825–18846 kHz, 22159–22180 kHz, and 25100–25121 kHz may be authorized on a shared non-priority basis to Government and non-Government ship and coast stations (SSB telephony, with peak envelope power not to exceed 1 kW).

US235 Until implementation procedures and schedules are determined by future conferences of the International Telecommunications Union, the bands 9775–9900 kHz, 11650–11700 kHz, 11975–12050 kHz, 13600–13800 kHz, 15450–15600 kHz, 17550–17700 kHz, and 21750–21850 kHz to be implemented by the broadcasting service are allocated as an alternative allocation to the fixed service. The bands 12230–12330 kHz, 16360–16460 kHz, 17360–17410 kHz, 18780–18900 kHz, 19680–19800 kHz, 22720–22855 kHz, 25110–25210 kHz, and 26100–26175 kHz to be implemented by the maritime mobile service are also allocated as an alternative allocation to the fixed service until July 1, 1991, when these bands are to be allocated exclusively to the maritime mobile service.

US236 Until implementation procedures and schedules are determined by future conferences of the International Telecommunications Union (See Resolution 319), the bands 4000–4063 and 8100–8195 kHz are also allocated on a primary basis to the fixed service.

US284 Until July 1, 1991, the carrier frequencies 6451.9 and 6455.0 kHz may be authorized to non-Government ship telephone and coast telephone stations operating in the Mississippi River maritime mobile service system on the condition that harmful interference will not be caused to services operating in accordance with the Table of Frequency Allocations and that any interference from such services must be accepted.

US285 Under exceptional circumstances, the carrier frequency 2635, 2638, and 2738 kHz may be authorized to coast stations.

US296 Until July 1, 1991, in the bands designated for ship wide-band telegraphy, facsimile and special transmission systems, the following assignable frequencies are available to non-Government stations on a shared basis with Government stations: 2070.5, 2072.5, 2074.5, 2076.5, 4160.6, 4168, 6238.6, 6242.6, 8326, 8341.5, 12485, 12489, 16654, 16658, 22186 and 22190 kHz. Effective July 1, 1991, in the bands designated for ship wide-band telegraphy, facsimile and special transmission systems, the following assignable frequencies are available to non-Government stations on a shared basis with Government stations: 2070.5, 2072.5, 2074.5, 2076.5, 4154, 4170, 6235, 6259, 8302, 8338, 12370, 12418, 16551, 16615, 18848, 18868, 22182, 22238, 25123, and 25159 kHz.

US307 The sub-band 5150–5216 MHz is also allocated for space-to-Earth transmissions in the fixed satellite service for feeder links in conjunction with the radiodetermination satellite service operating in the bands 1610–1626.5 MHz and 2483.5–2500 MHz. The total power flux density at the earth's surface shall in no case exceed −159 dBW/m per 4 kHz for all angles of arrival.

US309 Transmissions in the bands 1545–1559 MHz from terrestrial aeronautical stations directly to aircraft stations, or between aircraft stations, in the aeronautical mobile (R) service are also authorized when such transmissions are used to extend or supplement the satellite-to-aircraft links. Transmissions in the band 1646.5–1660.5 MHz from aircraft stations in the aeronautical mobile (R) service directly to terrestrial aeronautical stations, or between aircraft stations, are also authorized when such transmissions are used to extend or supplement the aircraft-to-satellite links.

PART 25—[AMENDED]

5. The authority citation for part 25 continues to read as follows:

Authority: Secs. 25.101 to 25.531 issued under Sec. 4, 48 Stat. 1066, as amended; 47 U.S.C. 54. Interpret or apply Secs. 101–104, 76 Stat 419–427; 47 U.S.C. 701–744.

6. Section 25.201 is amended by revising the definition for *Radiodetermination-Satellite Service* and adding the others in the correct alphabetical position, to read as follows:

§ 25.201 Definitions.

* * * * *

Base Earth Station. An earth station in the fixed-satellite service or, in some cases, in the land mobile-satellite service, located at a specified fixed point or within a specified area on land to provide a feeder link for the land mobile-satellite service. (RR)

* * * * *

Land Earth Station. An earth station in the fixed-satellite service or, in some cases, in the mobile-satellite service, located at a specified fixed point or within a specified area on land to provide a feeder link for the mobile-satellite service. (RR)

Land Mobile Earth Station. A mobile earth station in the land mobile-satellite service capable of surface movement within the geographical limits of a country or continent. (RR)

* * * * *

Radiodetermination-Satellite Service. A radiocommunication service for the purpose of radiodetermination involving the use of one of more space stations. This service may also include feeder links necessary for its own operation. (RR)

* * * * *

7. In § 25.202, paragraph (a)(2) is revised to read as follows:

§ 25.202. Frequencies, frequency tolerance and emission limitations.

(a)(1)* * *

(2) The following frequencies are available for use by the Radiodetermination Satellite Service:
1610–1626.5 MHz: User-to-Satellite Link
2483.5–2500 MHz: Satellite-to-User Link
Fixed-Satellite service frequencies may be used for links between radiodetermination satellites and control centers, including the following designated bands, subject to the Rules in this subpart:
5150–5216 MHz: Satellite-to-Control Center Link
6525–6541.5 MHz: Control Center-to-Satellite Link

* * * * *

PART 80—STATIONS IN THE MARITIME SERVICES

8. The authority citation for part 80 continues to read as follows:

Authority: Secs. 4, 303, 48 Stat. 1066, 1082, as amended; 47 U.S.C. 154, 303, unless otherwise noted. Interpret or apply 48 Stat. 1064–1068, 1081–1105, as amended; 47 U.S.C. 151–155, 301–609; 3 UST 3450, 3 UST 4726, 12 UST 2377.

9. The table of contents for part 80, Subpart X is amended by revising the center heading entitled "SATELLITE STATIONS" and the section heading of § 80.1185 to read as follows:

Subpart X—Voluntary Radio Installations

* * * * *

Mobile-Satellite Stations

80.115 Supplemental eligibility for mobile-satellite stations.

* * * * *

10. Section 80.142 is amended by revising paragraph (b) to read as follows:

§ 80.142 Ships using radiotelegraphy.

* * * * *

(b) *NB-DP operating procedure.* The operation of NB-DP equipment in the maritime mobile service must be in accordance with the operating procedures contained in the latest version of CCIR Recommendation 492 that does not prevent the use of existing equipment.

* * * * *

11. In § 80.207, the table following paragraph (d) is amended by revising the entries for "radiotelegraphy" under "ship stations" and "land stations" to read as follows:

§ 80.207 Classes of emission.

* * * * *

(d) The authorized classes of emission are as follows:

Types of stations	Classes of emission
Ship Stations [1]	
Radiotelegraphy:	
100–160 kHz	A1A
405–525 kHz	A1A, J2A
1605–27500 kHz:	
Manual	A1A, J2A
DSC	F1B, J2B
NB-DP	F1B, J2B
Facsimile	F1C, F3C, J2C, J3C
156–220 MHz [2]	F1B, F2B, F2C, F3C
DSC	G2B
216–220 MHz [3]	F1B, F2B, F2C, F3C
1626.5–1646.5 MHz	(4)
* * * * *	
Land Stations [1]	
Radiotelegraphy:	
100–160 kHz	A1A
405–525 kHz	A1A, J2A
1605–2850 kHz:	
Manual	A1A, J2A
Facsimile	F1C, F3C, J2C, J3C
Alaska—Fixed	A1A, J2A
4000–27500 kHz:	
Manual	A1A, J2A
DSC	F1B, J2B
NB-DP	F1B, J2B
Facsimile	F1C, F3C, J2C, J3C
Alaska—Fixed	A1A, A2A, F1B, F2B
72–76 MHz	A1A, A2A, F1B, F2B
156–162 MHz [2]	F1B, F2B, F2C, F3C
DSC	G2B
216–220 MHz [3]	F1B, F2B, F2C, F3C
* * * * *	

[1] Excludes distress, EPIRB's, and survival craft.
[2] Frequencies used in the automated multi-station system. See § 80.385(b).
[3] Frequencies used in the Automated Maritime Telecommunications System (AMTS). See § 80.385(b).

12. Section 80.209 is amended by revising the table paragraphs (a)(1) (i) and (ii), (a)(2) (i) and (ii), (a)(3) (i) and (ii) and the subsequent table footnotes to read as follows:

§ 80.209 Transmitter frequency tolerances.

(a) * * *

Frequency bands and categories of stations	Tolerances applicable until Jan. 1, 1990, for transmitters installed before Jan. 2, 1987	Tolerances applicable [1] to new transmitters installed after Jan. 1, 1987, and to all transmitters after Jan. 1, 1990
(1) Band 100–525 kHz:		
(i) Coast stations:		
For single sideband emissions	20 Hz	20 Hz
For narrow-band direct-printing and data emissions	10 Hz [5]	10 Hz [5]
For digital selective calling emissions	10 Hz [2]	10 Hz [2]
For all other emissions	200	100
(ii) Ship stations:		
For transmitters with single sideband emission type accepted or type approved before Nov. 30, 1977.	50 Hz	
For transmitters with other emissions type accepted or type approved before Nov. 30, 1977..	1000	
For narrow-band direct-printing and data emissions	10 Hz [5]	10 Hz [5]
For transmitters with digital selective calling emissions	20 Hz [3]	10 Hz [3]
For all transmitters type accepted or type approved after Nov. 29, 1977	20 Hz	20 Hz
* * * * * * *		
(2) Band 1600–4000 kHz:		
(i) Coast stations and Alaska fixed stations:		
For single sideband and facsimile emissions	20 Hz	20 Hz
For narrow-band direct-printing and data emissions	10 Hz [5]	10 Hz [5]
For digital selective calling emissions	15 Hz [2]	10 Hz [2]
For all other emissions	50	50
(ii) Ship stations:		
For transmitters with single sideband and facsimile emission type accepted or type approved before Nov. 30, 1977.	50 Hz	
For transmitters with other emissions type accepted or type approved before Nov. 30, 1977..	200	
For narrow-band direct-printing and data emissions	10 Hz [5]	10 Hz [5]
For transmitters with digital selective calling emissions	20 Hz [3]	10 Hz [3]
For all transmitters type accepted or type approved after Nov. 29, 1977	20 Hz	20 Hz
* * * * * * *		
(3) Band 4000–27500 kHz:		
(i) Coast stations and Alaska fixed stations:		
For single sideband and facsimile emissions	20 Hz	20 Hz
For narrow-band direct-printing and data emissions	10 Hz [5]	10 Hz [5]
For digital selective calling emissions	15 Hz [2]	10 Hz [2]
For Morse telegraphy emissions	15	10
For all other emissions	15	15
(ii) Ship stations:		
For transmitters with Morse telegraphy emission type accepted or type approved before Nov. 30, 1977.	200 Hz	
For transmitters with other emissions type accepted or type approved before Nov. 30, 1977..	50 Hz	
For narrow-band direct-printing and data emissions	10 Hz [5]	10 Hz [5]
For transmitters with digital selective calling emissions	20 Hz [3]	10 Hz [3]
For all other transmitters type accepted or type approved after Nov. 29, 1977	20 Hz	20 Hz
* * * * * * *		

[1] Transmitters authorized prior to January 2, 1990, with frequency tolerances equal to or better than those required after this date will continue to be authorized in the maritime services provided they retain type acceptance and comply with the applicable standards in this part.

[2] Until January 1, 1990, the frequency tolerance for DSC coasts station transmitters in the MF and HF bands is 15 Hz. Thereafter, the frequency tolerance for DSC coast station transmitters in the MF and HF bands is 10 Hz.

[3] Until February 2, 1999, the frequency tolerance for DSC ship station transmitters in the MF and HF bands that were installed before January 2, 1992, is 20 Hz. The frequency tolerance for DSC ship station transmitters in the MF and HF bands installed after January 1, 1992, is 10 Hz. On February 2, 1999, the frequency tolerance for all DSC ship station transmitters in the MF and HF bands (regardless of installation date) is 10 Hz.

[4] For transmitters in the radiolocation and associated telecommand service operating on 154.585 MHz, 159.480 MHz, 160.725 MHz, and 160.785 MHz the frequency tolerance is 15 parts in 10^6.

[5] The frequency tolerance for narrow-band direct-printing and data transmitters installed before January 2, 1992, is 15 Hz for coast stations and 20 Hz for ship stations. The frequency tolerance for new narrow-band direct-printing and data transmitters installed after January 1, 1992, is 10 Hz.

* * * * *

13. § 80.211, paragraph (a)(1) is revised to read as follows:

§ 80.211 Emission limitations.

* * * * *

(a) * * *

(1) On any frequency removed from the assigned frequency by more than 50 percent up to and including 150 percent of the authorized bandwidth:

at least 25 dB for transmitters installed before February 1, 1992,

at least 28 dB for transmitters installed on or after February 1, 1992;

* * * * *

14. Section 80.215 is amended by adding a new paragraph (d)(3) to read as follows:

§ 80.215 Transmitter power.

* * * * *

(d) * * *

(3) Digital selective calling:

All ships 415–526.5 kHz—400 W
All ships 1605–4000 kHz—400 W
All ships 4000–27500 kHz—1.5 kW

* * * * *

15. Section 80.219 is revised in its entirety to read as follows:

§ 80.219 Special requirements for narrow-band direct-printing (NB-DP) equipment.

NB–DP and data transmission equipment installed in ship and coast stations before October 1, 1990, that operate on frequencies in the 4000–27500 kHz bands must conform to the technical requirements of CCIR Recommendations 476 or 625. Equipment installed on or after October 1, 1990, must conform to the technical requirements of CCIR Recommendation 625. Equipment installed before October 1, 1990, and built in accordance with CCIR Recommendation 476, however, may continue to be used.

16. In § 80.359, paragraph (a) is revised in its entirety to read as follows:

§ 80.359 Frequencies for digital selective calling (DSC).

(a) *General purpose calling.* The following tables describe the DSC frequencies that are assignable to ship and coast stations for general purpose calling.

SHIP TRANSMIT

[In kHz unless otherwise noted]

458.5	8375.5	16751.0
2177.0 [1]	12562.0	22248.0
2189.5	12562.5	22248.5
4187.5	16750.5	156.525 MHz
6281.5		

[1] The frequency 2177.0 kHz is available to ship stations for internship calling and acknowledgement of such calls only.

COAST TRANSMIT

[In kHz unless otherwise noted]

455.5	8718.5	17232.5
2177.0	13100.0	22595.0
4357.0	13100.5	22595.5
6507.0	17232.0	156.525 MHz

* * * * *

17. Section 80.369 is amended by revising paragraph (a) to read as follows:

§ 80.369 Distress, urgency, safety, call and reply frequencies.

* * * * *

(a) In the 1605–3500 kHz band, the frequency 2182 is an international radiotelephony distress, urgency and safety frequency for ship stations, public and private coast stations, and survival craft stations. It is also used for call and reply by ship stations on a primary basis and by public coast stations on a secondary basis. The carrier frequency 2191 kHz may be used as a supplementary calling frequency in areas of heavy usage of 2182 kHz. All stations must use J3E emission when operating on 2182 and 2191 kHz, except that:

(1) H3E emission may be used on 2182 kHz for communications with foreign coast and ship stations; or,

(2) A3E emission may be used on 2182 kHz by portable survival craft stations, or transmitters authorized for use prior to January 1, 1972. See § 80.203(c).

* * * * *

18. The heading for § 80.1185 and the center heading entitled "SATELLITE STATIONS" is revised to read as follows:

Mobile-Satellite Stations

§ 80.1185 Supplemental eligibility for mobile-satellite stations.

19. The authority citation for part 87 continues to read as follows:

Authority: 48 Stat. 1066, 1082, as amended; 47 U.S.C. 154, 303, unless otherwise noted. Interpret or apply 48 Stat. 1064–1068, 1081–1105, as amended; 47 U.S.C. 151–156, 301–609.

20. Section 87.5 is amended by adding the following definitions in the correct alphabetical position to read as follows:

§ 87.5 Definitions

* * * * *

Aeronautical Mobile Off-Route (OR) Service. An aeronautical mobile service intended for communications, including those relating to flight coordination, primarily outside national or international civil air routes.(RR)

Aeronautical Mobile Route (R) Service. An aeronautical mobile service reserved for communications relating to safety and regularity of flight, primarily along national or international civil air routes.(RR)

Aeronautical Mobile-Satellite Off-Route (OR) Service. An aeronautical mobile-satellite service intended for communications, including those relating to flight coordination, primarily outside national and international civil air routes.(RR)

Aeronautical Mobile-Satellite Route (R) Service. An aeronautical mobile-satellite service reserved for communications relating to safety and regularity of flights, primarily along national or international civil air routes.(RR)

* * * * *

21. In § 87.187, paragraphs (o) and (x) are revised to read as follows:

§ 87.187 Frequencies.

* * * * *

(o) The frequency band 1435–1535 MHz is available for telemetering and telecommand associated with the flight testing of aircraft, missiles, or related major components. This includes launching into space, reentry into the earth's atmosphere and incidental orbiting prior to reentry. The following frequencies are shared with flight telemetering mobile stations: 1444.5, 1453.5, 1501.5, 1515.5, 1524.5 and 1525.5 MHz. See 87.303(d)

* * * * *

(x) Frequencies for public correspondence between ships and public coast stations in the maritime mobile service (except frequencies in the 156–174 MHz band) and coast earth stations in the maritime mobile-satellite service are available for public correspondence between aircraft and public coast stations and coast earth stations, respectively. The transmission of public correspondence from aircraft must not cause interference to maritime communications.

* * * * *

[FR Doc. 89–27791 Filed 12–1–89; 8:45 am]

BILLING CODE 6712–01–M

47 CFR Part 32

[CC Docket 87–135; FCC 89–298]

Uniform System of Accounts

AGENCY: Federal Communications Commission.

ACTION: Final rule; Order on Reconsideration.

SUMMARY: In this order on reconsideration the Commission has provided telecommunications companies relief from the requirements in § 32.2000 (e) and (f) of the Uniform System of Accounts for Telecommunications Companies to maintain continuing property records for specified categories of previously capitalized tools and other work equipment costing less than $500. The Commission also established an eight-year amortization period for the underpreciated balances of the same equipment.

DATE: Relief from compliance with the provisions of 47 CFR 32.2000 (e) and (f) goes into effect May 21, 1990, but carriers will be permitted, if they wish, to adopt the requirements retroactive to January 1, 1989.

FOR FURTHER INFORMATION CONTACT: Hugh L. Boyle or John T. Curry, Accounting Systems Branch, Accounting and Audits Division, Common Carrier Bureau, (202) 634–1861.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's Order on Reconsideration, Revision to amend the Uniform System of Accounts, CC Docket 87–135, FCC 89–298, adopted October 24, 1989, and released November 21, 1989. The full text of this Order is available for inspection and copying during normal business hours in the FCC Dockets Branch (Room 230), 1919 M Street, NW, Washington, DC. The complete text may also be purchased from the Commission's copy contractor, International Transcription Services, Inc., (202) 857–3800, 2100 M Street, NW, Suite 140, Washington, DC 20037.

Summary of Order on Reconsideration

In a *Report and Order* released July 22, 1988 (Report and Order), 53 FR 30058, 8/10/88 the Commission amended part 32, Uniform System of Accounts for Class A and Class B Telephone Companies, by raising the expense limit

from $200 to $500 for certain items of equipment required to be capitalized under the existing rules. As a result, on a prospective basis, items in certain accounts costing $500 or less are to be expensed in the year of purchase rather than capitalized and depreciated over prescribed periods of time. The items to be accounted for in this manner include furniture and office equipment, other communications equipment, vehicles and other work equipment, and central office tools and test equipment.

The Bell Operating Companies and the United States Telephone Association separately requested partial reconsideration of the Report and Order. Asserting that the Commission's retention of requirements set out in the Report and Order to maintain continuing property records (CPR) for previously capitalized items costing between $200 and $500 reduced much of the benefit intended by the Report and Order and possibly increased administrative burdens, the petitioners requested permission for carriers to eliminate CPR requirements for the embedded balances. Further, the petitioners requested permission to amortize the undepreciated investment in previously capitalized items over the prescribed average remaining depreciable lives of the equipment.

In this Order on Reconsideration the Commission provides the additional relief by eliminating the need to maintain the CPR for the specified previously capitalized items. To accomplish this, the Commission adopts the petitioners' recommendation to segregate in the accounts the embedded balances for those asset types designated in the Report and Order costing between $200 and $500.

Such segregation is to be accomplished by establishing subsidiary records in the asset and accumulated depreciation (reserve) accounts and by recording in such subsidiary records the asset balances and the related accumulated depreciation for the embedded items that are the subject of this proceeding.

The Commission is also allowing for the amortization of the embedded balances. It expects that an eight-year amortization period should be sufficiently long to minimize the impact on rates in any jurisdiction. The order therefore requires carriers to amortize over eight years the net investment amount for the embedded balances in the subsidiary records. This shall be accomplished by monthly credits to the asset account subsidiary records and monthly debits to the accumulated depreciation subsidiary records. These monthly amounts shall be determined by dividing the subsidiary record balances by the number of months remaining in the amortization period. The difference between the debit and credit amounts so determined will be charged to Account 6565, Amortization Expense—Other. At the end of the eight-year amortization period, when the balances in the subsidiary records have been fully amortized, use of the subsidiary records shall be discontinued.

Ordering Clause

It is ordered, That under the authority contained in sections 4(i), 4(j), 220 and 405 of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 154(j), 220 and 405 the subject petitions for reconsideration *are granted to* the extent and subject to the conditions described herein.

List of Subjects 47 CFR Part 32

Uniform system of accounts for telecommunications companies.

Federal Communications Commission.

Donna R. Searcy,

Secretary.

[FR Doc. 89-27790 Filed 12-1-89; 8:45 am]

BILLING CODE 6712-01-M

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47 CFR Part 73

[MM Docket No. 88-450, RM-6403]

Radio Broadcasting Services; Moulton, AL

AGENCY: Federal Communications Commission.

ACTION: Final rule.

SUMMARY: This document allots Channel 276A to Moulton, Alabama, as that community's first local FM service, in response to comments filed by L. Lynn Henley. The petitioner, Moulton Broadcasting Company, Inc. ("MBC"), failed to file comments reiterating its intention to apply for the channel, if allotted. Therefore, the proposal by MBC has been dismissed. The coordinates for Channel 276A at Moulton, Alabama, are 34-31-10 and 87-15-48. *See* 53 FR 38307, September 30, 1988. With this action, the proceeding is terminated.

DATES: This rule is effective January 11, 1990. The window period for filing applications on Channel 276A at Moulton, Alabama, will open on January 12, 1990, and close February 12, 1990.

FOR FURTHER INFORMATION CONTACT: Ordee Pearson, (202) 634-6530. Questions related to the window application filing process at Moulton, Alabama, should be addressed to the Audio Service Division, FM Branch, Mass Media Bureau, (202) 632-0394.

SUPPLEMENTARY INFORMATION: This is a synopsis of the Commission's Report and Order in MM Docket No. 88-450, adopted November 8, 1989; and released November 27, 1989. The full text of this Commission decision is available for inspection and copying during normal business hours in the FCC Dockets Branch (Room 230), 1919 M Street NW., Washington, DC. The complete text of this decision may also be purchased from the Commission's copy contractors, International Transcription Service (202) 857-3800, 2100 M Street NW., suite 140, Washington, DC 20037.

List of Subjects in 47 CFR Part 73

Radio broadcasting.

PART 73—[AMENDED]

1. The authority citation for part 73 continues to read as follows:

Authority: 47 U.S.C. 154, 303.

§ 73.202 [Amended]

2. Section 73.202(b), the Table of Allotments, is amended under Alabama by adding Moulton, Channel 276A.

Federal Communications Commission.

Karl A. Kensinger,

Chief, Allocations Branch, Policy and Rules Division, Mass Media Bureau.

[FR Doc. 89-28211 Filed 12-1-89; 8:45 am]

BILLING CODE 6712-01-M

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47 CFR Part 73

[MM Docket No. 88-491; RM-6371; RM-6650]

Radio Broadcasting Services; Vacaville and Middletown, CA

AGENCY: Federal Communications Commission.

ACTION: Final rule.

SUMMARY: This document substitutes Channel 237B1 for Channel 237A at Vacaville, California, and modifies the Class A license of Quick Broadcasting, Inc., for Station KUIC(FM), thereby providing the area surrounding that community with additional FM service. See 53 FR 43246, October 26, 1988. Channel 237B1 may be used at the petitioner's suggested site at coordinates 38-27-30 and 121-58-22, or at its alternately suggested site at coordinates 38-27-44 and 122-04-56. (See also, **SUPPLEMENTARY INFORMATION,** *Infra.*) With this action, the proceeding is terminated with respect to RM-6371 only.

EFFECTIVE DATE: January 12, 1990.

FOR FURTHER INFORMATION CONTACT: Nancy Joyner, Mass Media Bureau, (202) 634–6530.

SUPPLEMENTARY INFORMATION: This is a synopsis of the Commission's First Report and Order, MM Docket No. 88–491, adopted November 13, 1989, and released November 28, 1989. The full text of this Commission decision is available for inspection and copying during normal business hours in the FCC Dockets Branch (Room 230), 1919 M Street, NW., Washington, DC. The complete text of this decision may also be purchased from the Commission's copy contractors, International Transcription Service, (202) 857–3800, 2100 M Street, NW., Suite 140, Washington, DC 20037.

An additional proposal filed in this proceeding on behalf of Joe L. and L. Ann Gross, seeking the allotment of a Class A FM Channel to Middletown, California, is the subject of a *Further Notice of Proposed Rule Making* and will be resolved separately.

List of Subjects in 47 CFR Part 73

Radio broadcasting.

PART 73—[AMENDED]

1. The authority citation for part 73 continues to read as follows:

Authority: 47 U.S.C. 154, 303.

§ 73.202 [Amended]

2. Section 73.202(b), the Table of FM Allotments for California, is amended under the entry of Vacaville by removing Channel 237A and adding Channel 237B1.

Federal Communications Commission.

Karl A. Kensinger,

Chief, Allocations Branch, Policy and Rules Division, Mass Media Bureau.

[FR Doc. 89–28209 Filed 12–1–89; 8:45 am]

BILLING CODE 6712-01-M

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47 CFR Part 73

[MM Docket No. 89–68, RM–6382]

Television Broadcasting Service; Clermont and Cocoa, FL

AGENCY: Federal Communications Commission.

ACTION: Final rule.

SUMMARY: This document substitutes Channel 18– for Channel 68 at Clermont, Florida, and substitutes Channel *68 for Channel *18– at Cocoa, Florida, in response to a petition filed jointly by Brevard Community College, licensee of noncommercial educational TV Station WRES–TV, Channel *18–, Cocoa, and Press Television Corporation, licensee of commercial TV Station WKCF–TV, Channel 68, Clermont. See 54 FR 13534, April 4, 1989. With this action, the proceeding is terminated.

EFFECTIVE DATE: January 12, 1990.

FOR FURTHER INFORMATION CONTACT: Michael Ruger, Mass Media Bureau, (202) 632–6302.

SUPPLEMENTARY INFORMATION: This is a synopsis of the Commission's Report and Order, MM Docket No. 89–68, adopted November 20, 1989, and released November 28, 1989. The full text of this Commission decision is available during business hours in the FCC Dockets Branch (Room 230), 1919 M Street NW., Washington, DC. The complete text of this decision may also be purchased from the Commission's copy contractors, International Transcription Service, (202) 857–3800, 2100 M Street NW., Suite 140, Washington, DC 20037.

List of Subjects in 47 CFR Part 73

Television broadcasting.

PART 73—[AMENDED]

1. The authority citation for part 73 continues to read as follows:

Authority: 47 U.S.C. 154, 303.

§ 73.606 [Amended]

2. Section 73.606(b), the Table of Television Allotments, is amended for Florida as follows: under Clermont, delete Channel 68 and add Channel 18–; and under Cocoa, delete Channel *18– and add Channel *68.

Federal Communications Commission.

Karl Kensinger,

Chief, Allocationss Branch, Policy and Rules Division, Mass Media Bureau.

[FR Doc. 89–28210 Filed 12–1–89; 8:45 am]

BILLING CODE 6712-01-M

ENVIRONMENTAL PROTECTION AGENCY

48 CFR Parts 1529 and 1552

[FRL–3693–2]

Acquisition Regulation; Clarification of Cost-Reimbursable Type Contracts for Determining the Availability of State and Local Tax Exemptions

AGENCY: Environmental Protection Agency.

ACTION: Final rule.

SUMMARY: This action amends the Environmental Protection Agency (EPA) Acquisition Regulation (EPAAR) to clarify Contractor responsibility under cost-reimbursable type contracts for determining the availability of State and local tax exemptions and obtaining such exemptions, when available. The action is necessary to ensure Contractors do not unnecessarily pay State and local taxes for which an exemption is available. This action places the responsibility for determining the availability of an exemption on Contractors.

EFFECTIVE DATE: December 4, 1989.

FOR FURTHER INFORMATION CONTACT: Environmental Protection Agency, Procurement and Contracts Management Division (PM–214F), 401 M Street SW., Washington, DC 20460, attn: Joseph Nemargut, Jr., Telephone (202) 382–5019.

SUPPLEMENTARY INFORMATION:

A. Background

Under cost-reimbursable type contracts, the Environmental Protection Agency (EPA) may authorize a contractor to purchase equipment needed in performance of a contract. Generally in such cases, title to the equipment vests immediately in the EPA. State and local governments may offer contractors and subcontractors exemptions from the payment of State and local taxes, such as a State sales tax on such purchases. The availability of such exemptions depends upon the particular State or local law involved.

This rule places responsibility on contractors to determine the availability of State and local tax exemptions and obtain such exemptions when available. Under the Federal Acquisition Regulation, the EPA may not reimburse Contractors and subcontractors for payment of State and local taxes for which exemptions were available.

B. Executive Order 12291

OMB Bulletin No. 85–7, dated December 14, 1984, establishes the requirements for Office of Management and Budget (OMB) review of agency procurement regulations. This regulation does not fall within any of the categories cited in the Bulletin requiring OMB review.

C. Paperwork Reduction Act

The Paperwork Reduction Act does not apply because this rule does not propose any information collection requirements, which would require the approval of OMB under 44 U.S.C. 3501, et seq.

D. Regulatory Flexibility Act

The EPA certifies this rule does not exert a significant economic impact on a substantial number of small entities. The rule merely clarifies Contractor

responsibility for determining the availability of State and local tax exemptions, and obtaining such exemptions, when available. Reimbursement for payment of State and local taxes for which exemptions are available is already prohibited under the Federal Acquisition Regulation, regardless of the size of the entity.

E. Public Comments

The EPA published a notice of proposed rulemaking detailing these changes in the **Federal Register** at 54 FR 37081, on September 6, 1989. No comments were received. Therefore, this rule is being finalized without change.

List of Subjects in 48 CFR Parts 1529 and 1552

Government procurement, Taxes, Solicitation provisions and Contract clauses.

For the reasons set out in the preamble, chapter 15 of title 48 Code of Federal Regulations is amended as follows:

1. Part 1529 is added to 48 CFR chapter 15 to read as follows:

PART 1529—TAXES

Subpart 1529.3—State and Local Taxes

Subpart 1529.4—Contract Clauses

Authority: Sec. 205(c), 63 Stat. 390, as amended, 40 U.S.C. 486(c).

Subpart 1529.3—State and Local Taxes

1529.303 Application of State and local taxes to Government contractors and subcontractors.

Contractors are responsible for determining the availability of State and local tax exemptions and obtaining such exemptions, if available, unless the Contracting Officer determines under FAR 31.205-41(b)(3) that the administrative burden outweighs the corresponding benefit. Contractors are responsible for ensuring that subcontractors also seek and obtain such exemptions, if available.

Subpart 1529.4—Contract Clauses

1529.401 Domestic contracts.

1529.401-70 Cost-reimbursable type contracts.

Contracting Officers shall insert the clause at 1552.229-70 in all solicitations and contracts when it is anticipated a cost-reimbursable type contract shall be used or a contractor or subcontractor shall be reimbursed for materials at cost.

PART 1552—[AMENDED]

2. The authority citation for part 1552 continues to read as follows:

Authority: Sec. 205(c), 63 Stat. 390, as amended, 40 U.S.C. 486(c).

3. Part 1552 is amended by adding section 1552.229-70 to read as follows:

1552.229-70 State and local taxes.

As prescribed in 1529.401-70, insert the following clause:

State and Local Taxes (Nov 1989)

In accordance with FAR 29.303 and FAR 31.205-41, the Contractor or any subcontractor under this contract shall not be reimbursed for payment of any State and local taxes for which an exemption is available. The Contractor is responsible for determining the availability of State and local tax exemptions and obtaining such exemptions, if available. The Contractor shall include this clause, suitably modified to identify the parties, in all subcontracts at any tier. The Contractor shall notify the Contracting Officer if problems arise in obtaining a State and local tax exemption. The contractor may seek a waiver by the Contracting Officer from this requirement if the administrative burden of seeking an exemption appears to outweigh the potential savings to the Government.

(End of clause)

Dated: November 20, 1989.

John C. Chamberlin,

Director, Office of Administration.

[FR Doc. 89-28284 Filed 12-1-89; 8:45 am]

BILLING CODE 6560-50-M

DEPARTMENT OF TRANSPORTATION

Research and Special Programs Administration

49 CFR Part 172

[Docket No. HM-145G; Amdt. No. 172-117]

Hazardous Substances; Correction

AGENCY: Research and Special Programs Administration (RSPA), Department of Transportation (DOT).

ACTION: Final rule; correction.

SUMMARY: This action is necessary to correct inadvertent errors that appeared in the final rule RSPA published in the **Federal Register** on Tuesday, August 21, 1989 (HM-145G; 54 FR 34666).

EFFECTIVE DATE: This amendment is effective December 4, 1989.

FOR FURTHER INFORMATION CONTACT: John A. Gale (202) 366-4488, Standards Division, Office of Hazardous Materials Transportation, RSPA, 400 7th Street SW., Washington, DC 20590. Questions about hazardous substance designations or reportable quantities should be directed to the Environmental Protection Agency (EPA). Call the RCRA/Superfund hotline at (800) 424-9346 or in Washington, DC (202) 382-3000.

SUPPLEMENTARY INFORMATION: On August 21, 1989, RSPA published a final rule under Docket HM-145G. That final rule contained some inadvertent errors in the appendix to 49 CFR 172.101, entitled "List of Hazardous Substances and Reportable Quantities", which this document corrects. The reportable quantities for "Dimethyl sulfate*" and "Formaldehyde*" were incorrectly listed as 10 pounds. Additionally, the reportable quantity for "Chloromethane" was incorrectly listed as 1 pound. The correct reportable quantity for all three of these materials is 100 pounds.

List of Subjects in 49 CFR Part 172

Hazardous materials transportation, Hazardous substances.

In consideration of the foregoing, 49 CFR part 172 is amended as follows:

PART 172—HAZARDOUS MATERIALS TABLE AND HAZARDOUS MATERIALS COMMUNICATIONS REGULATIONS

1. The authority citation for part 172 continues to read as follows:

Authority: 49 App. U.S.C. 1803, 1804, 1805, and 1808; Pub. L. 99-499 and 49 CFR part 1, unless otherwise noted.

Appendix to § 172.101 [Amended]

2. In "Table 1—Hazardous substances Other than Radionuclides" of the Appendix to § 172.101, which is entitled "List of Hazardous Substances and Reportable Quantities", the "Reportable Quantity (RQ) Pounds (Kilograms)" column entry for "Chloromethane", "Dimethyl sulfate*" and "Formaldehyde*", respectively, is revised to read "100 (45.4)".

Issued in Washington, DC on November 28, 1989 under authority delegated in 49 CFR part 1.

Travis P. Dungan,

Administrator, Research and Special Programs Administration.

[FR Doc. 89-28245 Filed 12-1-89; 8:45 am]

BILLING CODE 4910-60-M

Proposed Rules

Federal Register
Vol. 54, No. 231
Monday, December 4, 1989

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 TRANSPORTATION

Federal Aviation Administration

14 CFR Ch. I

[Summary Notice No. PR-89-12]

Petition for Rulemaking; Summary and Disposition

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of petitions for rulemaking received and of dispositions of prior petitions.

SUMMARY: Pursuant to FAA's rulemaking provisions governing the application, processing, and disposition of petitions for rulemaking (14 CFR part 11), this notice contains a summary of certain petitions requesting the initiation of rulemaking procedures for the amendment of specified provisions of the Federal Aviation Regulations and of denials or withdrawals of certain petitions previously received. The purpose of this notice is to improve the public's awareness of, and participation in, this aspect of FAA's regulatory activities. Neither publication of this notice nor the inclusion or omission of information in the summary is intended to affect the legal status of any petition or its final disposition.

DATE: Comments on petitions received must identify the petition docket number involved and must be received on or before: February 1, 1990.

ADDRESS: Send comments on any petition in triplicate to: Federal Aviation Administration, Office of the Chief Counsel, Attn: Rules Docket (AGC-10), Petition Docket No. 26050, 800 Independence Avenue SW., Washington, DC 20591.

FOR FURTHER INFORMATION: The petition, any comments received, and a copy of any final disposition are filed in the assigned regulatory docket and are available for examination in the Rules Docket (AGC-10), Room 915G, FAA Headquarters Building (FOB 10A), 800 Independence Avenue SW., Washington, DC 20591; telephone (202) 267-3132.

This notice is published pursuant to paragraphs (b) and (f) of § 11.27 of part 11 of the Federal Aviation Regulations (14 CFR part 11).

Issued in Washington, DC., on November 28, 1989.

Denise Donohue Hall,

Manager, Program Management Staff, Office of the Chief Counsel.

Petitions for Rulemaking

Docket No.: 26050
Petitioner: Dale A. Smith
Regulations Affected: 14 CFR § 61.155.
Description of Petition: To allow any military crewmember performing crewmember duties at a station which would allow direct observation of both pilots, flight, engine, pneumatic, hydraulic, electric, and navigation instruments as well as monitoring all two way radio calls to be able to log "other pilot time" provided individual holds category, class, and instruments ratings for the aircraft in which he is flying.
Petitioner's Reason for the Petition: The petitioner believes this would better serve the public interest in that it would allow a greater inception of airline pilots into the public sector without draining as many military pilots from national defense. It would also save each individual pilot applying for an ATP under this rule to forgo up to 500 hours of general aviation flying.

[FR Doc. 89-28261 Filed 12-1-89; 8:45 am]
BILLING CODE 4910-13-M

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 51, 52, and 81

[Docket No. A-88-19; AD-FRL-3693-53]

RIN 2060-AC33

Prevention of Significant Deterioration for Particulate Matter

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice of comment period extension.

SUMMARY: This notice extends for 60 days the public comment period for the proposed revisions to the maximum allowable increases (increments) for particulate matter under the requirements for prevention of significant deterioration (PSD) in 40 CFR 51.166 and 40 CFR 52.21. The proposed revisions were published on October 5, 1989 (54 FR 41218). The EPA is extending the deadline at the request of the Utility Air Regulatory Group (UARG), a group consisting of 65 electric utilities, the Edison Electric Institute, the National Rural Electric Cooperative Association and the American Public Power Association. Electric utilities are potentially affected by the proposed revisions to the PSD regulations.

DATES: The public comment period will now end on February 5, 1990.

ADDRESSES: Comments should be mailed (in duplicate if possible) to: EPA Air Docket (LE-131), Attn: Docket No. A-88-19, Room M-1500, Waterside Mall, 401 M Street SW., Washington, DC 20460.

FOR FURTHER INFORMATION CONTACT: Dan deRoeck at (919) 541-5593.

Dated: November 29, 1989.

Michael Shapiro,

Acting Assistant Administrator for Air and Radiation.

[FR Doc. 89-28340 Filed 12-1-89; 8:45 am]
BILLING CODE 6560-40-M

40 CFR Part 80

[FR 13641-1]

Regulation of Fuels and Fuel Additives; General Requirements for Determination of Gasoline Metal Content

AGENCY: Environmental Protection Agency (EPA).

ACTION: Advanced notice of proposed rulemaking.

SUMMARY: This action announces EPA's intent to propose a testing procedure for the determination of metal content in gasoline by the use of X-ray spectrometry and possibly other analytical techniques. The primary intent of the rule will be to expand the scope of methods already approved for the determination of lead content, those being the standard atomic absorption method, the automated atomic absorption method, and the X-ray spectrometry method utilizing a tungsten tube. The method to be proposed will

expand the scope of X-ray spectrometry procedures currently allowed for lead determination in gasoline (52 FR 257, January 5, 1987) and may allow the use of several techniques not currently approved by EPA, including the use of an X-ray technique utilizing internal standards and, possibly, other unrelated methods. Depending on the comments received as a result of this Advanced Notice of Proposed Rulemaking (ANPRM), EPA may also include within the scope of the rule other metallic elements found in gasoline. Furthermore, this rule is a new approach to the approval of laboratory procedures dealing with metal content determination in gasoline, in that it addresses method equivalence and the requirements of a fully operational quality assurance program and not individual procedures for the use of specific equipment.

DATE: Comments should be submitted on or before February 2, 1990.

ADDRESS: Copies of the information relative to this ANPRM are available for inspection in public docket A–89–12 at the Air Docket (LE–131) of the EPA, room M–1500, 401 M Street SW., Washington, DC 20460, (202) 382–7548, between the hours of 8:30 to Noon and 1:30 to 3:30 p.m. Any comments from interested parties should be addressed to this docket with a copy forwarded to: Director, Field Operations and Support Division (EN–397F), U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20460. As provided in 40 CFR part 2, a reasonable fee may be charged for copying services.

FOR FURTHER INFORMATION CONTACT: David J. Kortum, Environmental Engineer, Field Operations and Support Division (EN–397F), U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20460 (202) 475–8841.

SUPPLEMENTARY INFORMATION: Section 211(f)(1) of the Clean Air Act (42 U.S.C. 7545(f)(1)) prohibits, after March 31, 1977, any fuel or fuel additive manufacturer from first introducing into commerce, or increasing the concentration in use of, any fuel or fuel additive for general use in light-duty motor vehicles manufactured after model year 1974 which is not substantially similar to any fuel or fuel additive utilized in the certification of any model year 1975, or subsequent model year, vehicle or engine under section 206 of the Act.

Section 211(f)(3) requires any manufacturer to cease to distribute in commerce certain fuels and fuel additives not later than September 15, 1978. These fuels and fuel additives are any which were first introduced into commerce or increased in concentration in use prior to March 31, 1977, and after January 1, 1974, and which would otherwise have been prohibited under section 211(f)(1). On July 28, 1981, EPA published an interpretive rule (46 FR 38586) defining the term "substantially similar" found in section 211(f)(1). Among other things, the rule placed limits on the presence of certain elements in fuels and fuel additives.

Furthermore, the use of leaded gasoline in motor vehicles equipped with catalytic converters ("catalysts") as part of their emission control systems can render the catalysts inoperative. Therefore, such vehicles are designed (and labelled) to operate exclusively on unleaded gasoline and the introduction of leaded fuel into those vehicles by certain persons is prohibited (40 CFR 80.22). To ensure that fuel represented as unleaded does not contain lead in excess of the maximum established by rule (i.e. 0.05 gram of lead per U.S. gallon (gpg) of gasoline (40 CFR 80.2(g)) the Administrator has established approved testing procedures (40 CFR part 80, Appendix B). The rule to be proposed would amend the approved procedures (which utilize a manual atomic absorption method, an automated atomic absorption method, and X-ray fluorescence spectrometry with a tungsten target tube) to include other methods. The addition of this rule would allow greater flexibility and efficiency in the analysis of gasoline lead content.

The purpose of this ANPRM is two-fold. The Agency desires information on any analytical techniques which may be utilized to obtain quantitative information on metal content in gasoline in order to determine what X-ray fluorescence methods or other analytical methods, as well as what elements in addition to lead, should be included within the scope of the proposed rulemaking. Secondly, the Agency is attempting to determine which quality assurance procedures and quality assurance limits would assure adequate data for the techniques (and species) covered by the rule.

The rule will be a new approach. In previous rules, explicit procedures have been outlined for a specific type of lead determination technique. In proposing this rule, EPA will attempt to use method equivalence to confirm the efficacy of a technique. Any procedure for which it could be demonstrated that the data obtained is equivalent to data obtained by previously accepted methods would be considered to be equivalent or within the scope of the rule.

Data gathered utilizing any laboratory technique within the scope of the rule will be acceptable, if certain specified quality assurance procedures are performed and the results of such procedures fall within specified limits of acceptablility. Currently, the Agency believes these limits would be 95 percent confidence limits. As such, they can be expected to be exceeded, on the average, 1 time in 20 when no problems exist during the analyses. Hence, the limits need not be considered absolute limits that, if exceeded, require corrective action. In addition, the proposed rule would address sample handling to ensure that metal concentration or matrix content does not change before testing begins.

Other Agency-approved analytical techniques to determine lead content in gasoline have required that three types of quality assurance tests would be performed on a regular basis. These include duplicate testing (an additional test of an aliquot of the sample), testing of standards (samples containing known amounts of lead such as those provided by the National Bureau of Standards), and spiked sample testing (analysis of a previously tested sample to which a known amount of lead has been added). The accuracy and repeatability required by EPA in the already approved procedures are as follows: (1) The difference between duplicates should not exceed 0.005 gpg or a relative difference of 6%. (2) Standards tested should agree with 10% of the nominal value of the standard. (3) Spiked samples should have a percent recovery of 100% ±10%.

Before such a rule is proposed, a number of questions must be answered concerning the scope of the rule and the acceptability of an equivalency approach to this type of rulemaking. In addition, EPA would like to perform correlation tests with several laboratories involved.

Request for Comments: To aid the Agency in preparing the proposed rule, we encourage comments on all aspects of X-ray fluorescence spectrometry (XRF) as well as any other appropriate analytical techniques for determining metal content in gasoline. In particular, responses are requested to the following questions.

(1) What variety of XRF and other analytical instruments, appropriate for the determination of metal content in gasoline, exist within the industrial and scientific community? What reproducibility, repeatability, and accuracy are achievable using these instruments? (A complete report of the work done to acquire the above quality assurance data including the procedures used, the raw data itself, and a

description of the calculations used in analyzing the data should be submitted.) What degree of inteference and matrix effects from other materials is expected with these machines when testing for metallic elements in gasoline? Are the quality assurance techniques mentioned herein adequate to discern this interference?

(2) What should be the scope of such a proposed rule? What criteria should be used to demonstrate equivalence to already accepted techniques? What type of instruments should be considered within the scope? Could elements other than lead be included in the proposed rule? If so, what screening procedures for interfering elements would be required? To what range or ranges of concentration should the rule apply?

(3) Are duplicates, spiked samples, and standards sufficient to confirm the adequacy of a procedure's reliability? How frequently should these quality assurance tests be performed? Should any additional quality assurance procedures be included in such a rule? Are all three of these quality assurance procedures necessary? Are 95% confidence limits appropriate?

(4) Currently the quality assurance limit for the spiked samples is 100% recovery ±10%. The limit for the standard is the nominal value ±10%. EPA is considering changing these limits. Whereas the deviation between the measured and true concentrations for the standards is equal to the bias of the particular instrument combined with the precision of a single measurement, for the spiked sample, the percent recovery should be equal to 100 plus the bias of the method combined with the bias associated with the spiking process combined with the precision associated with the combination of (1) the difference between two measurements and (2) the variability associated with the spiking process. Therefore, should the limits on the spiked samples be larger than 10 percent? If so, what should the limits be for spiked samples?

In addition, the Agency is requesting laboratories that utilize procedures which may fall under the scope of this rule to volunteer to be participants in correlation testing and/or to submit any quality assurance information available on possible analytical methods.

List of Subjects in 40 CFR Part 80

Fuel additives, Gasoline, Motor vehicle pollution, Penalties, Reporting and recordkeeping requirements.

Authority: Sec. 211 and 301(a) of the Clean Air Act as amended, 42 U.S.C. 7545 and 7601.

Dated: November 22, 1989.

William K. Reilly,

Administrator.

[FR Doc. 89-28285 Filed 12-1-89; 8:45 am]

BILLING CODE 6560-50-M

FEDERAL MARITIME COMMISSION

46 CFR Parts 580 and 581

[Docket No. 89-20]

Definition of Shipper and Availability of Mixed Commodity Rates

AGENCY: Federal Maritime Commission.

ACTION: Proposed rule; Extension of comment period.

SUMMARY: The proposed rule in this proceeding, published October 4, 1989 (54 FR 40891), would amend the Commission's tariff and service contract rules to define the term "shipper" and to address the availability of mixed commodity rates. Time for filing comments on the Notice of Proposed Rulemaking was previously extended to December 4, 1989. The Asia North America Eastbound Rate Agreement, the South Europe/U.S.A. Freight Conference, and the "8900" Lines now have requested a 30 day extension, until January 3, 1990, for filing comments. The request is based on the complexity of the issues raised by the proposed rule, and the need for all conference members to thoroughly examine all aspects of the proposed rule, and the need for all conference members to thoroughly examine all aspects of the proposed rule so as to submit complete comments with alternative suggestions. The request is supported by the Transpacific Westbound Rate Agreement, the Trans-Pacific Freight Conference of Japan, the Japan-Atlantic & Gulf Freight Conference, the U.S.A.-North Europe Rate Agreement, and the North Europe-U.S.A. Rate Agreement. This notice extends the time for filing comments to the Notice of Proposed Rulemaking to January 3, 1990.

DATE: Comments due January 3, 1990.

ADDRESS: Comments (Original and fifteen (15) copies) to: Joseph C. Polking, Secretary, Federal Maritime Commission, 1100 L Street, NW., Washington, DC 20573-0001, (202) 523-5725.

FOR FURTHER INFORMATION CONTACT: Robert G. Drew, Director, Bureau of Domestic Regulation, Federal Maritime Commission, 1100 L Street, NW., Washington, DC 20573-0001.

By the Commission.

Ronald D. Murphy,

Assistant Secretary.

[FR Doc. 89-28244 Filed 12-1-89; 8:45 am]

BILLING CODE 6730-01-M

FEDERAL COMMUNICATIONS COMMISSION

47 CFR Part 73

[MM Docket No. 89-530; RM-6901, RM-6948]

Radio Broadcasting Services; Ashdown and DeQueen, AR

AGENCY: Federal Communications Commission.

ACTION: Proposed rule.

SUMMARY: This document requests comments on two mutually-exclusive petitions for rule making in the state of Arkansas. The first, filed on behalf of KARQ Radio, Inc., licensee of Station KARQ(FM), Channel 221A, Ashdown, Arkansas, seeks to substitute Channel 223C3 for Channel 221A at Ashdown, and to modify the facilities of Station KARQ(FM). Additionally, Channel 225A is proposed as a substitute for Channel 224A at DeQueen, Arkansas, licensed to Jay W. and Anne W. Bunyard (Bunyard Broadcasting, Inc.), for Station KDQN-FM, to accommodate the Ashdown modification proposal. The second proponent, Bunyard Broadcasting, Inc., seeks to substitute Channel 225C3 for Channel 224A at DeQueen and to modify the facilities of Station KDQN-FM accordingly. Coordinates used for Channel 223C3 at Ashdown are 33-41-56 and 94-07-24. Those for DeQueen are 34-01-57 and 94-19-43. The proposals are 42 kilometers apart, whereas 43 kilometers is required between second adjacent Class C3 channels. Each proponent desires modification at its existing transmitter site. Unless the spacing deficiency can be remedied, a comparative analysis of the proposals will be required.

DATES: Comments must be filed on or before January 18, 1990, and reply comments on or before February 2, 1990.

ADDRESSES: Federal Communications Commission, Washington, DC 20554. In addition to filing comments with the FCC, interested parties should serve the petitioners' counsel, as follows: KARQ Radio, Inc.: David M. Silverman and Robert G. Scott, Jr., Esqs., Cole, Raywid & Braverman, 1919 Penn. Ave., NW., Suite 200, Wash., DC 20006; and Bunyard Broadcasting, Inc.: Eugene T.

Smith, Esq., 715 G St., SE Wash., DC 20003.

FOR FURTHER INFORMATION CONTACT: Nancy Joyner, Mass Media Bureau, (202) 634–6530.

SUPPLEMENTARY INFORMATION: This is a synopsis of the Commission's Notice of Proposed Rule Making, MM Docket No. 89–530 adopted November 8, 1989, and released November 27, 1989. The full text of this Commission decision is available for inspection and copying during normal business hours in the FCC Dockets Branch (Room 230), 1919 M Street, NW., Washington, DC. The complete text of this decision may also be purchased from the Commission's copy contractors, International Transcription Service, (202) 857–3800, 2100 M Street, NW., Suite 140, Washington, DC 20037.

Provisions of the Regulatory Flexibility Act of 1980 do not apply to this proceeding.

Members of the public should note that from the time a Notice of Proposed Rule Making is issued until the matter is no longer subject to Commission consideration or court review, all *ex parte* contacts are prohibited in Commission proceedings, such as this one, which involve channel allotments. See 47 CFR 1.1204(b) for rules governing permissible *ex parte* contact.

For information regarding proper filing procedures for comments, See 47 CFR 1.415 and 1.420.

List of Subjects in 47 CFR Part 73

Radio broadcasting.

Federal Communications Commission.

Karl A. Kensinger,

Chief, Allocations Branch, Policy and Rules Division, Mass Media Bureau.

[FR Doc. 89–28212 Filed 12–1–89; 8:45 am]

BILLING CODE 6712–01–M

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47 CFR Part 73

[MM Docket No. 89–531; RM–6949]

Radio Broadcasting Services; Helena, AR

AGENCY: Federal Communications Commission.

ACTION: Proposed rule.

SUMMARY: This document requests comments on a petition for rule making filed on behalf of Delta Broadcasting, Inc., licensee of Station KCRI–FM, Channel 276A, Helena, Arkansas, seeking the substitution of FM Channel 276C3 for Channel 276A and modification of its license accordingly. Coordinates for this proposal are 34–32–50 and 90–36–40.

DATES: Comments must be filed on or before January 18, 1990, and reply comments on or before February 2, 1990.

ADDRESSES: Federal Communications Commission, Washington, D.C. 20554. In addition to filing comments with the FCC, interested parties should serve the petitioner's counsel, as follows: Gary S. Smithwick, Esq., Smithwick & Belendiuk, P.C., 2033 M St., NW., Suite 207, Washington, DC 20036.

FOR FURTHER INFORMATION CONTACT: Nancy Joyner, Mass Media Bureau, (202) 634–6530.

SUPPLEMENTARY INFORMATION: This is a synopsis of the Commission's Notice of Proposed Rule Making, MM Docket No. 89–531 adopted November 8, 1989, and released November 27, 1989. The full text of this Commission decision is available for inspection and copying during normal business hours in the FCC Dockets Branch (Room 230), 1919 M Street, NW., Washington, DC. The complete text of this decision may also be purchased from the Commission's copy contractors, International Transcription Service, (202) 857–3800, 2100 M Street, NW., Suite 140, Washington, DC 20037.

Provisions of the Regulatory Flexibility Act of 1980 do not apply to this proceeding.

Members of the public should note that from the time a Notice of Proposed Rule Making is issued until the matter is no longer subject to Commission consideration or court review, all *ex parte* contacts are prohibited in Commission proceedings, such as this one, which involve channel allotments. See 47 CFR 1.1204(b) for rules governing permissible *ex parte* contact.

For information regarding proper filing procedures for comments, See 47 CFR 1.415 and 1.420.

List of Subjects in 47 CFR Part 73

Radio broadcasting.

Federal Communications Commission.

Karl A. Kensinger,

Chief, Allocations Branch, Policy and Rules Division, Mass Media Bureau.

[FR Doc. 89–28213 Filed 12–1–89; 8:45 am]

BILLING CODE 6712–01–M

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47 CFR Part 73

[MM Docket No. 89–529, RM–6947]

Radio Broadcasting Services; Wynne, AR

AGENCY: Federal Communications Commission.

ACTION: Proposed rule.

SUMMARY: This document requests comments on a petition for rule making filed on behalf of East Arkansas Broadcasters, Inc., licensee of Station KWYN–FM, Channel 224A, Wynne, Arkansas, seeking the substitution of FM Channel 223C3 for Channel 224A and modification of its license accordingly. Coordinates for this proposal are 35–11–59 and 90–43–23.

DATES: Comments must be filed on or before January 18, 1990, and reply comments on or before February 2, 1990.

ADDRESSES: Federal Communications Commission, Washington, DC 20554. In addition to filing comments with the FCC, interested parties should serve the petitioner's counsel, as follows: Eugene T. Smith, Esq., 715 G Street, SE., Washington, DC 20003.

FOR FURTHER INFORMATION CONTACT: Nancy Joyner, Mass Media Bureau (202) 634–6530.

SUPPLEMENTARY INFORMATION: This is a synopsis of the Commission's Notice of Proposed Rule Making, MM Docket No. 89–529, adopted November 9, 1989, and released November 27, 1989. The full text of this Commission decision is available for inspection and copying during normal business hours in the FCC Dockets Branch (Room 230), 1919 M Street, NW, Washington, DC. The complete text of this decision may also be purchased from the Commission's copy contractors, International Transcription Service (202) 857–3800, 2100 M Street, NW., Suite 140, Washington, DC 20037.

Provisions of the Regulatory Flexibility Act of 1980 do not apply to this proceeding.

Members of the public should note that from the time a Notice of Proposed Rule Making is issued until the matter is no longer subject to Commission consideration or court review, all *ex parte* contacts are prohibited in Commission proceedings, such as this one, which involve channel allotments. See 47 CFR 1.1204(b) for rules governing permissible *ex parte* contact.

For information regarding proper filing procedures for comments, See 47 CFR 1.415 and 1.420.

List of Subjects in 47 CFR Part 73

Radio broadcasting.

Federal Communications Commission.

Karl A. Kensinger,

Chief, Allocations Branch, Policy and Rules Division, Mass Media Bureau.

[FR Doc. 89–28216 Filed 12–1–89; 8:45 am]

BILLING CODE 6712–01–M

47 CFR Part 73

[MM Docket No. 89-532, RM-7010]

Radio Broadcasting Services; Brawley and El Centro, CA

AGENCY: Federal Communications Commission.

ACTION: Proposed rule.

SUMMARY: This document requests comments on a petition for rule making filed on behalf of Brawley Broadcasting Company, licensee of Station KWST(FM), Channel 233B, Brawley, California, seeking to change the community of license for Channel 233B from Brawley to El Centro, California, and to modify its license accordingly. Coordinates used for this proposal are 32-48-27 and 115-32-18.

DATES: Comments must be filed on or before January 18, 1990, and reply comments on or before February 2, 1990.

ADDRESSES: Federal Communications Commission, Washington, DC 20554. In addition to filing comments with the FCC, interested parties should serve the petitioner's counsel, as follows: David Tillotson, Esq., Arent, Fox, Kintner, Plotkin & Kahn, 1050 Connecticut Ave., NW., Washington, DC 20036.

FOR FURTHER INFORMATION CONTACT: Nancy Joyner, Mass Media Bureau, (202) 634-6530.

SUPPLEMENTARY INFORMATION: This is a synopsis of the Commission's Notice of Proposed Rule Making, MM Docket No. 89-532 adopted November 8, 1989, and released November 28, 1989. The full text of this Commission decision is available for inspection and copying during normal business hours in the FCC Dockets Branch (Room 230), 1919 M Street, NW., Washington, DC. The complete text of this decision may also be purchased from the Commission's copy contractors, International Transcription Service, (202) 857-3800, 2100 M Street, NW., Suite 140, Washington, DC 20037.

Provisions of the Regulatory Flexibility Act of 1980 do not apply to this proceeding.

Members of the public should note that from the time a Notice of Proposed Rule Making is issued until the matter is no longer subject to Commission consideration or court review, all *ex parte* contacts are prohibited in Commission proceedings, such as this one, which involve channel allotments. See 47 CFR 1.1204(b) for rules governing permissible *ex parte* contact.

For information regarding proper filing procedures for comments, See 47 CFR 1.415 and 1.420.

List of Subjects in 47 CFR Part 73

Radio broadcasting.

Federal Communications Commission.

Karl A. Kensinger,

Chief, Allocations Branch, Policy and Rules Division, Mass Media Bureau.

[FR Doc. 89-28218 Filed 12-1-89; 8:45 am]

BILLING CODE 6712-01-M

47 CFR Part 73

[MM Docket No. 89-534, RM-7037]

Radio Broadcasting Services; Buffalo and Vine Grove, KY

AGENCY: Federal Communications Commission.

ACTION: Proposed rule.

SUMMARY: This document requests comments on a petition by Larue County Broadcasting, permittee of Station WRZI(FM), Channel 268A, Buffalo, Kentucky, seeking to change the community of license for Channel 268A from Buffalo to Vine Grove, Kentucky, and to modify its permit accordingly. Coordinates used for this proposal are 37-43-09 and 86-01-13.

DATES: Comments must be filed on or before January 19, 1990, and reply comments on or before February 5, 1990.

ADDRESSES: Federal Communications Commission, Washington, DC 20554. In addition to filing comments with the FCC, interested parties should serve the petitioners, or their counsel or consultant, as follows: Keith Reising, Owner, Larue County Broadcasting, 1680 Hwy 62E, Corydon, IN 47112.

FOR FURTHER INFORMATION CONTACT: Nancy J. Walls, Mass Media Bureau, (202) 634-6530.

SUPPLEMENTARY INFORMATION: This is a synopsis of the Commission's Notice of Proposed Rule Making, MM Docket No. 89-534, adopted November 13, 1989, and released November 28, 1989. The full text of this Commission decision is available for inspection and copying during normal business hours in the FCC Dockets Branch (Room 230), 1919 M Street, NW., Washington, DC. The complete text of this decision may also be purchased from the Commission's copy contractors, International Transcription Service, (202) 857-3800, 2100 M Street, NW., Suite 140, Washington, DC 20037.

Provisions of the Regulatory Flexibility Act of 1980 do not apply to this proceeding.

Members of the public should note that from the time a Notice of Proposed Rule Making is issued until the matter is no longer subject to Commission consideration or court review, all *ex parte* contacts are prohibited in Commission proceedings, such as this one, which involve channel allotments. See 47 CFR 1.1204(b) for rules governing permissible *ex parte* contact.

For information regarding proper filing procedures for comments, See 47 CFR 1.415 and 1.420.

List of Subjects in 47 CFR Part 73

Radio broadcasting.

Federal Communications Commission.

Karl A. Kensinger,

Chief, Allocations Branch, Policy and Rules Division, Mass Media Bureau.

[FR Doc. 89-28219 Filed 12-1-89; 8:45 am]

BILLING CODE 6712-01-M

47 CFR Part 73

[MM Docket No. 89-536, RM-7064]

Radio Broadcasting Services; Ashley, MI

AGENCY: Federal Communications Commission.

ACTION: Proposed rule.

SUMMARY: This document requests comments on a petition filed by William V. Constine, proposing the allotment of FM Channel 223A to Ashley, Michigan, as that community's first FM broadcast service. Canadian concurrence will be requested at coordinates 43-11-12 and 84-28-30.

DATES: Comments must be filed on or before January 19, 1990, and reply comments on or before February 5, 1990.

ADDRESSES: Federal Communications Commission, Washington, DC 20554. In addition to filing comments with the FCC, interested parties should serve the petitioner, or its counsel or consultant, as follows: Lauren A. Colby, 10 East Fourth Street, P.O. Box 113, Frederick, Maryland 21701, (Counsel for the petitioner).

FOR FURTHER INFORMATION CONTACT: Kathleen Scheuerle, Mass Media Bureau, (202) 634-6530.

SUPPLEMENTARY INFORMATION: This is a synopsis of the Commission's Notice of Proposed Rule Making, MM Docket No. 89-536, adopted November 13, 1990, and released November 28, 1990. The full text of this Commission decision is available for inspection and copying during normal business hours in the FCC Dockets Branch (Room 230), 1919 M Street, NW., Washington, DC. The complete text of this decision may also be purchased from the Commission's copy contractors, International Transcription Service, (202) 857-3800,

2100 M Street, NW., Suite 140, Washington, DC 20037.

Provisions of the Regulatory Flexibility Act of 1980 do not apply to this proceeding.

Members of the public should note that from the time a Notice of Proposed Rule Making is issued until the matter is no longer subject to Commission consideration or court review, all *ex parte* contacts are prohibited in Commission proceedings, such as this one, which involve channel allotments. See 47 CFR 1.1204(b) for rules governing permissible *ex parte* contacts. For information regarding proper filing procedures for comments, see 47 CFR 1.415 and 1.420.

List of Subjects in 47 CFR part 73

Radio broadcasting.

Federal Communications Commission.

Karl Kensinger,

Chief, Allocations Branch, Policy and Rules Division, Mass Media Bureau.

[FR Doc. 89-28215 Filed 2-1-89; 8:45 am]

BILLING CODE 6712-01-M

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47 CFR Part 73

[MM Docket No. 89-528, RM-7045]

Radio Broadcasting Services; Hatteras, NC

AGENCY: Federal Communications Commission.

ACTION: Proposed rule.

SUMMARY: The Commission requests comments on a petition by Heart of Dixie Broadcasting, Inc., seeking the allotment of Channel 232A to Hatteras, North Carolina, as the community's second local FM service. Channel 232A can be allotted to Hatteras in compliance with the Commission's minimum distance separation requirements without the imposition of a site restriction. The coordinates for this allotment are North Latitude 35-12-54 and West Longitude 75-41-30.

DATES: Comments must be filed on or before January 18, 1990, and reply comments on or before February 2, 1990.

ADDRESSES: Federal Communications Commission, Washington, DC 20554. In addition to filing comments with the FCC, interested parties should serve the petitioner, or its counsel or consultant, as follows: Toni T. Rinehart, President, Heart of Dixie Broadcasting, Inc., 2557-E Mountain Lodge Circle, Birmingham, Alabama 35216 (Petitioner).

FOR FURTHER INFORMATION CONTACT: Leslie K. Shapiro, Mass Media Bureau, (202) 634-6530.

SUPPLEMENTARY INFORMATION: This is a synopsis of the Commission's Notice of Proposed Rule Making, MM Docket No. 89-528, adopted November 8, 1989, and released November 27, 1989. The full text of this Commission decision is available for inspection and copying during normal business hours in the FCC Dockets Branch (Room 230), 1919 M Street, NW., Washington, DC. The complete text of this decision may also be purchased from the Commission's copy contractor, International Transcription Service, (202) 857-3800, 2100 M Street, NW., Suite 140, Washington, DC 20037.

Provisions of the Regulatory Flexibility Act of 1980 do not apply to this proceeding.

Members of the public should note that from the time a Notice of Proposed Rule Making is issued until the matter is no longer subject to Commission consideration or court review, all *ex parte* contacts are prohibited in Commission proceedings, such as this one, which involve channel allotments. See 47 CFR 1.1204(b) for rules governing permissible *ex parte* contacts.

For information regarding proper filing procedures for comments, see 47 CFR 1.415 and 1.420.

List of Subjects in 47 CFR Part 73

Radio broadcasting.

Federal Communications Commission.

Karl A. Kensinger,

Chief, Allocations Branch, Policy and Rules Division, Mass Media Bureau.

[FR Doc. 89-28214 Filed 12-1-89; 8:45 am]

BILLING CODE 6712-01-M

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47 CFR Part 73

[MM Docket No. 89-535, RM-6980]

Radio Broadcasting Services; Elizabeth City, NC and Chesapeake, VA

AGENCY: Federal Communications Commission.

ACTION: Proposed rule.

SUMMARY: This document requests comments on a petition by Edge Broadcasting Company, licensee of State WMYK(FM), Channel 229C, Elizabeth City, North Carolina, proposing the change of community of license for Channel 229C at Elizabeth City to Chesapeake, Virginia, and the modification of its license accordingly. The proposal will not require a change in Station WMYK(FM)'s present transmitter site, which is located at coordinates 36-32-57 and 76-11-21.

DATES: Comments must be filed on or before January 19, 1990, and reply comments on or before February 5, 1990.

ADDRESSES: Federal Communications Commission, Washington, DC 20554. In addition to filing comments with the FCC, interested parties should serve the petitioner, or their counsel or consultant, as follows: William M. Barnard, Esquire, Pamela C. Cooper, Esquire, McFadden, Evans & Sill, 1220 19th Street, NW., Suite 501, Washington, DC 20036 (Counsel for petitioner).

FOR FURTHER INFORMATION CONTACT: Patricia Rawlings, (202) 634-6530.

SUPPLEMENTARY INFORMATION: This is a synopsis of the Commission's Notice of Proposed Rule Making, MM Docket No. 89-535, adopted November 13, 1989, and released November 28, 1989. The full text of this Commission decision is available for inspection and copying during normal business hours in the FCC Dockets Branch (Room 230), 1919 M Street, NW., Washington, DC. The complete text of this decision may also be purchased from the Commission's copy contractor, International Transcription Service, (202) 857-3800, 2100 M Street, NW., Suite 140, Washington, DC 20037.

Provisions of the Regulatory Flexibility Act of 1980 do not apply to this proceeding.

Members of the public should note that from the time a Notice of Proposed Rule Making is issued until the matter is no longer subject to Commission consideration or court review, all *ex parte* contacts are prohibited in Commission proceedings, such as this one, which involve channel allotments. See 47 CFR 1.1204(b) for rules governing permissible *ex parte* contacts.

For information regarding proper filing procedures for comments, see 47 CFR 1.415 and 1.420.

List of Subjects in 47 CFR Part 73

Radio broadcasting.

Federal Communications Commission.

Karl A. Kensinger,

Chief, Allocations Branch, Policy and Rules Division, Mass Media Bureau.

[FR Doc. 89-28220 Filed 12-1-89; 8:45 am]

BILLING CODE 6712-01-M

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47 CFR Part 73

[MM Docket No. 89-527, RM-7044]

Radio Broadcasting Services; Valley City, ND

AGENCY: Federal Communications Commission.

ACTION: Proposed rule.

SUMMARY: The Commission requests comments on a petition by Ingstad Broadcasting, Inc., seeking the substitution of Channel 266C1 for Channel 265A at Valley City, North Dakota, and the modification of its license for Station KLPR to specify the higher powered channel. Channel 266C1 can be allotted to Valley City in compliance with the Commission's minimum distance separation requirements with a site restriction of 8.2 kilometers (5.1 miles) southwest to avoid a short-spacing to Station KBHP, Channel 266C1, Bemidji, Minnesota. The coordinates for this allotment are North Latitude 46–50–52 and West Longitude 98–03–02. Canadian concurrence is required since Valley City is located within 320 kilometers of the U.S.-Canadian border. In accordance with § 1.420 of the Commission's Rules, we will not accept competing expressions of interest in use of Channel 266C1 at Valley City or require the petitioner to demonstrate the availability of an additional equivalent class channel for use by such parties.

DATES: Comments must be filed on or before January 19, 1990, and reply comments on or before February 5, 1990.

ADDRESSES: Federal Communications Commission, Washington, DC 20554. In addition to filing comments with the FCC, interested parties should serve the petitioner, or its counsel or consultant, as follows: Clifford M. Harrington, Esq., Fisher, Wayland, Cooper and Leader, 1255–23rd Street, NW., Suite 800, Washington, DC 20037 (Counsel to petitioner).

FOR FURTHER INFORMATION CONTACT: Leslie K. Shapiro, Mass Media Bureau, (202) 634–6530.

SUPPLEMENTARY INFORMATION: This is a synopsis of the Commission's Notice of Proposed Rule Making, MM Docket No. 89–527, adopted November 8, 1989, and released November 28, 1989. The full text of this Commission decision is available for inspection and copying during normal business hours in the FCC Dockets Branch (Room 230), 1919 M Street, NW., Washington, DC. The complete text of this decision may also be purchased from the Commission's copy contractor, International Transcription Service, (202) 857–3800, 2100 M Street, NW., Suite 140, Washington, DC 20037.

Provisions of the Regulatory Flexibility Act of 1980 do not apply to this proceeding.

Members of the public should note that from the time a Notice of Proposed Rule Making is issued until the matter is no longer subject to Commission consideration or court review, all *ex parte* contacts are prohibited in Commission proceedings, such as this one, which involve channel allotments. See 47 CFR 1.1204(b) for rules governing permissible *ex parte* contacts.

For information regarding proper filing procedures for comments, see 47 CFR 1.415 and 1.420.

List of Subjects in 47 CFR Part 73

Radio broadcasting.

Federal Communications Commission.

Karl A. Kensinger,

Chief, Allocations Branch, Policy and Rules Division, Mass Media Bureau.

[FR Doc. 89–28217 Filed 12–1–89; 8:45 am]

BILLING CODE 6712–01–M

DEPARTMENT OF TRANSPORTATION

Federal Highway Administration

National Highway Traffic Safety Administration

49 CFR Parts 393 and 571

[NHTSA Docket No. 88–14, Notice 2]

RIN 2127–AC83

Federal Motor Vehicle Safety Standards; Parts and Accessories Necessary for Safe Operation

AGENCY: National Highway Traffic Safety Administration (NHTSA), Federal Highway Administration (FHWA), Department of Transportation.

ACTION: Termination of rulemaking.

SUMMARY: Mr. W.A. Barr submitted a petition to NHTSA concerning the devices which connect heavy truck tractors and trailers. According to the petitioner, present designs of the lock of the fifth wheel on tractors and the kingpin on trailers make it possible for the driver to obtain what is called a "high hitch," or false latch, when the driver attempts to connect a trailer to a tractor. Mr. Barr stated that if a high hitch occurs, the trailer may separate from the tractor during highway driving. After evaluating the petition, NHTSA concluded that there was a reasonable possibility that the order requested in the petition would be issued at the conclusion of a rulemaking proceeding, and published a notice of its decision to grant the petition in the **Federal Register.** The notice also requested comments on several issues concerning high hitches. However, after analyzing all available information, including comments received in response to the notice, the agency is unable to conclude that the safety benefits of a standard for kingpin performance to eliminate high hitches would be sufficient to justify promulgating such a requirement. Accordingly, the rulemaking is terminated. This notice is being issued jointly with FHWA, since some of the issues relate to its possible regulation of vehicles currently in use as well as to this agency's regulation of newly manufactured vehicles.

FOR FURTHER INFORMATION CONTACT: NHTSA: Mr. Richard Carter, Office of Vehicle Safety Standards, National Highway Traffic Safety Administration, 400 Seventh Street, SW., Washington, DC 20590. Telephone: (202) 366–5274. FHWA: Mr. Robert Hagan, Office of Motor Carrier Standards, Federal Highway Administration, 400 Seventh Street, SW., Washington, DC 20590. Telephone: (202) 366–2981.

SUPPLEMENTARY INFORMATION: Mr. W.A. Barr submitted a petition to NHTSA concerning the devices which connect tractors to trailers. According to the petitioner, present designs of the kingpin on trailers and the lock of the fifth wheel on tractors make it possible for the driver to obtain what is called a "high hitch," or false latch, when the driver attempts to connect a tractor to a trailer. Mr. Barr stated that if a high hitch occurs, the trailer may separate from the tractor during highway driving. According to the petitioner, the accidents which have occurred from high hitches are not frequent, but usually are very serious when an automobile strikes an uncontrolled trailer which has separated from a tractor.

Mr. Barr characterized his petition as one requesting the agency to commence a proceeding to determine whether to issue an order concerning notification and remedy of a defect in equipment that relates to motor vehicle safety. The petitioner also requested that NHTSA issue a standard for the kingpin which will not permit a high hitch. The petitioner stated that this may also mean changes to the fifth wheel locks. Mr. Barr stated that one possible approach would be to make the bottom diameter of the kingpin larger than the diameter of the recess in the lock so that the hinged lock cannot be closed if the bottom of the kingpin is placed in the recess during the hitching process.

As part of its efforts to evaluate Mr. Barr's petition, NHTSA contacted several manufacturers of fifth wheels about high hitches. The agency was advised by some manufacturer representatives that it is possible to false latch most of the designs on the

market. It was generally contended, however, that it is the responsibility of the truck driver to conduct an inspection to ensure a proper connection. NHTSA believes, based on discussions with heavy truck fleet managers, that a typical estimate for high hitches is about two or three per year for a fleet of one thousand trucks, and that most separations occur before the truck reaches the public highway. The agency is unaware of any data concerning injuries resulting from false latching.

NHTSA published a notice in August 1988, granting the petition and requesting comments. 53 FR 31378 (August 18, 1988). The agency received eleven responses, including comments from all four major fifth wheel manufacturers and seven large users of fifth wheels. None of the commenters supported the creation of a new Federal motor vehicle safety standard to address false latching.

The commenters' objections focused on the infrequency of high hitches, and the fact that many cases of high hitching are a result of the driver's failure to visually confirm the latching of the kingpin to the fifth wheel. This visual confirmation is recommended by all major fifth wheel manufacturers. In addition, NHTSA notes that the Federal Motor Carrier Safety Regulations, at 49 CFR 392.7, require a driver to confirm that the coupling device is functioning in good order. The commenters also raised concern about the costs of complying with a new standard for kingpins, particularly if existing trailers were required to be retrofitted with the new kingpin. Commenters also expressed concern about the compatibility of existing fifth wheels with a new kingpin design, suggesting that mismatched equipment might actually result in an increase in false latching incidents. In addition, three fifth wheel manufacturers indicated that they had models available which presently contain a kingpin height-sensing arrangement as part of the locking mechanism, which is designed to prevent high hitches.

Discussions between NHTSA staff and representatives of fifth wheel users and manufacturers after the agency had prepared the notice granting the petition indicated that significant progress is being made toward the development and availability of more fifth wheel units which incorporate means for sensing the position of the kingpin in relation to the fifth wheel. The discussion also indicated that there are proprietary systems currently under development by fifth wheel manufacturers which should further reduce the number of high hitches.

NHTSA believes that the industry's efforts to improve fifth wheel designs should be effective in reducing the number of high hitches without the need for new kingpin designs and the resulting concerns about compatibility between new and existing equipment.

The accident data discussed in the August 1988 notice indicate that high hitches do not result in a large number of accidents. These data are corroborated by data submitted by the commenters. NHTSA believes that based upon the information submitted by commenters and obtained by the agency in discussions with manufacturers and users of fifth wheels, the costs of a federal standard for kingpins seeking to eliminate false latching outweigh the potential safety benefits which would be gained from such an action. Accordingly, the rulemaking is terminated.

List of Subjects in 49 CFR Parts 393 and 571

Highways and roads, Highway safety, Imports, Motor carriers, Motor vehicle safety, Motor vehicles, Rubber and rubber products, Tires.

Issued November 29, 1989.

Thomas D. Larson,

Administrator, Federal Highway Administration.

Barry Felrice,

Associate Administrator for Rulemaking, NHTSA.

[FR Doc. 89-28253 Filed 12-1-89; 8:45 am]

BILLING CODE 4910-59-M

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018-AB

Endangered and Threatened Wildlife and Plants: Reopening of Comment Period for Lower Keys Rabbit and Squirrel Chimney Cave Shrimp

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule; reopening of comment period.

SUMMARY: The Service reopens the comment period on the proposed rule to list the Lower Keys rabbit as an endangered species, and the Squirrel Chimney cave shrimp as a threatened species, pursuant to the Endangered Species Act of 1973, as amended (Act). The required newspaper summaries for these proposals were inadvertently not published. The reopened comment period is to allow for the publication of newspaper notices and for subsequent comment.

DATE: Comments from all interested parties must be received by January 3, 1990.

ADDRESS: Comments and materials should be sent to the Field Supervisor, U.S. Fish and Wildlife Service, 3100 University Boulevard South, Suite 120, Jacksonville, Florida 32216. Comments and materials received will be available for public inspection, by appointment, during normal business hours at the above address.

FOR FURTHER INFORMATION CONTACT: David J. Wesley, Field Supervisor, at the above address (telephone 904/791-2580 or FTS 946-2580).

SUPPLEMENTARY INFORMATION:

Background

On August 30, 1989 (54 FR 35905-35908), the Service proposed listing the Lower Keys rabbit (*Sylvilagus palustris hefneri*) as an endangered species, and the Squirrel Chimney cave shrimp (*Palaemonetes cummingi*) as a threatened species, pursuant to the Act. The Lower Keys rabbit is restricted to a few keys in Monroe County, Florida, and is endangered by residential development. The Squirrel Chimney cave shrimp is found only at one site in Alachua County, Florida, where it is threatened by potential residential development. The comment period for the proposed rule opened on August 30, 1989, and closed on October 30, 1989.

Section 4(b)(5)(D) of the Act requires that a summary of proposed listing regulations be published in a newspaper of general circulation in the area in which the species occurs. The newspaper summaries for the Lower Keys rabbit and the Squirrel Chimney cave shrimp were apparently lost during mailing and were not published. The Service is reopening the comment period for the proposal to list those species in order to publish newspaper summaries and to receive any resulting comments.

Author

The primary author of this notice is Dr. Michael M. Bentzien (see **ADDRESSES** section).

Authority

The authority for this notice is the Endangered Species Act (16 U.S.C. 1531-1543).

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Fish, Marine mammals, Plants (agriculture).

Dated: November 22, 1989.

James W. Pulliam, Jr.,

Regional Director.

[FR Doc. 89-28254 Filed 12-1-89; 8:45 am]

BILLING CODE 4310-55-M

Notices

Federal Register
Vol. 54, No. 231
Monday, December 4, 1989

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

Forms Under Review by Office of Management and Budget

December 1, 1989.

The Department of Agriculture has submitted to OMB for review the following proposals for the collection of information under the provisions of the Paperwork Reduction Act (44 U.S.C. chapter 35) since the last list was published. This list is grouped into new proposals, revisions, extensions, or reinstatements. Each entry contains the following information.

(1) Agency proposing the information collection; (2) Title of the information collection; (3) Form number(s), if applicable; (4) How often the information is requested; (5) Who will be required or asked to report; (6) An estimate of the number of responses; (7) An estimate of the total number of hours needed to provide the information; (8) An indication of whether section 3504(h) of Public Law 96–511 applies; (9) Name and telephone number of the agency contact person.

Questions about the items in the listing should be directed to the agency person named at the end of each entry. Copies of the proposed forms and supporting documents may be obtained from: Department Clearance Officer, USDA, OIRM, Room 404–W Admin. Bldg., Washington, DC 20250, (202) 447–2118.

Revision

- National Agricultural Statistics Service
- Fruit, Nut, and Specialty Crops
- None
- On occasion; Monthly; Annually
- Farms; Businesses or other for-profit; 54,452 responses; 15,123 hours; not applicable under 3504(h)
- Larry Gambrell (202) 447–7737

Extension

- Forest Service
- Commercial use of "Woodsy Owl" symbol
- None
- Quarterly
- Businesses or other for-profit; 40 responses; 60 hours; not applicable under 3504(h)
- Janet H. Sledge, (202) 447–5060.

Larry K. Roberson,

Acting Departmental Clearance Officer.

[FR Doc. 89–28295 Filed 12–1–89; 8:45am]

BILLING CODE 3410–01–M

DEPARTMENT OF COMMERCE

Agency Information Collection Under Review by the Office of Management and Budget

DOC has submitted to the Office of Management and Budget (OMB) for clearance the following proposal for collection of information under the provisions of the Paperwork Reduction Act (44 U.S.C. Chapter 35).

Agency: United States Travel and Tourism Administration.

Title: Survey of International Air Travelers.

Form Number: Agency—N/A; OMB—0605–0007.

Type of Request: Extension of the expiration date of a currently approved collection

Burden: 165,600 respondents; 24,840 reporting hours. Average minutes per response is nine.

Needs and Uses: The National Tourism Policy Act directs the Department to assist in the collection, analysis, and dissemination of tourism data. This survey provides consumer marketing data on international travelers and is used to identify and analyze specific foreign travel markets. It is used by private and public sector entities in developing marketing programs.

Affected Public: Individuals.

Frequency: Monthly.

Respondent's Obligation: Voluntary.

OMB Desk Officer: Donald Arbuckle, 395–7340.

Copies of the above information collection proposal can be obtained by calling or writing DOC Clearance Officer, Edward Michals (202) 377–3271, Department of Commerce, Room 6622, 14th and Constitution Avenue NW., Washington, DC 20230.

Written comments and recommendations for the proposed information collection should be sent to Donald Arbuckle, OMB Desk Officer, Room 3208, New Executive Office Building, Washington, DC. 20503.

Dated: November 28, 1989.

Edward Michals,

Departmental Clearance Officer, Office of Management and Organization.

[FR Doc. 89–28225 Filed 12–1–89; 8:45 am]

BILLING CODE 3510–CW

Agency Form Under Review by the Office of Management and Budget

DOC has submitted to the Office of Management and Budget (OMB) for clearance the following proposal for collection of information under the provisions of the Paperwork Reduction Act (44 U.S.C. Chapter 35).

Agency: Bureau of the Census.

Title: Puerto Rico Multi-unit Follow-up and Reconciliation Record.

Form Number: D–1011PR.

Agency Approval Number: None.

Type of Request: New collection.

Burden: 2,750 hours.

Number of Respondents: 11,000.

AVG Hours Per Response: 15 minutes.

Needs and Uses: This operation is designed to improve coverage for multi-unit structures containing 50 or more units. Census workers will compare census address listing books prepared during the list/enumerate operation to an administrative list of residential addresses supplied by the Puerto Rico Electric Company. Any non-matched units will be reconciled and/or enumerated for the 1990 census counts.

Affected Public: Individuals or households.

Frequency: One time only.

Respondent's Obligation: Mandatory.

OMB Desk Officer: Donald Arbuckle, 395–7340.

Copies of the above information collection proposal can be obtained by calling or writing Edward Michals, DOC Clearance Officer, (202) 377–3271, Department of Commerce, Room H6622, 14th and Constitution Avenue NW., Washington, DC 20230.

Written comments and recommendations for the proposed information collection should be sent to Don Arbuckle, OMB Desk Officer, Room 3208, New Executive Office Building, Washington, DC 20503.

Dated: November 27, 1989.

Edward Michals,

Departmental Clearance Officer, Office of Management and Organization.

[FR Doc. 89-28223 Filed 12-1-89; 8:45 am]

BILLING CODE 3510-07-M

Agency Form Under Review by the Office of Management and Budget

DOC has submitted to the Office of Management and Budget (OMB) for clearance the following proposal for collection of information under the provisions of the Paperwork Reduction Act (44 U.S.C. Chapter 35).

Agency: Bureau of the Census.

Title: U.S. Census—Age Search.

Form Number: BC-600, BC-649, BC-658.

Agency Approval Number: 0607-0117.

Type of Request: Revision of a currently approved collection.

Burden: 8,608 hours.

Number of Respondents: 51,080.

Avg Hours Per Response: BC-600. . . 12 min., BC-649. . . 6 min., BC-658. . . 6 min.

Needs and Uses: The Personal Census Services Branch in Pittsburg, Kansas, maintains the 1900-1980 Federal censuses for searching purposes. The purpose of searching is to furnish, upon request, transcripts of personal data from historical population census records. Information relating to age, place of birth, and citizenship is furnished upon payment of the established fee to individuals for their use in qualifying for Social Security, old age benefits, retirement, court litigation, passports, insurance settlements, etc.

Affected Public: Individuals or households.

Frequency: Upon request.

Respondent's Obligation: Required to obtain or retain a benefit.

OMB Desk Officer: Don Arbuckle, 395-7340.

Copies of the above information collection proposal can be obtained by calling or writing Edward Michals, DOC Clearance Officer, (202) 377-3271, Department of Commerce, Room H6622, 14th and Constitution Avenue NW., Washington, DC 20230.

Written comments and recommendations for the proposed information collection should be sent to Don Arbuckle, OMB Desk Officer, Room 3208, New Executive Office Building, Washington, DC 20503.

Dated: November 27, 1989.

Edward Michals,

Departmental Clearance Officer, Office of Management and Organization.

[FR Doc. 89-28224 Filed 12-1-89; 8:45 am]

BILLING CODE 3510-07-M

National Oceanic and Atmospheric Administration

Final Amendment of Foreign Fishing Permits for the Bering Sea and Aleutian Islands Groundfish Fishery

AGENCY: National Marine Fisheries Service (NMFS), NOAA, Commerce.

ACTION: Final permit amendment.

SUMMARY: NOAA makes final its proposal to amend foreign fishing permits for vessels of the Governments of Japan, the Republic of Korea, Iceland, the People's Republic of China, and the Union of Soviet Socialist Republics. An additional restriction has been attached to the permits of all vessels of the above named countries currently authorized to receive Alaska pollock from the U.S. fishing vessels in the Bering Sea and Aleutian Islands (BSAI) management area. The restriction limits the authorizations of these vessels to receive any further amounts of Alaska pollock JVP for the balance of 1989.

EFFECTIVE DATE: November 27, 1989, 1:00 p.m. Alaska Standard Time.

FOR FURTHER INFORMATION CONTACT: Alfred J. Bilik, (301) 427-2337, or telex 467856 US COMM FISH CI.

SUPPLEMENTARY INFORMATION: NOAA published a notice of proposed amendment of foreign fishing permits for the Bering Sea and Aleutian Islands groundfish fishery at 54 FR 43193, October 23, 1989. The notice provided 30 days for public comments until November 22, 1989.

The notice proposed to amend permits for vessels of the Governments of Japan, the Republic of Korea, Iceland, the People's Republic of China, and the Union of Soviet Socialist Republics, to restrict the authorization of vessels of these nations to receive Alaska pollock from U.S. vessels engaged in the directed fisheries for pollock in the Bering Sea and Aleutian Islands (BSAI). The proposed amendment would be consistent with the President's desire to accord favorable treatment to Poland in recognition of the advancement of democratic principles under its new government. It would be intended to ensure that Polish vessels authorized to receive Alaska groundfish in the BSAI have the opportunity to receive additional pollock from U.S. fishermen.

Subsequent to the publication of the notice of the proposed amendment, information was received from a representative of the Polish government indicating the Polish vessels would be able only to receive approximately 10,000 metric tons (mt) in addition to the amounts taken under the olympic system.

Related to the notice proposing the permit amendment was a notice of inseason action published at 54 FR 47684 on November 9, 1989. This action reapportioned and released in the Bering Sea subarea and from the 27,000 mt non-specific reserve 21,000 mt of Alaska pollock to DAP and 2,500 mt of Alaska pollock to JVP. In the Aleutian Islands subarea, 4,500 mt of pollock in excess of DAP needs were released to JVP. The above action provided for the continuation of the olympic JVP fishery until the amounts of pollock which could be needed to provide this opportunity for Polish vessels remained. In an action concurrent with the decision which is the subject of this notice, NOAA made available through reapportionment 6,518 mt of Alaska pollock for the JVP in the Aleutian Islands subarea and 3,500 mt of Alaska pollock in the Bering Sea subarea for JVP. This reapportionment to JVP is intended to provide an opportunity for Polish vessels to receive the entire balance of the pollock JVP in the Aleutian Islands subarea and at least 1,100 mt but no more than 3,500 mt of the reapportioned pollock JVP in the Bering Sea subarea, consistent with the President's desire to accord Poland favorable treatment.

Comments

Sixteen comments were received on the proposed permit amendment and six other comments addressed NOAA's intent to provide special consideration to Poland. Eleven comments supported the proposal; eleven comments did not support the proposal.

The following significant comments were received in opposition to the proposed amendment. Replies to these comments are provided with each item because specific points were made in each comment.

1. Notice or opportunity to comment on Poland's request was not given before NOAA published the **Federal Register** notice of its intention to abandon the olympic system. This action should have been discussed publicly before the North Pacific Fishery Management Council (NPFMC) in September. There was a lack of review in the public forum by the NPFMC as had been the standard operating procedure for more than 10 years.

Reply: NOAA concluded that the request from Poland was properly reviewed by the NPFMC in executive session. NOAA also employed the procedures set out in 50 CFR 611.3 to allow the public an opportunity to comment on the proposal.

2. That commenter also stated only fish which are surplus to U.S. needs could be made available to Poland, and that an intermediate company could be selected democratically, say by an RFP, and a lottery might be used to select which of the 81 U.S. vessels currently fishing would fish for the Poles.

Reply: The recent actions taken by the Alaska Region, NMFS, to assess fish in excess of domestic processors' needs and to apportion the excess between the amount needed for on-going joint venture operations and what might be required to provide Polish vessels this special opportunity for pollock takes into account fairness to olympic operations, the possibility of approval of a special Polish joint venture allocation, and the effects of this action on joint venture operations of other groundfish species.

3. There were said to be market implications for U.S. pollock block and other pollock product producers in competition with heavily subsidized Polish products in a highly competitive U.S. market. The pollock blocks produced in the Polish joint venture will not be used for Polish consumption, but will rather be sold on the U.S. market. The commenter said a Commerce report cites the sale of Polish blocks on the U.S. market in competition with U.S. production as a cause of lower U.S. prices.

Reply: NOAA believes the production to be derived from this proposal represents a minor part of the pollock block production from joint venture operations. If Polish vessels receive 10,000 mt from U.S. fishermen, this would represent less than four percent of the total production in 1989. NOAA does not believe this action will have a significant effect on domestic block prices.

4. Some claimed it is unfair to insert a preferred player into the joint venture process at this time when there has been a rapid decline in the available JVP. An effective preference has been provided to Poland between the DAP and JVP by this action. This preference ignores prices and the free market system. The proposal discriminates against other U.S. fishermen and fishing nations.

Reply: No preference has been inserted between the DAP and JVP fisheries. Polish vessels may only receive fish from U.S. fishermen (as distinguished from fishing directly in preference to JVP fishing). U.S. fishermen are not precluded from attempting to obtain contracts with Polish fishing companies. And as noted in the proposal, there is no implication of similar preferences in the future. NOAA therefore believes this proposal does not establish a new hierarchy of preferences.

5. Fishing in the "donut hole" apparently improves late in the season. Once having left the Bering Sea, it will be difficult to induce foreign vessels to return should Polish vessels be unable to take the amount made available.

Reply: The small amount made available is likely the controlling factor in any decision to return to the EEZ from the donut hole. With the large number of fishing vessels understood by NOAA to be operating in the donut hole, it is possible that one or two large vessels might be induced to return to the EEZ if such an opportunity were to arise for any amount of fish remaining.

6. U.S. catcher vessels must either sign up with the Polish operators, return to home port or lay over in Unalaska. Significant losses of crew, return on investment and fishing time will result from any layover to await availability of additional JVP should Polish vessels not take it.

Reply: The Government of Poland advised NOAA that it expected to take 10,000 mt of pollock if available. Less than 10,000 mt is expected to be available for harvest when complete catch reports are summarized. Should any remain unharvested, it would likely be a small amount, and of doubtful economic value if the associated costs of harvesting were unusually large. Therefore, decisions on whether to fish for Polish vessels, lay over and await the outcome of this action, or to return to home port are each U.S. vessel captain's to make.

7. Others claimed that NOAA legal counsel has advised the Council that it is illegal to compel U.S. fishermen to deliver their catch to any particular port or processor. Compelling fishermen to deliver to Polish processors was said to have GATT implications.

Reply: Neither this action nor the Magnuson Act restricts the export of fish or fish products to other nations or compels U.S. fishermen to deliver their catch to particular ports or processors. The so-called joint venture provisions of the Magnuson Act restrict the opportunity of foreign vessels to receive fish at sea from U.S. vessels within the exclusive economic zone (EEZ). The activities affected by this restriction are fish processing and fish transport within the EEZ. The General Agreement on Tariffs and Trade (GATT) applies to trade in raw materials or products; it does not apply to trade in services. Fish processing and fish transport are services and are not covered by GATT. Foreign fish buyers are free to buy U.S. fish or fish products—they may use a U.S. flag vessel to receive fish at sea or they may use a foreign flag vessel to receive fish in port. NOAA concludes there are no GATT implications.

8. One commenter claimed there is significantly more pollock surplus to DAP needs than NMPS has identified. Since this issue is not related to conservation or the National Security or defense, 17,018 mt should be released to JVP immediately.

Reply: NMFS did release 7,000 mt of pollock to JVP on November 9, but until the final decision was made to support the President's foreign policy objectives, 10,018 mt were held back as potentially available to Poland.

9. This proposal was claimed not to have originated with the President but rather with certain U.S. interests who stand to benefit by its approval.

Reply: This action was proposed and is now made final based on the President's foreign policy objectives and the support expressed by the Department of State and some members of Congress and the Senate.

The following comments were offered in support of the proposal. These comments were less specific than opposing comments and they are therefore addressed as a whole. Most of the comments supporting the proposal addressed its foreign policy aspects and viewed it as a significant contribution to U.S. efforts to assist Poland without burdening the Federal budget. The participation by domestic fishermen who will fish for Polish processing vessels was viewed as an active involvement of the private sector in assisting Poland. Some commenters understood that a part of the allocation would be directed toward filling Poland's immediate food needs and the balance would be used to produce hard currency for paying operational costs.

At least one supporting comment addressed some of the specific concerns voiced by opponents. The commenter stated that the procedural steps taken by NOAA in this notice provide for adequate public review of the proposal and that the Council in executive session interposed no objection to granting the Polish request. The commenter felt consideration in executive session was appropriate since the matter, he said, was related to the national security.

Decision

Based on the comments and views expressed to NOAA on this issue and the overriding foreign policy implications of a favorable decision, the Administrator, NOAA, had decided to amend the permits of vessels of all nations authorized to receive U.S. harvested fish in the BSAI.

The following final additional restriction has been applied to permits of the vessels of the Governments of Japan, the Republic of Korea, Iceland, the Peoples Republic of China, and the Union of Soviet Socialist Republics, effective 1 p.m. on November 27, 1989. This restriction is a revision of the proposal at 54 FR 43193 and takes into account its potential effects on other Alaska groundfish fisheries which may involve a bycatch of Alaska pollock. It allows more discretion to the Regional Director, Alaska Region, to allow achievement of the optimum yield in the Alaska groundfish fisheries of the BSAI.

Permit Restriction

(a) Restrictions on receipt of fish.

* * * * *

(3) The authorization to receive groundfish granted to all vessels of the nation named above is restricted effective 1:00 p.m. Alaska Standard Time, Novmeber 27, 1989. This restriction terminates that part of the authorization to receive Alaska groundfish by prohibiting the receipt of Alaska pollock from U.S. fishing vessels engaged in fisheries for Alaska groundfish in the Bering Sea and Aleutian Islands management area.

This restriction is imposed after providing notice and 30 days for comments under 50 CFR 611.3(1). The restriction is in accordance with foreign policy objectives of the United States. The Regional Director, Alaska Region, may suspend or modify this restriction in order to fully achieve the optimum yield for the Alaska groundfish fisheries.

* * * * *

Consistent with procedural requirements of § 611.3, the restriction was provided to the Department of State on Novmeber 27, 1989, for transmittal to the appropriate foreign nations. Appointed agents and designated representatives for fishing vessels of each affected nation were advised by telecommunicated copies of the restriction prior to its being made effective.

Dated: Novmeber 28, 1989.

James E. Douglas, Jr.

Acting Assistant Administrator for Fisheries.

[FR Doc. 89-28247 Filed 11-28-89; 5:03 pm]

BILLING CODE 3510-22-M

Pacific Fishery Management Council; Public Meeting

AGENCY: National Marine Fisheries Service, NOAA, Commerce.

Members of the Pacific Fishery Management Council's Salmon Advisory Subpanel (SAS), representing recreational and charter fishing interests north of Cape Falcon, OR, will hold a public meeting on December 11, 1989, at 9:30 a.m., at the Governor House Execulodge, 621 South Capital Way, Olympia, WA. The SAS will develop fishery management plan amendment alternatives for the geographic distribution of the recreational harvest allocation north of Cape Falcon. A report of the amendment alternatives developed by the group will be reviewed by the Pacific Council and reported on at the Pacific Council's March 1990 meeting. These management alternatives could be incorporated in the next annual amendment cycle, resulting in the implementation of a preferred management alternative in 1991.

Comments pertaining to the geographic distribution of the recreational ocean salmon harvest allocation north of Cape Falcon will be accepted at appropriate times.

For more information contact Lawrence D. Six, Executive Director, Pacific Fishery Management Council, 2000 S.W. First Avenue, Portland, OR 97201; telephone: (503) 326-6352.

Dated: November 28, 1989.

David S. Crestin,

Deputy Director Office of Fisheries Conservation and Management, National Marine Fisheries Service.

[FR Doc. 89-28248 Filed 12-1-89; 8:45 am]

BILLING CODE 3510-22-M

COMMODITY FUTURES TRADING COMMISSION

Public Information Collection Requirement Submitted to Office of Management and Budget for Review

AGENCY: Commodity Futures Trading Commission.

ACTION: Notice of information collection.

SUMMARY: The Commodity Futures Trading Commission has submitted information collection 3038-0015, Copies of Crop and Market Information Reports, to OMB for review and clearance under the Paperwork Reduction Act of 1980, Public Law 96-511. The information collected pursuant to this rule is in the public interest and is necessary for market surveillance.

ADDRESS: Persons wishing to comment on this information collection should contact Gary Waxman, Office of Management and Budget, room 3228, NEOB, Washington, DC 20502, (202) 395-7340. Copies of the submission are available from Joseph G. Salazar, Agency Clearance Officer, (202) 254-9735.

Title: Copies of Crop and Market Information Report.

Control Number: 3038-0015.

Action: Extension.

Respondents: Futures Commission Merchants and Members of contract markets.

Estimated Annual Burden: 30 total hours.

Regulation (17 CFR)	Estimated No. of respondents	Annual responses	Estimated average hours per response
1.40	30	30	0.167

Issued in Washington, DC, on November 28, 1989.

Jean A. Webb,

Secretary of the Commission.

[FR Doc. 89-28274 Filed 12-1-89; 8:45 am]

BILLING CODE 6351-01-M

DEPARTMENT OF ENERGY

Office of the Secretary

Regional Hearings to Solicit Views From Public Officials and Individuals With Expertise and Interest in the Development of a National Energy Strategy

AGENCY: Office of the Secretary, DOE.

ACTION: Notice of meetings to provide comments on the development of a National Energy Strategy.

SUMMARY: These hearings will be the tenth and eleventh hearings in a series being conducted throughout the country by the Department of Energy to solicit comments from interested parties on a range of energy topics. Oral testimony at these hearings will be presented by invitation only. Written testimony can be submitted by any interested party at either the hearing site or directly to the Department of Energy, Office of Policy, Planning and Analysis, c/o Mr. Scott Neitzel, 1000 Independence Avenue SW., Room 7B-143, Washington, DC 20585. Please reference specific hearing(s) and topic(s).

These hearings are designed to solicit information, data, and analysis related to the development of national energy policy and objectives, strategies for achieving them, and the role that the Federal Government should play in

meeting national energy, economic, and environmental objectives.

The Department is interested in obtaining specific suggestions as to options and obstacles to efficient production and use of energy. Written comments may address general policies, regulations, economic incentives or disincentives, research and development needs, energy science, technology transfer, education, technical assistance, role of State and Local Government, the role of industry in energy policy development and implementation, or any other issues that would enhance the national dialogue on national energy strategy.

Dates, locations, and topics of the hearings are as follows: December 13, 1989—Washington, DC; "Energy, Defense, and National Security Interests" (role of stockpiles; role of foreign suppliers, globally and in the Western Hemisphere; international relations; energy interdependence). This hearing will be held between 9 a.m. and 3 p.m. at the Departmental Auditorium, Constitution Avenue between 12th and 14th Streets, NW., Washington, DC., December 14, 1989—Atlanta, GA; "Energy and the Environment" (global climate change, reconciling energy and environmental objectives). The hearing will be held between 10 a.m. and 4 p.m. at The Atlanta City Hall Complex, City Hall Council Chamber, 55 Trinity Avenue, second floor, Atlanta, Georgia.

All testimony submitted in conjunction with these hearings will be entered into the National Energy Strategy development record and made available to the public.

FOR FURTHER INFORMATION CONTACT: For further information, please write or call William H. Hatch, Office of Policy, Planning and Analysis, U.S. Department of Energy, 1000 Independence Avenue SW., PE–01, Washington, DC 20585, (202) 586–4767.

Linda G. Stuntz,

Deputy Under Secretary, Policy, Planning and Analysis.

[FR Doc. 89–28301 Filed 12–1–89; 8:45 am]

BILLING CODE 6450–1–M

Financial Assistance Award to Hampton University (Research Grant)

AGENCY: U.S. Department of Energy (DOE), Morgantown Energy Technology Center.

ACTION: Notice of acceptance of an unsolicited financial assistance application for a research grant.

SUMMARY: The DOE, Morgantown Energy Technology Center, in accordance with 10 CFR 600.14(e)(1), gives notice of its plans to award a 12-month Research Grant to Hampton University, Hampton, Virginia in the amount of $20,000.

The pending award is based on an unsolicited application for a research project entitled "Improved Pyrolysis Submodel for the Wen Fixed-Bed Gasifier Program." The major objective of this work is to develop a devolatilization model that will consider conductive resistance within large particles, the diffusion of released volatile matter to the surface of the particle, and the effect of release of volatile matter on physical properties of the coal such as porosity, density, heat capacity and thermal conductivity.

The data generated from this research could provide information on predicting coal devolatilization and sulfur behavior in the gasifier which would be of major use when generating the next generation of novel, efficient and environmentally acceptable gasifiers.

FOR FURTHER INFORMATION CONTACT: Brenda L. Summers, I–07, U.S. Department of Energy, Morgantown Energy Technology Center, P.O. Box 880, Morgantown, West Virginia 26507–0880, Telephone: (304) 291–4340, Procurement Request No. 21–88MC27324.000.

Dated: November 27, 1989.

Louie L. Calaway,

Director, Acquisition and Assistance Division, Morgantown Energy Technology Center.

[FR Doc. 89–28296 Filed 12–1–89; 8:45 am]

BILLING CODE 6450–01–M

Idaho Operations Office; Manville Sales Corp.

AGENCY: U.S. Department of Energy, Idaho Operations Office.

ACTION: Intent to negotiate and add new work to an existing Cooperative Agreement with the Manville Sales Corporation, Denver, CO.

SUMMARY: "Energy Conservation through Recycling of Asphalt Roofing Waste." The U.S. Department of Energy (DOE), Idaho Operations Office intends to negotiate, on a noncompetitive basis, an amendment to add new work to existing Cooperative Agreement DE–FC07–88ID12795, for an approximate increase of $102,000 and a 5 month extension of the duration with the Manville Sales Corporation, Denver, Colorado. This action is prompted by Public Law 97–577, the Federal Nonnuclear Energy Research and Development Act of 1974. The proposed project addition involves a single task. The objective is to determine the type of process equipment required to remove nails and reduce paper fibers found in old used roofing. Work completed to date in this project indicates the feasibility of including up to 20% relatively clean factory waste roofing (production scrape) in the manufacture of new shingles. It also appears feasible to recycle used roofing if it can be preprocessed to resemble the factory scrap so that the feedstock preparation procedures can be applied. Plasticizers can be used to restore some of the important asphalt properties to used roofing, but demolition impurities (particularly nails) must be effectively removed. It is also necessary to reduce the size of paper fibers in the old "felt base" roofing to more closely resemble modern fiber glass shingle stock in the presently developed recycling scheme. Both the nail removal and fiber reduction steps may influence the subsequent type and quantity of additives in the preprocessing formulation.

It is important to examine the potential of recycling used roofing by the currently developed process while the laboratory test equipment and the personnel are still available. This additional work will increase the total value of the existing Cooperative Agreement to an estimated $663,000. The authority for justification for acceptance of an unsolicited proposal is DOE Financial Assistance Rules 10 CFR part 600.14(e); (i) The application is meritorious based on the general evaluation as in paragraph (d) of 10 CFR part 600.14; and (ii) The proposed project represents a unique or innovative idea, method, or approach which would not be eligible for financial assistance under a recent, current, or planned solicitation, of if, as determined by DOE, a competitive solicitation would be inappropriate. The work at Manville Sales Corporation meets the purpose of Public Law 93–577 and addresses a public need for decreasing the utilization of energy. Public response may be addressed to the contract specialist below.

Contact: U.S. Department of Energy, Idaho Operations Office, 785 DOE Place, Idaho Falls, Idaho 83402, Dallas L. Hoffer, Contract Specialist (208) 526–0014.

Dated: November 15, 1989.

J. Roger Gonzales,

Director, Contracts Management Division.

[FR Doc. 89–28297 Filed 12–1–89; 8:45 am]

BILLING CODE 6450–01–M

Morgantown Energy Technology Center; Financial Assistance Award to University of Maryland (Research Grant)

AGENCY: Morgantown Energy Technology Center, DOE.

ACTION: Notice of Acceptance of an unsolicited financial assistance application for a research grant.

SUMMARY: The DOE, Morgantown Energy Technology Center, in accordance with 10 CFR 600.14(e)(1), gives notice of its plans to award a 12-month Research Grant to the University of Maryland Eastern Shore, Princess Anne, Maryland, in the amount of $32,697. This project will be cost shared at $19,880 Government and $12,817 University.

The pending award is based on an unsolicited application for research entitled "Analysis of Photographic Records of Coal Pyrolysis." With the financial assistance from DOE, the university would set up and apply a video-enhanced optical microscopy system for the observation and analysis of photographic records from rapid devolatilization experiments of single coal particles in order to provide information on particle size and characteristic times for particle product evolution, bubbling and swelling.

This project is relevant to the DOE mission of understanding the processes involved in coal devolatilization in order to help develop more efficient combustion and pyrolysis processes. The data generated would provide information on swelling dynamics associated with coal devolatilization which would be of major use when generating the next generation of char combustion codes and in the design of more efficient combustors.

FOR FURTHER INFORMATION CONTACT: Brenda L. Summers, I–07, U.S. Department of Energy, Morgantown Energy Technology Center, P.O. Box 880, Morgantown, West Virginia 26507–0880, Telephone: (304) 291–4340, Procurement Request No. 21–88MC27326.000.

Dated: November 27, 1989.

Louie L. Calaway,

Director, Acquisition and Assistance Division, Morgantown Energy Technology Center.

[FR Doc. 89–28300 Filed 12–1–89; 8:45 am]

BILLING CODE 6450–01–M

Bartlesville Project Office; Financial Assistance Award (Grant); To ParaMagnetic Logging, Inc.

AGENCY: Bartlesville Project Office, Department of Energy (DOE).

ACTION: Notice of non-competitive financial assistance (grant) award with ParaMagnetic Logging, Inc.

SUMMARY: The Department of Energy (DOE), Bartlesville Project Office announces that pursuant to 10 CFR 600.7(b)(2)(i) criteria (A) and (D), it intends to make a Non-Competitive Financial Assistance (Grant) Award through the Pittsburgh Energy Technology Center to ParaMagnetic Logging, Inc. (PML, Inc.), for the continuation of their effort entitled "Proof of Concept of Moving Through Casing Resistivity Apparatus."

Scope: Based upon the authority of 10 CFR 600.7(b)(2)(i) criteria (A) and (D), the objective of this grant is ParaMagnetic Logging, Inc. to continue conducting basic research on the proof of concept of development of an apparatus that continuously measures formation resistivity while moving through well casing. The studies offer a technology that will allow operators to go back into old wells and inexpensively evaluate the well bore for additional missed oil and gas potential left behind in the pipe. Establishing the proof of the concept that formation resistivity can be measured through casing with a continuously moving and recording resistivity tool is the main objective. The results of much of the research will be useful for locating bypassed gas and oil and further reservoir evaluation.

The intended research will (1) complete the remaining scientific research to obtain sufficient information to design a workable Moving Thru Casing Resistivity Apparatus ("Moving TCRA"), (2) use existing apparatus to take data downhole with variations of the technology, (3) design and build the Moving TCRA, (4) test Moving TCRA in a test well at Halliburton Logging Services, (5) test Moving TCRA in test well(s) provided by ARCO, (6) test Moving TCRA in test well(s) provided by Mobil, and (7) transfer the learned technologies to industry, who would support the commercialization of the tool. The technology transfer to other research groups and oil operators would occur through publication and field trials.

The term of the grant is a twenty-two months period at an estimated value of $1,370,885.00. The DOE share is anticipated at $500,000.00. The remaining portion or $870,885.00 will be funded by Gas Research Institute.

FOR FURTHER INFORMATION CONTACT: U.S. Department of Energy, Pittsburgh Energy Technology Center, Acquisition and Assistance Division, P.O. Box 10940, MS 921–145, Pittsburgh, PA 15236, Attn: Maryann Lundgren, Telephone: AC (412) 892–4980.

Dated: November 22, 1989.

Gregory J. Kawalkin,

Director, Acquisition and Assistance Division, Pittsburgh Energy Technology Center.

[FR Doc. 89–28298 Filed 12–1–89; 8:45 am]

BILLING CODE 6450–01–M

Morgantown Energy Technology Center; Financial Assistance Award to Texas Southern University (Research Grant)

AGENCY: Morgantown Energy Technology Center, DOE.

ACTION: Notice of acceptance of an unsolicited financial assistance application for a research grant.

SUMMARY: The DOE, Morgantown Energy Technology Center, in accordance with 10 CFR 600.14(e)(1), gives notice of its plans to award a 12-month Research Grant to Texas Southern University, Houston, Texas in the amount of $19,921.

The pending award is based on an unsolicited application for a research project entitled "Characterization of Kerogen in Green River Oil Shale." This research will attempt to assess the effect of steam pretreatment of oil shale on the quantity/quality of organic matter which can be extracted from oil shale. In addition, the research will encompass the development and application of a specialized analytical methodology for identifying the functional groups within the kerogen and dispersion of mineral matter throughout the kerogen matrix.

Benefits that may result from this proposal are an enhanced understanding and characterization of fuel precursors in oil shale and extrapolation of these results to create designs for oil shale retorts which have greater yields or generate higher quality products.

FOR FURTHER INFORMATION CONTACT: Brenda L. Summers, I–07, U.S. Department of Energy, Morgantown Energy Technology Center, P.O. Box 880, Morgantown, West Virginia 26507–0880, Telephone: (304) 291–4340, Procurement Request No. 21–88MC27325.000.

Dated: November 27, 1989.

Louie L. Calaway,

Director, Acquisition and Assistance Division, Morgantown Energy Technology Center.

[FR Doc. 89–28299 Filed 12–1–89; 8:45 am]

BILLING CODE 6450–01–M

Federal Energy Regulatory Commission

[Docket Nos. QF87-237-002, et al.]

Midland Cogeneration Ventura Limited Partnership, et al.; Electric Rate, Small Power Production, and Interlocking Directorate Filings

November 27, 1989.

Take notice that the following filings have been made with the Commission:

1. Midland Cogeneration Ventura Limited Partnership

[Docket No. QF87-237-002]

On November 14, 1989, Midland Cogeneration Venture Limited Partnership (Applicant) of 100 Progress Place, Midland, Michigan 48640 submitted for filing an application for recertification of a facility as a qualifying cogeneration facility pursuant to § 292.207 of the Commission's regulations. No determination has been made that the submittal constitutes a complete filing.

The topping-cycle cogeneration facility will be located in Midland, Michigan. The facility will consist of 12 combustion turbine-generators, 12 heat recovery boilers and an extraction/condensing steam turbine-generator. Thermal energy recovered from the facility will be used at the Dow Chemical Company for chemical manufacturing processes and space heating. The net electric power production capacity of the facility will be 1,340 MW. The primary source of energy will be natural gas.

The original application for certification was granted on March 12, 1987 (38 FERC ¶61,244). The current recertification is requested due to change in ownership structure. The Applicant proposes a leveraged lease transaction, which will involve an affiliate of Consumers Power Company and other utility affiliates as Owner Participants.

Comment date: Thirty days from publication in the **Federal Register**, in accordance with Standard Paragraph E at the end of this notice.

2. United Associates of Delaware, L.P.

[Docket No. QF83-332-008]

On November 8, 1989, United Associates of Delaware, L.P. (Applicant), of Laurel Oak Corporate Center, P.O. Box 1108, Voorhees, New Jersey 08043, submitted for filing an application for recertification of a facility as a qualifying small power production facility pursuant to § 292.207 of the Commission's regulations. No determination has been made that the submittal constitutes a complete filing.

The small power production facility is located at Pigeon Point, Wilmington, New Castle County, Delaware. The facility consists of five combustion turbine generating units, four heat recovery boilers and three extraction/condensing steam turbine generating units. Steam produced by the facility is sold to ICI Americas, Inc. for industrial uses. The net electric power production capacity of the facility is 17.5 MW. The primary energy source is a biomass in the form of a combination of refuse derived fuel and unprocessed municipal solid waste. The facility is currently in operation.

The certification of the original application as a small power production facility was issued on April 30, 1987 (39 FERC ¶62,106) and recertified on February 16, 1989 (42 FERC ¶62,113). The instant recertification is requested due to an ownership change. Applicant states that no electric utility, electric utility holding company or any combination thereof has any ownership interest in the facility.

Comment date: Thirty days from publication in the **Federal Register**, in accordance with Standard Paragraph E at the end of this notice.

3. United Associates of Delaware, L.P.

[Docket No. QF83-332-007]

On November 8, 1989, United Associates of Delaware, L.P. (Applicant), of Laurel Oak Corporate Center, P.O. Box 1108, Voorhees, New Jersey 08043, submitted for filing an application for recertification of a facility as a qualifying cogeneration facility pursuant to § 292.207 of the Commission's regulations. No determination has been made that the submittal constitutes a complete filing.

The topping-cycle cogeneration facility is located at Pigeon Point, Wilmington, New Castle County, Delaware. The facility consists of five combustion turbine generating units, four heat recovery boilers and three extraction/condensing steam turbine generating units. Steam produced by the facility is sold to ICI Americas, Inc. for industrial uses. The net electric power production capacity of the facility is 17.5 MW. The primary energy source is a biomass in the form of a combination of refuse derived fuel and unprocessed municipal solid waste. The facility is currently in operation.

The certification of the original application as a cogeneration facility was issued on September 8, 1983 (24 FERC ¶62,286) and recertified on February 16, 1989 (42 FERC ¶62,113). The instant recertification is requested due to an ownership change. Applicant states that no electric utility, electric utility holding company or any combination thereof has any ownership interest in the facility.

Comment date: Thirty days from publication in the **Federal Register**, in accordance with Standard Paragraph E at the end of this notice.

Standard Paragraph:

E. Any person desiring to be heard or to protest said filing should file a motion to intervene or protest with the Federal Energy Regulatory Commission, 825 North Capitol Street NE., Washington, DC 20426, in accordance with Rules 211 and 214 of the Commission's Rules of Practice and Procedure (18 CFR 385.211 and 385.214). All such motions or protests should be filed on or before the comment date. 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. Any person wishing to become a party must file a motion to intervene. Copies of this filing are on file with the Commission and are available for public inspection.

Lois D. Cashell,

Secretary.

[FR Doc. 89-28234 Filed 12-1-89; 8:45 am]

BILLING CODE 6717-01-M

[Docket Nos. RP88-217-015, RP89-124-004, RP89-165-001]

CNG Transmission Corp.; Proposed Changes in FERC Gas Tariff

November 27, 1989.

Take notice that CNG Transmission Corporation ("CNG") on November 20, 1989, pursuant to Section 4 of the natural Gas Act, Section 12 of the General Terms and Conditions of CNG's tariff, and in compliance with Ordering Paragraph (C) of the Commission's Order Approving and Clarifying Settlement, issued October 6, 1989 in "CNG Transmission Corporation" Docket No. RP88-217-000 *et al.*, filed the following tariff sheets to Original Volume No. 1 of its FERC Gas Tariff:

Second Substitute Thirteenth Revised Sheet No. 31
Third Substitute Thirteenth Revised Sheet No. 31
Substitute Alternate Thirteenth Revised Sheet No. 31
Substitute Alternate Substitute Thirteenth Revised Sheet No. 31
Substitute Fourteenth Revised Sheet No. 31
Substitute Seventh Revised Sheet No. 32
Second Substitute Alternate Seventh Revised Sheet No. 32

Third Substitute Alternate Seventh Revised Sheet No. 32
Second Substitute First Revised Sheet No. 39
Original Sheet No. 39A
Original Sheet No. 160J
Second Substitute First Revised Sheet No. 161
Substitute Original Sheet No. 161B
Substitute Original Sheet No. 161C
Original Sheet No. 161D

CNG states that these tariff sheets reflect the implementation of the provisions of CNG's take-or-pay settlement, approved by the October 6 Order. The sole purpose of the Substitute Tariff Sheet Nos. 31 and 32 is to reflect a reduction in the take-or-pay commodity surcharge from 0.31 cents per Dt or 0.28 cents per Dt for the period commencing November 1, 1989. The remaining sheets reflect the provisions of the settlement agreement.

Copies of the filing were served upon CNG's customers as well as interested state commissions.

Any person desiring to protest said filing should file a protest with the Federal Energy Regulatory Commission, 825 North Capitol Street NE., Washington, DC 20426, in accordance with Rules 214 and 211 of the Commission's Rules of Practice and Procedure 18 CFR 385.214 and 385.211. All protests should be filed on or before December 4, 1989. 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. Persons that are already parties to this proceeding need not file a motion to intervene in this matter. Copies of this filing are on file with the Commission and are available for public inspection.

Lois D. Cashell,

Secretary.

[FR Doc. 89-28241 Filed 12-1-89; 8:45 am]

BILLING CODE 6717-01-M

[Docket No. RP86-168-017]

Columbia Gas Transmission Corp.; Proposed Changes in FERC Gas Tariff

November 27, 1989.

Take notice that on November 20, 1989, Columbia Gas Transmission Corporation (Columbia) tendered for filing certain revise tariff sheets to its FERC Gas Tariff, Original Volume Nos. 1 and 2, with a proposed effective date of November 1, 1989.

Columbia states that the tariff sheets submitted (1) constitute the *pro forma* tariff sheets submitted as a part of the Stipulation and Agreement contained in the Offer of Settlement filed in the referenced dockets on June 29, 1989 (Stipulation) and approved, with certain modifications and conditions, by the Commission by its Order issued on October 19, 1989, and by Errata Notice issued on October 31, 1989 (October 19 Order); (2) contain the tariff modifications required by the Commission's October 19 Order; and (3) incorporate certain conforming changes necessitated by the other identified changes. The tariff sheets bear a proposed effective date of November 1, 1989.

Columbia states that the rate sheets (Sheet Nos. 16 and 16A2) incorporate the gas costs effective November 1, 1989, in accordance with the PGA compliance filing being filed concurrently with the instant filing in Docket No. TQ90-1-21-001.

Columbia requests any waivers of the Commission's Regulations, including the notice provisions of § 154.28, that may be necessary to implement the tariff sheets effective November 1, 1989. Columbia also requests a waiver of §§ 154.1 and 385.2011 of the Commission's Regulations, which require all tariff filings made after October 31, 1989, to be submitted on an electronic medium.

Any person desiring to protest said filing should file a protest with the Federal Energy Regulatory Commission, Union Center Plaza Building, 825 North Capitol Street NE., Washington, DC 20426, in accordance with Rules 211 and 214 of the Commission's Rules of Practice and Procedure. All such protests should be filed on or before December 4, 1989. 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 proceedings. Persons that are already parties to this proceeding need not file a motion to intervene in this matter. Copies of this filing are on file with the Commission and are available for public inspection.

Lois D. Cashell,

Secretary.

[FR Doc. 89-28236 Filed 12-1-89; 8:45 am]

BILLING CODE 6717-01-M

[Docket No. RP86-167-013]

Columbia Gulf Transmission Co.; Proposed Changes in FERC Gas Tariff

November 27, 1989.

Take notice that on November 20, 1989, Columbia Gulf Transmission Company (Columbia Gulf) tendered for filing certain revised tariff sheets to its FERC Gas Tariff, Original Volume Nos. 1 and 2 with a proposed effective date of November 1, 1989.

Columbia Gulf states that the tariff sheets submitted (1) constitute the *pro forma* tariff sheets submitted as a part of the Stipulation and Agreement contained in the Offer of Settlement filed in the referenced dockets on June 29, 1989 (Stipulation) and approved, with certain modifications and conditions, by the Commission by its Order issued on October 19, 1989, and by Errata Notice issued on October 31, 1989 (October 19 Order); (2) contain the 9tariff modifications required by the Commission's October 19 Order; and (3) incorporate certain conforming changes necessitated by the other identified changes. The tariff sheets bear a proposed effective date of November 1, 1989.

Columbia Gulf states that Rate Sheet No. 5A incorporates the gas costs effective November 1, 1989, in accordance with the Columbia Gas Transmission Corporation's (Columbia Gas) PGA compliance filing being filed concurrently with the instant filing in Docket No. TQ90-1-21-001.

Columbia Gulf requests any waivers of the Commission's regulations, including the notice provisions of § 154.28, that may be necessary to implement the tariff sheets effective November 1, 1989. Columbia Gulf also requests a waiver of § 385.2011 of the Commission's Regulations which requires all tariff filings made after October 31, 1989, to be submitted on an electronic medium.

Any person desiring to protest said filing should file a protest with the Federal Energy Regulatory Commission, Union Center Plaza, 825 North Capitol Street NE., Washington, DC 20426, in accordance with Rules 211 and 214 of the Commission's Rules of Practice and Procedure. All such protests should be filed on or before December 4, 1989. 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 proceedings. Persons that are already parties to this proceeding need not file a motion to intervene in this matter. Copies of this filing are on file with the Commission and are available for public inspection.

Lois D. Cashell,

Secretary.

[FR Doc. 89-28237 Filed 12-1-89; 8:45 am]

BILLING CODE 6717-01-M

[Docket No. GP90-01-000]

Illinois Department of Mines and Minerals; Preliminary Finding

November 27, 1989.

In 1979 and 1982, the Illinois Department of Mines and Minerals (Illinois) notified the Commission that it had made six affirmative determinations

under section 503 of the Natural Gas Policy Act of 1978 (NGPA) [1] concerning gas from six wells operated by two different producers. NGPA Section 503(b) provides that the Commission shall reverse any jurisdictional agency determination if the Commission finds that the determination is not supported by substantial evidence in the record upon which the determination was made.

If the Commission had taken no action with respect to the notices, the determination would have become final after 45 days under § 275.202(a) [2] of the regulations. However, the Commission advised Illinois and each applicant that the notices were incomplete, lacking either sufficient explanation of the basis for each determination or sufficient information to complete the application. Despite these and other requests for necessary additional information, neither Illinois nor the applicant has provided it.[3] As a result, none of the determinations has become final because § 275.202(b) of the regulations provides that the 45 day period for Commission review does not begin if the Commission notifies the jurisdictional agency, the purchaser, and all parties that the notice is deficient. The Appendix of this notice summarizes each determination and its deficiency.

Under § 275.202(a) the Commission may, before any determination becomes final, make a preliminary finding that the determination is not supported by substantial evidence in the record. Based on the foregoing facts and circumstances, the Commission hereby makes a preliminary finding that the subject determinations submitted by Illinois are not supported by substantial evidence in the record upon which the determinations were made. Illinois or the applicant may, within 30 days after issuance of this preliminary finding, submit written comments and may request an informal conference with the Commission pursuant to § 275.202(f) of the regulations. A final Commission order will be issued within 120 days after issuance of this preliminary finding.

By direction of the Commission.

Lois D. Cashell,

Secretary.

APPENDIX.—ILLINOIS INCOMPLETE NOTICES OF DETERMINATION

Applicant	Well name	NGPA section	FERC JD No.	Initial FERC letter	Deficiency in record	Purchaser
Hobson Oil Co.	Gillison #1	102(c)(1)(C)	80-05501	12/21/79	Insufficient Geological Data	Crystal Oil Co.
Do	Gillison #2	102(c)(1)(C)	80-05502	12/21/79	do	Do.
Do	Ellis #1	102(c)(1)(C)	80-05503	12/21/79	do	Do.
Do	Tiffany #1-A	102(c)(1)(C)	80-05504	12/21/79	do	Do.
Do	Tiffany #2-A	102(c)(1)(C)	80-05505	12/21/79	do	Do.
Joe A. Dull	Gahm Heirs #1	102(c)(1)(B)(i)	82-22990	04/23/82	Spudded Prior to 2/19/77	Trunkline Gas Co.

[FR Doc. 89-28242 Filed 12-1-89; 8:45 am]

BILLING CODE 6717-01-M

[Docket No. RP90-44-000]

Northern Border Pipeline Co.; Proposed Changes in FERC Gas Tariff

November 27, 1989.

Take notice that on Nov. 21, 1989, Northern Border Pipeline Company (Northern Border) tendered for filing to become part of Northern Border Pipeline Company's F.E.R.C. Gas Tariff, Original Volume No. 1, the following revised tariff sheets:

Seventh Revised Sheet No. 157
Fifth Revised Sheet No. 158
First Revised Sheet Nos. 205, 224, 229, and 231
Second Revised Sheet No. 234

With these tariff sheets, Northern Border proposes to (1) revise the Maximum Rate and Minimum Revenue Credit under Rate Schedule IT-1 as called for by Northern Border's tariff every six months, (2) change the measurement basis of the gas transported through Northern Border's pipeline for gross heating value measured per cubic foot from saturated with water to measured per cubic foot dry, and (3) establish a floor of $25 for delinquency charges.

Northern Border states that Revised Sheet Nos. 157 and 158 reflect the revised Maximum Rate and Minimum Revenue Credit 1990 in accordance with Northern Border's tariff provisions under Rate Schedule IT-1. Northern Border proposes to decrease the Maximum Rate from 7.513 cents per 100 Dekatherm-Miles to 7.346 cents per 100 Dekatherm-Miles and increase the Minimum Revenue Credit from 3.854 cents per 100 Dekatherm-Miles to 4.330 cents per 100 Dekatherm-Miles. These revisions do not produce any change in Northern Border's total revenue requirement due to its cost of service form of tariff.

Northern Border states that Revised Sheet Nos. 205, 224, 229 and 231 reflect a proposed change in the measurement basis of the gas transported through its pipeline for gross heating value measured per cubic foot from saturated with water to measured per cubic foot dry. As a result of making this change, Northern Border's measurement basis will be consistent with that of Foothills Pipe Lines Ltd. (Foothills) and Northern Natural Gas Company (Northern Natural), which are the immediate upstream and downstream pipelines. Since all of Northern Border's firm transportation contracts are stated in million cubic feet (MCF) and not dekatherms, no adjustments to firm contract quantities are necessitated by this change.

Finally in Second Revised Sheet No. 234, Northern Border proposes to establish a floor of $25 for delinquency charges. If a delinquency charge is less than $25, then Northern Border would not invoice it to a Shipper. It has been Northern Border's experience since open access, that occasionally delinquency charges computed on bills paid late have been for very minor amounts. Northern Border does not believe it is reasonable or cost justified to bill delinquency charges for minor amounts of less than $25 and proposes to change its tariff accordingly.

Northern Border has requested that these revised tariff sheets be effective January 1, 1990. Copies of this filing have been sent to all of Northern Border's contracted shippers.

Any person desiring to be heard or to protest said filing should file a motion to

[1] 15 U.S.C. 3413 (1982)

[2] 18 CFR 275.202(a) (1989).

[3] On May 17, 1989, the Commission sent a follow-up letter to Illinois and the applicants advising that the Commission might reverse the determinations if the required information was not received, and that refunds might be required.

intervene or a protest with the Federal Energy Regulatory Commission, 825 North Capitol Street NE., Washington, DC 20426, in accordance with the Commission's Rules of Practice and Procedure (18 CFR 385.211, 385.214). All such motions or protests should be filed on or before Dec. 4, 1989. Protests will be considered but not serve to make protestants parties to the proceeding. Any person wishing to become a party must file a motion to intervene.

Copies of this filing are on file with the Commission and are available for public inspection.

Lois Cashell,

Secretary,

[FR Doc. 89-28238 Filed 12-1-89; 8:45 am]

BILLING CODE 6717-01-M

[Docket No. RP88-47-027]

Northwest Pipeline Corp.; Proposed Change in FERC Gas Tariff

November 27, 1989.

Take notice that on November 20, 1989, Northwest Pipeline Corporation ("Northwest") tendered for filing and acceptance the following tariff sheets to be a part of its FERC Gas Tariff.

Original Volume No. 2

Original Sheet No. 2-C

Original Volume No. 1-A

Second Revised Sheet No. 405

Northwest tendered the revised sheets to provide for minimum and maximum rates for liquid processing services, as directed by the Commission in its October 19, 1989 Order Accepting Contested Settlement as Modified in the above-referenced docket number.

A copy of this filing is being served on all parties of record in this proceeding and on all customers and affected state regulatory commissions.

Any person desiring to protest said filing should file a protest with the Federal Energy Regulatory Commission, 825 North Capitol Street NE., Washington DC 20426, in accordance with §§ 385.214 and 385.211 of the Commission's Rules of Practice and Procedure. All such protests should be filed on or before December 4, 1989. 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. Persons that are already parties to this proceeding need not file a motion to intervene in this matter. Copies of this filing are on file with the Commission and are available for public inspection.

Lois D. Cashell,

Secretary.

[FR Doc. 89-28239 Filed 12-1-89; 8:45 am]

BILLING CODE 6717-01-M

[Docket Nos. CP90-271-000, et al.]

Southern Natural Gas Co., et al.; Natural Gas Certificate Filings

November 24, 1989.

Take notice that the following filings have been made with the Commission:

1. Southern Natural Gas Company

[Docket No. CP90-271-000]

Take notice that on November 21, 1989, Southern Natural Gas Company (Southern), P.O. Box 2563, Birmingham, Alabama 35202-2563, filed in Docket No. CP90-271-000 a request pursuant to § 157.205 of the Commission's Regulations under the Natural Gas Act (18 CFR 157.205) for authorization to provide an interruptible transportation service for Graham Energy Marketing Corporation (Graham), a marketer, under the blanket certificate issued in Docket No. CP88-316-000, pursuant to Section 7 of the Natural Gas Act, all as more fully set forth in the request that is on file with the Commission and open to public inspection.

Southern states that pursuant to a service agreement dated August 22, 1989, under its Rate Schedule IT, it proposes to transport up to 23,500 MMBtu per day equivalent of natural gas for Graham. Southern states that it would transport the gas from various receipt points in Texas, Louisiana, offshore Texas, offshore Louisiana, Mississippi and Alabama, and would deliver the gas to various points in Louisiana.

Southern advises that service under § 284.223(a) commenced September 21, 1989, as reported in Docket No. ST90-119. Southern further advises that it would transport 3,500 MMBtu on an average day and 1,277,500 MMBtu annually.

Comment date: January 8, 1990, in accordance with Standard paragraph G at the end of this notice.

2. Transcontinental Gas Pipe Line Corporation

[Docket No. CP90-268-000]

Take notice that on November 20, 1989, Transcontinental Gas Pipe Line Company (Trasco), Post Office Box 1396, Houston, Texas 77251, filed in Docket No. CP90-268-000 a request pursuant to §§ 157.205 and 284.223 and the Commission's Regulations for authorization to transport natural gas for Texican Natural Gas Co. (Texican), a shipper, under Transco's blanket certificate issued in Docket No. CP88-328-000 pursuant to Section 7 of the Natural Gas Act, all as more fully set forth in the request which is on file with the Commission and open to public inspection.

Transco proposed to transport on an interruptible basis up to 825,000 dt equivalent of natural gas on a peak day, 30,000 dt equivalent on an average day and 10,950,000 dt equivalent on an annual basis for Texican. Transco states that it would perform the transportation service for Texican under Transco's Rate Schedule IT. Transco indicates that it would transport the gas from receipt points in offshore Louisiana to various delivery points located in onshore Louisiana.

It is explained that the Service Commenced October 11, 1989, under the automatic authorization provisions of § 284.223 of the Commission's Regulations, as reported in Docket No. ST90-406. Transco indicates that no new facilities would be necessary to provide the subject service.

Comment date: January 9, 1990, in accordance with Standard Paragraph G at the end of this notice.

3. United Gas Pipe Line Company

[Docket No. CP90-264-000]

Take notice that on November 17, 1989, United Gas Pipe Line Company (United), P.O. Box 1478, Houston, Texas 77251-1478, filed in Docket No. CP90-264-000, a request pursuant to §§ 157.205 and 284.223 of the Commission's Regulations under the Natural Gas Act, to transport on an interruptible basis under its blanket certificate Docket No. CP88-6-000, a maximum of 41,200 MMBtu on behalf of Texaco Gas Marketing Inc., (Texaco) a marketer, all as more fully set forth in the request on file with the Commission and open to public inspection.

United states that service commenced October 18, 1989, under § 284.223(a) of the Commission Regulations, as reported in Docket No. ST90-00161, and estimates the volumes transported to by 41,200 MMBtu per day on peak day and average day, and 15,038,000 MMBtu on an annual basis.

United also indicates that no new facilities are to be constructed.

Comment date: January 9, 1990, in accordance with Standard Paragraph G at the end of this notice.

G. Any person on the Commission's staff may, within 45 days after the issuance of the instant notice by the Commission, file pursuant to Rule 214 of the Commission's Procedural Rules (18

CFR 385.214) a motion to intervene or notice of intervention and pursuant to § 157.205 of the Regulations under the Natural Gas Act (18 CFR 157.205) a protest to the request. If no protest is filed within the time allowed therefore, the proposed activity shall be deemed to be authorized effective the day after the time allowed for filing a protest. If a protest is filed and not withdrawn within 30 days after the time allowed for filing a protest, the instant request shall be treated as an application for authorization pursuant to Section 7 of the Natural Gas Act.

Lois D. Cashell,

Secretary.

[FR Doc. 89-28235 Filed 12-1-89; 8:45 am]

BILLING CODE 6717-01-M

[Docket No. RP88-68-023]

Transcontinental Gas Pipe Line Corp.; Supplemental Compliance Filing

November 27, 1989.

Take notice that Transcontinental Gas Pipe Line Corporation (Transco) tendered for filing on November 20, 1989 revised tariff sheets to Second Revised Volume No. 1 of its FERC Gas Tariff, which tariff sheets are included in Appendix A attached to the filing.

Transco states that the purpose of this filing is to supplement its October 6, 1989 compliance filing in Docket No. RP88-68-020 to correct minor errors in the October 6 compliance filing and to reflect one development which has occurred since that filing regarding the settlement status of certain parties. Transco requests a waiver of any notice requirements so that the enclosed tariff sheets may become effective on the dates indicated in Appendix A.

Transco states that copies of the instant filing are being mailed to all parties served with copies of the October 6, 1989 compliance filing in Docket No. RP88-68-20. In accordance with provisions of § 154.16 of the Commission's Regulations, copies of this filing are available for public inspection, during regular business hours, in a convenient form and place at Transco's main offices at 2800 Post Oak Boulevard in Houston, Texas.

Any person desiring to protest said filing should file a protest with the Federal Energy Regulatory Commission, 825 North Capitol Street NE., Washington, DC 20426, in accordance with §§ 385.214 and 385.211 of the Commission's Rules and Regulations. All such protests should be filed on or before December 4, 1989. 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. Persons that are already parties to this proceeding need not file a motion to intervene in this matter. Copies of this filing are on file with the Commission and are available for public inspection.

Lois D. Cashell,

Secretary.

[FR Doc. 89-28240 Filed 12-1-89; 8:45 am]

BILLING CODE 6717-01-M

Office of Fossil Energy

[FE Docket No. 89-24-NG]

Consolidated Edison Co. of New York, Inc.; Conditional Order Granting a Long-Term Authorization to Import Natural Gas from Canada

AGENCY: Office of Fossil Energy, DOE.

ACTION: Notice of order granting conditional long-term authorization to import natural gas from Canada.

SUMMARY: The Office of Fossil Energy (FE) of the Department of Energy (DOE) gives notice that it has issued a conditional order granting Consolidated Edison Company of New York, Inc. (Con Edison), long-term authorization to import natural gas from Canada. The conditional order issued in FE Docket No. 89-24-NG authorizes Con Edison to import up to 30,600 Mcf of Canadian natural gas from Amoco Canada Petroleum Company, Ltd. (Amoco Canada), over a 15-year period beginning on the date of first delivery, in accordance with the pricing and other provisions established in the gas purchase contract submitted as part of its application. The order is conditioned upon entry of a final opinion and order by the DOE after its review of the environmental study of the impacts of the construction and operation of the transportation facilities related to this import prepared by the Federal Energy Regulatory Commission and completion by the DOE of its National Environmental Policy Act responsibilities.

A copy of this order is available for inspection and copying in the Office of Fuels Programs Docket Room, 3F-056, Forrestal Building, 1000 Independence Avenue SW., Washington, DC 20585, (202) 586-9478. The Docket Room is open between the hours of 8:00 a.m. and 4:30 p.m., Monday through Friday, except Federal holidays.

Issued in Washington, DC, November 21, 1989.

Clifford P. Tomaszewski,

Acting Director, Natural Gas Office, Office of Fuels Programs, Office of Fossil Energy.

[FR Doc. 89-28302 Filed 12-1-89; 8:45 am]

BILLING CODE 6450-01-M

Office of Hearing and Appeals

Cases Filed During Week of September 22 Through September 29, 1989

During the week of September 22 through September 29, 1989, the appeals and applications for other relief listed in the Appendix to this Notice were filed with the Office of Hearings and Appeals of the Department of Energy.

Under DOE procedural regulations, 10 CFR part 205, any person who will be aggrieved by the DOE action sought in these cases may file written comments on the application within ten days of service of notice, as prescribed in the procedural regulations. For purposes of the regulations, the date of service of notice is deemed to be the date of publication of this Notice or the date of receipt by an aggrieved person of actual notice, whichever occurs first. All such comments shall be filed with the Office of Hearings and Appeals, Department of Energy, Washington, DC 20585.

Dated: November 27, 1989.

George B. Breznay,

Director, Office of Hearings and Appeals.

LIST OF CASES RECEIVED BY THE OFFICE OF HEARINGS AND APPEALS

[Week of Sept. 22 through Sept. 29, 1989]

Dated	Name and location of applicant	Case No.	Type of submission
Sept. 25, 1989	Francisco A. Tomei, Ph.D., Lajas, Puerto Rico	KFA-0321	Appeal of an information request denial. If Granted: The September 6, 1989 Freedom of Information Request Denial issued by the Chief of FOI and Privacy Acts would be rescinded and Dr. Tomei would receive access to documents containing personal identifiable information.

LIST OF CASES RECEIVED BY THE OFFICE OF HEARINGS AND APPEALS—Continued

[Week of Sept. 22 through Sept. 29, 1989]

Dated	Name and location of applicant	Case No.	Type of submission
Do	True Company/T & T Gas Products Company, St. Louis, Missouri.	RR195-2	Request for modification/rescission. If Granted: The April 18, 1989 Decision and Order issued to the T & T Gas Products Company would be modified regarding the firm's application in the True Companies refund proceeding.
Sept. 26, 1989	Francisco A. Tomei, Ph.D., Lajas, Puerto Rico	KFA-0322	Appeal of an information request denial. If Granted: The August 23, 1989 Freedom of Information Request Denial issued by the Albuquerque Operations Office would be rescinded and Dr. Tomei would receive access to personal documents maintained in the systems of records.

REFUND APPLICATIONS RECEIVED

Date received	Name of refund proceeding/name of refund application	Case No.
9/22/89 thru 9/29/89.	Crude Oil Refund Applications Received.	RF272-75697 thru RF272-75728.
9/22/89 thru 9/29/89.	Atlantic Richfield Company Applications Received.	RF304-10441 thru RF304-10449.
9/22/89 thru 9/29/89.	Shell Oil Company Applications Received.	RF315-7256 thru RF315-7365.
9/25/89	G & E Food Mark	RF300-10868.
9/25/89	Beckum Gulf	RF300-10869.
9/25/89	Gaybrook Gulf	RF300-10870.
9/25/89	Rosson's Gulf	RF300-10871.
9/25/89	University Gulf	RF300-10872.
9/25/89	Wimpy's Eastland Gulf.	RF300-10873.
9/25/89	Georges APCO Service.	RF310-342.
9/25/89	Earl Hawley Oil Company.	RF307-10061.
9/27/89	Strasser Service Station.	RF307-10062.
9/27/89	Eddie's Spur Go Shop.	RF309-1372.
9/28/89	Catskill Central School District.	RF272-13
9/28/89	Stanley Huntowski	RF307-10063.

[FR Doc. 89-28303 Filed 12-1-89; 8:45 am]

BILLING CODE 6450-01-M

ENVIRONMENTAL PROTECTION AGENCY

[FRL-3692-9]

Agency Information Collection Activities Under OMB Review

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice.

SUMMARY: In compliance with the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*), this announces that the Information Collection Request (ICR) abstracted below has been forwarded to the Office of Management and Budget (OMB) for review and comment. The ICR describes the nature of the information collection and its expected burden.

DATE: Comments must be submitted on or before January 3, 1990.

FOR FURTHER INFORMATION CONTACT: Sandy Farmer at EPA, (202) 382-2740.

SUPPLEMENTARY INFORMATION:

Office of Policy, Planning and Evaluation

Title: Pretesting and Evaluation of Risk Communication Activities (EPA ICR #1552.01). This ICR requests approval for a new collection.

Abstract: OPPE will survey individual citizens, sometimes in target groups as homeowners, elderly, mothers of young children, etc., to ascertain how knowledge, awareness, attitudes, and behavior change in response to EPA's risk communication. EPA will use the survey results to refine risk communication printed materials and public service announcements, so that they will be more likely to achieve their objectives.

Burden Statement: The public reporting burden for this collection of information is estimated to average 1 hour per response. This time includes time for reviewing instructions, participating in focus groups, and completing and reviewing the collection of information needed.

Respondents: Individuals or households.
Estimated Number of Respondents: 620.
Estimated Total Annual Burden on Respondents: 535 hours.
Frequency of Collection: On occasion.

Send comments regarding the burden estimate, or any other aspect of this collection of information, including suggestions for reducing the burden to:

Sandy Farmer, U.S. Environmental Protection Agency, Information Policy Branch (PM-223), 401 M Street SW., Washington, DC 20460,

and

Marcus Peacock, Office of Management and Budget, Office of Information and Regulatory Affairs, 726 Jackson Place NW., Washington, DC 20530.

Dated: November 20, 1989.

Paul Lapsley,

Director, Information and Regulatory Systems Division.

[FR Doc. 89-28286 Filed 12-1-89; 8:45 am]

BILLING CODE 6560-50-M

[FRL-3693-1]

Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities

AGENCY: U.S. Environmental Protection Agency.

ACTION: Correction notice on docket information for guidance document comments.

SUMMARY: The Environmental Protection Agency (EPA) announced the availability of an interim final guidance document entitled Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities (54 FR 37501: September 11, 1989). This document provides guidance to RCRA facility permit applicants and writers concerning the statistical evaluation of ground-water monitoring data, pursuant to the recently promulgated requirements of 40 CFR part 264, subpart F (53 FR 39720: October 11, 1988). The docket information contained in the September 11, 1989 **Federal Register** notice was in error, and parties planning to submit comments on the guidance document should note the changes under the **"ADDRESSES"** section of this correction notice.

DATE: EPA will accept public comments until December 8, 1989. All comments must be postmarked on or before this date.

ADDRESS: Three copies of written comments should be submitted to the Docket Clerk, Office of Solid Waste (OS-305), U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20460, and identified as follows: F-89-SGWA-FFFFF. Copies of the document entitled, "Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities" are available for

viewing at all EPA Libraries and in the EPA RCRA Docket (M2427), U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20460 from 9:00 a.m. to 4:00 p.m., Monday thru Friday, excluding Federal Holidays, by appointment only. Appointments can be made by calling (202) 475–9327. Copies cost 15 cents per page. In addition, this document is available for purchase through the National Technical Information Service (NTIS), U.S. Department of Commerce, Springfield, Virginia 22161, at (703) 487–4600: Guidance Document on the Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities. (NTIS # PB89–151–047).

FOR FURTHER INFORMATION CONTACT: For general information contact the RCRA/Superfund Hotline, Office of Solid Waste (WH–563C), U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20460, telepone (800) 424–9346, or (202) 382–3000.

For technical information contact Jim Brown, (202) 382–4658.

Dated: November 20, 1989.

Christian R. Holmes,

Assistant Administrator for the Office of Solid Waste and Emergency Response.

[FR Doc. 89–28287 Filed 12–1–89; 8:45 am]

BILLING CODE 6560–50–M

[FRL–3693–4]

Center for Environmental Learning Advisory Board; Meeting

AGENCY: EPA Region III.

ACTION: Center for Environmental Learning Advisory Board; Meeting.

SUMMARY: The Director of the Center for Environmental Learning announces a meeting of the Center for Environmental Learning Advisory Board, December 12, 1989, in Washington, DC.

The following agenda items will be discussed:

Review 1989–90 work plan
Discuss national environmental education developments
Review special emphasis projects
Meet new Center for Environmental Learning staff member.

DATE: The meeting will begin at 10 a.m., December 12, 1989, and conclude at noon of the same day.

ADDRESS: The meeting will be in the Capitol Room, Omni Shoreham Hotel, 2500 Calvert Street NW., Washington, DC.

FOR FURTHER INFORMATION CONTACT: Bonnie Smith, Director, Center for Environmental Learning (C3I00), U.S. EPA Region III, 841 Chestnut Building, Philadelphia, Pennsylvania 19107 (phone [215] 597–9076).

SUPPLEMENTARY INFORMATION: The Center for Environmental Learning will review and modify its 1989–90 agenda based on discussion among Board Members and availability of staff and budget.

Daniel Ryan,

Acting Director, Congressional and Intergovernmental Affairs.

[FR Doc. 89–28288 Filed 12–1–89; 8:45 am]

BILLING CODE 6560–50–M

[OPP–30000/53A; FRL 3683–8]

Ethylene Bisdithiocarbamates: Receipt of Requests To Amend and Cancel Registrations

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice of receipt.

SUMMARY: This Notice, pursuant to section 6(f)(1) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), 7 U.S.C. 136 *et seq.*, announces EPA's receipt of requests from registrants of certain technical and end-use EBDC pesticide products to amend their registrations to delete certain uses on food crops. Additionally, from certain other registrants, EPA has received requests that certain EBDC products be voluntarily cancelled. EBDC products affected by these requests contain the following active ingredients: maneb, mancozeb, metiram, nabam, and zineb. Certain of the requests include requests for provisions for the disposition of existing stocks of the affected products. Such provisions are described in the Notice. Additionally, this Notice announces that EPA intends to approve and give effect to these requests, thus as to the respective products, either cancelling such products or amending their registrations to delete certain food crop uses.

EPA's approval will be effective December 14, 1989. As of that date, all future distribution or sale, or use of affected EBDC products shall be in accordance with the terms and conditions described herein.

DATE: The cancellation or modification of registration shall be effective December 14, 1989.

FOR FURTHER INFORMATION CONTACT: Susan T. Lewis, Product Manager (PM) 21, Registration Division (H7505C), Office of Pesticide Programs, Environmental Protection Agency, 401 M St. SW., Washington, DC 20460. Office location and telephone number: Room 227, CM #2, 1921 Jefferson Davis Highway, Arlington, VA, 703–557–1900.

SUPPLEMENTARY INFORMATION:

I. Introduction

A. Maneb, Metiram, and Mancozeb

As specifically discussed below, on September 6, 1989, the four major registrants of maneb, mancozeb, and metiram technical and end-use pesticide products submitted requests to EPA asking that 42 food crop uses of maneb, mancozeb and metiram be deleted from their product registrations. The registrants involved in these actions are Pennwalt Corporation (mancozeb and maneb), BASF Corporation (metiram), and Rohm and Haas Company, Pennwalt Corporation, and E.I. duPont de Nemours & Company (mancozeb).

In total, these registrants requested that their affected products be registered for no more than a total of 13 food uses. The crops which the registrants by their actions asked be deleted are listed below under each individual chemical.

Along with their requests, the registrants submitted amendments to labeling reflecting the deletion of uses. Additionally, the registrants submitted requests for labeling changes for technical products which would restrict the use of technical or manufacturing use products to formulation of end-use products for use only on one or more of the 13 remaining crops for which the particular parent EBDC continued to be registered.

Included in Unit II.A. is a summary of the text of the individual requests as relates to matters required to be included in this Notice pursuant to section 6(f)(1). Copies of each of the letters have been included in the public docket (OPP–30000/53) which is maintained for EBDC Special Review.

B. Nabam

In March, 1989, Rohm and Haas (the sole nabam registrant holding nabam agricultural uses) requested that all of their nabam food uses be voluntarily cancelled. A summary of the request appears in Unit II.A.; a copy of Rohm and Haas' letter is available through the EBDC Special Review Docket.

C. Zineb

In July, 1989, Microflo Company, the sole registrant of zineb technical product and the sole registrant supporting any uses of zineb, submitted a request to EPA that each of Microflo's zineb product registrations be voluntarily cancelled. A summary of Microflo's request appears below; a copy of the request has been placed in the docket

for the EBDC Special Review. As of this date, sixteen other zineb registrants have requested voluntary cancellation for an additional 52 zineb products. Those requests have also been entered into the Special Review docket.

As discussed in Unit II.A., EPA expects to approve each of these requests to amend certain registrations to delete uses or to voluntarily cancel affected registrations and give effect to such actions on December 14, 1989. Additionally, EPA has considered the requests for existing stocks provisions following the effective date of these actions and its determinations are described below.

EPA is continuing its Special Review of the EBDC pesticides and will shortly issue a proposed decision affecting EBDC registered products and uses.

II. Summary of Requests

A. Maneb

On September 8, 1989, Pennwalt Corporation submitted requests to EPA that the following crops be deleted from its maneb product registrations and labels: Peppers, tomatoes, onions, beans, broccoli, cabbage, cantaloupes, watermelon, other melons, cucumbers, squash, apples, spinach, stone fruits, carrots, celery, turnips, cauliflower, Brussels sprouts, collards, mustard greens, kale, rhubarb, lettuce, and Chinese cabbage. As a result of Pennwalt's requests, the following food uses would remain on its maneb labels: almonds, bananas, potatoes, sugar beets, and sweet corn.

Pennwalt submitted applications for pesticide registration for each of its affected products and revised labeling. Revised labeling submitted for end-use products reflected the use deletions; revised labeling submitted for technical products included language that limited the use of the technical product into end-use product formulations for use only on one or more of the retained uses.

Along with its requests to delete uses, Pennwalt indicated that the new labeling would be used on all new products. Additionally, Pennwalt stated its intent not to relabel product currently released for shipment or in channels-of-trade until January 1, 1990. Pennwalt indicated that at that time, all remaining product would be relabled prohibiting the dropped uses. Pennwalt provided a confidential attachment which listed the amount of product in its control as of the date of the letter and an estimate of the amounts that might be used by January. Pennwalt asked that the EPA consider the status of growers near the end of the growing season in issuing a final order on the use deletion and label change.

Pennwalt additionally described a number of actions it intended to seek or undertake, pertaining to tolerance reductions and/or revocations, consumer and user awareness, and integrated pest management.

B. Metiram

BASF submitted similar requests to Pennwalt's on September 6, 1989. In its requests, BASF asked that use on apples be deleted from its metiram registrations and labeling. As a result of BASF's action, the only food use of its metiram products would be on potatoes.

BASF, like Pennwalt as noted above, submitted applications and revised labeling. It included similar language restricting the use of its technical products. BASF indicated that, as of January 1, 1990, "* * * all remaining product not in the hands of growers will be relabeled* * * *"

In other respects, the letters and other submitted materials were similar to the Pennwalt requests outlined above.

C. Mancozeb

On September 6, 1989, both duPont and Rohm and Haas submitted letters to EPA requesting that certain uses be deleted from their product mancozeb registrations and labels. On September 8, Pennwalt submitted similar requests for its mancozeb products. DuPont requested that the following food crop uses by deleted: Apples, crabapple, quince, pears, papayas, pineapple, carrots, celery, fennel, cucumbers, melons, squash (summer and winter), tobacco (plant bed and field), cotton (foliar), field corn, oats, barley, and rye. Rohm and Haas requested that the following crops be deleted: Apples, barley, cantaloupes, carrots, celery, corn (field, hybrid seedcorn), crabapple, cucumbers, fennel, melons, muskmelons, oats, papaya, pears, pineapples, quince, rye, squash, and watermelons. Pennwalt requested that the following food crops be deleted: cucumbers, melons, summer squash, field corn, celery, carrots, apples, pears, crabapple, and quince. As a result of these requests, the three registrants' mancozeb products remain registered for the following uses: asparagus, bananas, cranberries, figs, grapes, onions, peanuts, potatoes, sugar beets, sweet corn, tomatoes, and wheat.

Dupont stated that, as of January 1, 1990, "* * * all remaining saleable product will be relabeled* * * *" Rohn and Haas stated that, as of that date, "* * * all remaining product not in grower's hands will be relabeled* * * *"

In other respects, the letters were similar to the Pennwalt requests which are more fully described above.

D. Nabam

On March 13, 1989, Rohm and Haas submitted to the EPA a request that the food uses of its two registrations for end-use Nabam products be cancelled. Since these products have non-food uses as well, the EPA has interpreted Rohm and Haas's letter as a request that these registrations be amended to delete all food uses. Rohm and Haas indicated that it had not sold any of the product for several years. It indicated that the food uses should be immediately cancelled and did not request any existing stocks provision.

E. Zineb

On July 17, 1989, Micro-Flo Company submitted a request to the EPA that its five zineb product registrations be voluntarily cancelled. It choose this option rather than any which would have indicated an intent to reregister the pesticide products. Micro-Flo did not request an existing stocks provision for any of these products. As of this date, 16 other zineb registrants have requested voluntary cancellation for an additional 52 zineb products. Two of these zineb registrants requested existing stocks provisions.

III. Existing Stocks Determination

The EPA has reviewed the existing stocks and relabeling elements of the four technical registrants' actions and has concluded that registrants of affected maneb, metiram, and mancozeb products may proceed according to the plan they described in their requests for use deletion. The EPA has considered the amounts of stock represented to be in existence and under the control of these registrants and has determined that distribution and sale of these stocks until January 1, 1990, and their use would not be inconsistent with FIFRA. After that date, all product remaining which is not in growers' hands must be relabeled to reflect the use deletions.

Two zineb registrants, Universal Cooperatives and Dexol Industries, requested an existing stocks period. Because all uses of zineb were suspended in July, 1988, and remain suspended, no existing stocks provision is being granted.

Rohm and Haas did not request an existing stocks provision for their nabam product registrations.

IV. Conclusion

EPA has received and expects to approve each of the requests described above effective December 14, 1989, incorporating the requested actions and the decisions governing existing stocks provisions as described above.

V.—List of Affected Registrations

Active ingredient	Registrant	Product No.
Deleted Uses:		
mancozeb	du Pont	352-341
mancozeb	do	352-343
mancozeb	do	352-398
mancozeb	do	352-449
mancozeb	Rohm & Haas	707-078
mancozeb	do	707-093
mancozeb	do	707-102
mancozeb	do	707-156
mancozeb	do	707-162
mancozeb	do	707-179
mancozeb	do	707-180
maneb	Pennwalt	4581-225
maneb	do	4581-355
maneb	do	4581-359
metiram	BASF Corp.	7969-70
metiram	do	7969-71
nabam	Rohm & Haas	707-003
nabam	do	707-070
Cancelled Registrations:		
zineb	Rohm & Haas	CT480003
zineb	do	FL780066
zineb	do	KY800015
zineb	do	MD800009
zineb	do	MN830011
zineb	do	MO820011
zineb	do	OR840036
zineb	do	PA790005
zineb	do	PA800015
zineb	do	SC800008
zineb	do	VA800016
zineb	do	707-002
zineb	do	707-072
zineb	Micro-Flo	51036-23
zineb	do	51036-25
zineb	do	51036-62
zineb	do	51036-63
zineb	do	51036-148
zineb	Agway	8590-49
zineb	Chem-Nut	37686-41
zineb	do	37686-57
zineb	Dexol Ind.	192-121
zineb	do	192-146
zineb	FMC Corp.	AZ81001900
zineb	do	GA80001100
zineb	do	KY80001100
zineb	do	MD80001600
zineb	do	OR76002800
zineb	do	OR77006300
zineb	do	PA80001700
zineb	do	KY80001100
zineb	do	MD80001600
zineb	do	OR76002800
zineb	do	OR77006300
zineb	do	PA80001700
zineb	do	SC80001100
zineb	do	VA80001300
zineb	Imperial	746-34
zineb	PBI Gordon	33955-456
zineb	Universal Coop.	1386-75
zineb	do	1386-316
zineb	Wilbur Ellis	OR81003700
zineb	do	WA82006000
zineb	HR McLane	47056-63
zineb	do	47056-78
zineb	do	47056-87
zineb	do	47056-89
zineb	do	47056-90
zineb	do	47056-92
zineb	Holden Corp.	1772-55
zineb	do	1772-74
zineb	Morgro Chem.	42057-73
zineb	Colusa Cnty. Ag.	CA79011101
zineb	do	CA79011102

V.—List of Affected Registrations—Continued

Active ingredient	Registrant	Product No.
zineb	Riverside Cnty. Ag.	CA83002900
zineb	The Land, Epcot	FL82006900
zineb	Penn State Univ.	PA76000100

Dated: November 28, 1989.

Linda J. Fisher,

Assistant Administrator for Pesticides and Toxic Substances.

[FR Doc. 89-28289 Filed 12-1-89; 8:45 am]

BILLING CODE 6560-50-M

FEDERAL COMMUNICATIONS COMMISSION

[Gen Docket No. 89-97; DA 89-1433]

Southern California Public Safety Plan

AGENCY: Federal Communications Commission.

ACTION: Notice.

SUMMARY: The FCC is accepting the Southern California Area's (Region 5's) plan for public safety. By accepting this plan, the FCC enables the licensing of the 821–824/866–869 MHz spectrum for public safety to begin. The Southern California Region is the third of the 55 regions in the National Plan to be accepted.

EFFECTIVE DATE: November 21, 1989.

FOR FURTHER INFORMATION CONTACT: Maureen Cesaitis, Private Radio Bureau, Policy and Planning Branch, Washington, DC 20554, (202) 632-6497.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's Order, adopted November 8, 1989, released November 21, 1989, accepting the Southern California Area's Plan for Public Safety. The full text of this Commission action is available for inspection and copying during normal business hours in the FCC Dockets Branch (Room 230), 1919 M Street NW., Washington, DC. The complete text of the Order may also be purchased from the Commission's copy contractor, International Transcription Service, (202) 857-3800, 2100 M Street NW., Suite 140, Washington, DC 20037.

Summary of Order

The Chief, Private Radio Bureau and the Chief Engineer have accepted the regional public safety plan for the Southern California Region, Region 5. The Region 5 plan is the third of its kind to be accepted and it represents the culmination of the efforts of the many public safety organizations that participated in its development.

In accepting this plan, the Commission's staff noted that the Southern California Region represented a challenge because of its large growing population and unique terrain. It said it was pleased to see restrictions on antenna heights and transmitter outputs and encouragement of use of special antenna patterns to limit each system's coverage so as to reuse these channels. It said it was especially pleased to see how Region 5 has combined small users into larger, trunked, more efficient systems. The staff said it believed the Region 5 Plan represented a careful balance of the public safety and special emergency mobile communication needs throughout the area and will result in efficient use of the newly allocated spectrum.

In 1987, the Commission established policies and rules for a National Plan for public safety services to ensure that the new six megahertz of public safety spectrum (821–824/866–869 MHz) be used effectively and efficiently for important public safety functions. The Commission established 55 regions and instructed each region to develop a plan for use of the newly allocated spectrum to meet current and future mobile communications requirements of the public safety and special emergency entities operating in the area. After each plan is completed and approved by its regional planning committee, it must be submitted to the Chief, Private Radio Bureau, and the Chief Engineer. After the two Bureau Chiefs have formally accepted a plan, the individual public safety entities can begin applying for licensing in the new 800 MHz spectrum.

Upon release of the full text of the Order, the individual public safety entities in Region 5 may begin applying for licensing in the 821–824/866–869 MHz bands.

Action by the Chief, Private Radio Bureau and the Chief Engineer, November 8, 1989, by Order (DA 89-1433).

Ordering Clauses

It is ordered, That the Southern California Area Plan for Public Safety is accepted, subject to amendments contained in the Order. *It is further*

ordered, That this proceeding is terminated.

List of Subjects in the Public Safety Plan

Public Safety, Special Emergency, Trunking, Land Mobile.

Federal Communications Commission.

Beverly G. Baker,

Deputy Chief, Private Radio Bureau.

[FR Doc. 89-28221 Filed 12-1-89; 8:45 am]

BILLING CODE 6712-01-M

FEDERAL RESERVE SYSTEM

Agency Forms Under Review

November 28, 1989.

Background

On June 15, 1984, the Office of Management and Budget (OMB) delegated to the Board of Governors of the Federal Reserve System (Board) its approval authority under the Paperwork Reduction Act of 1980, as per 5 CFR 1320.9, "to approve of and assign OMB control numbers to collection of information requests and requirements conducted or sponsored by the Board under conditions set forth in 5 CFR 1320.9." Board-approved collections of information will be incorporated into the official OMB inventory of currently approved collections of information. A copy of the SF 83 and supporting statement and the approved collection of information instrument(s) will be placed into OMB's public docket files. The following procurement forms, which are being handled under this delegated authority, have received initial board approval and are hereby published for comment. At the end of the comment period, the proposed information collection, along with an analysis of comments and recommendations received, will be submitted to the Board for final approval under OMB delegated authority.

DATE: Comments must be received on or before December 19, 1989.

ADDRESS: Comments, which should refer to the OMB Docket number (or Agency form number in the case of a new information collection that has not yet been assigned an OMB number), should be addressed to Mr. William W. Wiles, Secretary, Board of Governors of the Federal Reserve System, 20th and C Streets NW., Washington, DC 20551, or delivered to room B-2223 between 8:45 a.m. and 5:15 p.m. Comments received may be inspected in room B-1122 between 8:45 a.m. and 5:15 p.m., except as provided in § 261.6(a) of the Board's Rules Regarding Availability of Information, 12 CFR 261.6(a).

A copy of the comments may also be submitted to the OMB desk officer for the Board: Gary Waxman, Office of Information and Regulatory Affairs, Office of Management and Budget, New Executive Office Building, Room 3208, Washington, DC 20503.

FOR FURTHER INFORMATION CONTACT: A copy of the request for clearance (SF 83), supporting statement, and other documents that will be placed into OMB's public docket files once approved may be requested from the agency clearance officer, whose name appears below. Federal Reserve Board Clearance Officer—Frederick J. Schroeder—Division of Research and Statistics, Board of Governors of the Federal Reserve System, Washington, DC 20551, (202-452-3829).

Proposal To Approve Under OMB Delegated Authority the Extension, Without Revision, of the Following Reports

Report title: Request for Proposal; Request for Price Quotations
Agency form number: N.A.
OMB Docket number: 7100-0180
Reporters: Venders, suppliers
Annual reporting hours: 6,580

Report	Number of respond-ents	Frequency	Average hours per re-sponse
Request for proposal.	140	1 (one-time)....	20
Request for price quotation.	7,560	1 (one-time)....	0.5

Small businesses are affected.

This information collection is required to obtain a benefit (12 U.S.C. 244 and 248(1)) and is not given confidential treatment, unless requested otherwise by the respondent.

The Federal Reserve Board utilizes these two procurement forms in obtaining competitive proposals and contracts. Depending upon the product or services for which the Federal Reserve Board is seeking competitive bids, the vendor or supplier is requested to provide either basic price information for providing the good and/or service (Request for Price Quotation) or a document covering not only price information, but the means of performing a particular service and a description of the qualification of the contractor's staff who will perform the service (Request for Proposal).

Board of Governors of the Federal Reserve System, November 28, 1989.

William W. Wiles,

Secretary of the Board.

[FR Doc. 89-28271 Filed 12-1-89; 8:45 am]

BILLING CODE 6210-01-M

Agency Forms Under Review

November 28, 1989.

Background: Notice is hereby given of the submission of proposed information collection(s) to the Office of Management and Budget (OMB) for its review and approval under the Paperwork Reduction Act (title 44 U.S.C. chapter 35) and under OMB regulations on Controlling Paperwork Burdens on the Public (5 CFR part 1320). A copy of the proposed information collection(s) and supporting documents is available from the agency clearance officer listed in the notice. Any comments on the proposal should be sent to the OMB desk officer listed in the notice. OMB's usual practice is not to take any action on a proposed information collection until at least ten working days after notice in the **Federal Register**, but occasionally the public interest requires more rapid action.

FOR FURTHER INFORMATION CONTACT:

Federal Reserve Board Clearance Officer—Frederick J. Schroeder—Division of Research and Statistics, Board of Governors of the Federal Reserve System, Washington, DC 20551 (202-452-3829)

OMB Desk Officer—Gary Waxman—Office of Information and Regulatory Affairs, Office of Management and Budget, new Executive Office Building, Room 3208, Washington, DC 20503 (202-395-7340)

Request for OMB approval to revise the following report:

1. *Report title:* Reports of Condition and Income
Agency form number: FFIEC 031-034
OMB Docket number: 7100-0036
Frequency: Quarterly
Reporters: State member banks
Annual reporting hours: 162,773
Estimated average hours per response: 37.644
Number of respondents: 1,081.

Small businesses are affected.

This information collection is mandatory (12. U.S.C. 324) and is given partial confidential treatment.

State member banks are required to file detailed schedules of assets, liabilities, and capital accounts in the form of a condition report and summary statement; detailed schedule of operating income and expense, sources

and disposition of income, and changes in equity capital in the form of an income statement; and a variety of supporting schedules. Data are used for supervisory and monetary policy purposes. The proposed revisions for March 1990 affect several existing Call Report schedules and include the addition of a new schedule. Many of these revisions relate primarily to the reporting of information for risk-based capital purposes and to the collection of information relating to banks' off-balance sheet activities. The three Federal banking agencies adopted risk-based capital standards applicable to all banks under their supervision in the first quarter of 1989. In order for the agencies to compare risk-based capital positions to the minimum standards and to monitor the progress of banks in attaining these standards, the FFIEC is proposing to introduce a new risk-based capital schedule, Schedule RC–R. However, approximately 85 percent of all banks would have to complete only three of the nine items on the new schedule. Also, more complete data on banks' off-balance sheet activities would be collected on the revised Schedule RC–L, primarily to aid the banking agencies in their supervisory efforts. A memorandum item on Schedule RC–E is proposed to collect information on banks' deposits denominated in foreign currencies. On Schedule RC, surplus related to perpetual preferred stock would be reported separately from common stock surplus. The different risk weights attached to securities issued by different government entities for risk-based capital purposes have created the need to propose more detailed identification of bank holdings of U.S. Government agency and corporation obligations and of securities issued by states and municipalities in the U.S. on Schedule RC–B. Amounts of taxable securities issued by states and political subdivisions would be reported in an additional memorandum item on Schedule RC–B. A new memorandum item on Schedule RC–M is proposed to collect information on the noncumulative amounts reported in "Perpetual preferred stock and related surplus" on Schedule RC. If approved, the proposed revisions would be effective as of the March 31, 1990, report date.

Board of Governors of the Federal Reserve System, November 28, 1989.

William W. Wiles,

Secretary of the Board.

[FR Doc. 89–28272 Filed 12–1–89; 8:45 am]

BILLING CODE 6210–01–M

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Centers for Disease Control

[Announcement 010]

Supplemental Funding to Cooperative Agreement With Emory University Availability of Funds for Fiscal Year 1990

Introduction

The Centers for Disease Control (CDC) announces the availability of FY 1990 funds to support methodologic research regarding medical, epidemiologic, and public health issues related to malaria chemoprophylaxis and to support operational research regarding the analysis and reporting of national nutrition surveillance data.

Authority

This program is authorized under section 301(a) of the Public Health Service Act (42 U.S.C. 241(a)), as amended.

Eligible Applicant

Assistance will be provided only to the International Health Track (IHT), Master of Public Health (MPH) Program, Emory University. Since 1985, Emory University and CDC have been working together to provide practical work experience for students using the combined academic, financial, and operational resources of the two institutions. The program is designed to improve the public health and management competence of the students through the promotion of a multidisciplinary approach to public health problems of developing countries. This includes the study of nutritional problems, population pressures, infectious diseases, environmental and occupational problems, and self-induced risk behavior. The supplemental funding will be used to further address issues already included in the scope of the existing agreement. No other applications are solicited or will be accepted.

The MPH Program at Emory University is uniquely qualified and possesses the only body of expertise which can complete urgently needed methodological research to address medical, epidemiologic, and public health issues regarding malaria chemoprophylaxis in less than one year and can carry out operational research targeted at the analysis and reporting of nutrition surveillance data. More specifically:

A. This cooperative effort builds on existing relationships and cooperative activities between CDC and the MPH Program at Emory University which cannot be replicated by any other institution.

B. Daily on-site interchange and close collaboration are required between the participating parties because of (a) the nature and intricacies of the problem with malaria drug resistance and acute neurologic reactions; (b) the need for frequent access to the national nutrition surveillance database maintained by CDC; and (c) the measures required to design study protocols, implement appropriate investigations, and develop guidelines in less than one year.

C. The MPH Program at Emory University has the epidemiological expertise and clinical pharmacology expertise needed to resolve issues surrounding malaria chemoprophylaxis, including CDC-trained faculty in malaria control.

D. Emory University has been designated as the major national site for training Methodist missionaries for work in third world nations and these workers urgently need up-to-date information on malaria chemoprophylaxis.

Availability of funds

It is expected that $63,096 in funds will be available to support this supplement during Fiscal Year 1990 which is the final year of the current cooperative agreement between the MPH Program at Emory University and CDC. It is anticipated that the supplement will be awarded approximately January 15, 1990. No additional extension of the project period is anticipated.

Purpose

By providing this supplement to the existing cooperative agreement, CDC and Emory will be able:

A. To increase Emory University's current level of methodologic and operational research activities regarding malaria chemoprophylaxis and nutrition surveillance.

B. To develop operational research capacity to define risk factors for malaria chemoprophylactic drugs and to draft guidelines for their use.

C. To develop staff who can strengthen malaria/tropical disease and nutrition surveillance instruction in the international public health curriculum.

D. To strengthen collaborative linkages between CDC and Emory University in the area of operational research in malaria and nutrition surveillance.

Program Requirements

The specific Cooperative Activities and Evaluation Criteria are set forth in

the Request for Application (RFA) Program Announcement.

EO 12372 Review

The application is not subject to Intergovernmental Review of Federal Programs as governed by Executive Order 12372.

CFDA Number

The Catalog of Federal Domestic Assistance number is 13.283.

Application Submission

The International Health Track, Master of Public Health Program, Emory University is to submit an original and two copies of the application Form PHS–5161–1 (Rev. 3/89) to Henry S. Cassell, III, Grants Management Officer, Grants Management Branch, Procurement and Grants Office, Centers for Disease Control, 255 East Paces Ferry Road, NE., Room 300, Atlanta, Georgia 30305.

Where To Obtain Additional Information

If you are interested in obtaining additional information regarding this project, please reference Program Announcement Number 010 and contact the following:

Business

Carole J. Tully, Procurement and Grants Office, Centers for Disease Control, 255 East Paces Ferry Road, Atlanta, GA 30305, Telephone (404) 842–6795

Technical

Stanley Foster, M.D., International Health Program Office, Centers for Disease Control, 1600 Clifton Road, NE., MS F–03, Atlanta, GA 30333, Telephone (404) 639–1750.

Dated: November 22, 1989.

Robert L. Foster,

Acting Director, Office of Program Support, Centers for Disease Control.

[FR Doc. 89–28273 Filed 12–1–89; 8:45 am]

BILLING CODE 4160–18–M

Food and Drug Administration

[Docket No. 86D–0210]

Action Levels for Residues of Heptachlor and Heptachlor Epoxide in Food and Feed

AGENCY: Food and Drug Administration, HHS.

ACTION: Notice.

SUMMARY: The Food and Drug Administration (FDA) is announcing that on August 25, 1989, the agency established new action levels and revised a number of its existing action levels for residues of the cancelled pesticide heptachlor and its metabolite heptachlor epoxide in food and feed. FDA has taken this action in response to the Environmental Protection Agency's (EPA's) recommendation that FDA establish action levels to replace tolerances that were revoked by EPA. The EPA action level recommendations are intended to cover unavoidable residues of this pesticide and its metabolite in the food and feed commodities affected by the revocation of the tolerances. Additionally, based upon EPA's recommendations, FDA has revised or reaffirmed the previously established FDA action levels for unavoidable residues of heptachlor and heptachlor epoxide in other food and feed commodities that had not been subject to EPA tolerances or food additive regulations. Attachment A and Attachment B.9 of FDA Compliance Policy Guide (CPG) 7141.01 have been revised to reflect these changes. FDA is also announcing that (1) the entry for the pesticide Aramite has been deleted from Attachment A of CPG 7141.01 because EPA revoked the zero tolerances for Aramite and (2) the residue definition and analytical notes have been clarified for the chlordane action levels listed in Attachment B.3 of CPG 7141.01.

DATES: Written comments by February 2, 1990.

ADDRESSES: Written comments concerning the new and revised action levels for heptachlor and heptachlor epoxide residues, the deletion of Aramite from FDA guidelines, and the analytical changes in the chlordane action level listing should be submitted to the Dockets Management Branch (HFA–305), Food and Drug Administration, Rm. 4–62, 5600 Fishers Lane, Rockville, MD 20857. Requests for single copies of Attachment A, Attachment B.3, and Attachment B.9 in FDA's CPG 7141.01 should be submitted to the Industry Activities Section (HFF–326), Food and Drug Administration, Rm. 5425, 200 C Street SW., Washington, DC 20204.

FOR FURTHER INFORMATION CONTACT: John R. Wessel, Office of Regulatory Affairs (HFC–6), Food and Drug Administration, 5600 Fishers Lane, Rockville, MD 20857, 301–443–1815.

SUPPLEMENTARY INFORMATION: In the **Federal Register** of August 16, 1989 (54 FR 33690), EPA issued a final rule revoking the tolerances under 40 CFR 180.104 and interim tolerances under 40 CFR 180.319 for the pesticide heptachlor and its metabolite heptachlor epoxide in raw agricultural commodities. EPA revoked these tolerance regulations because all food and feed uses of heptachlor had previously been cancelled.

EPA recommended in the preamble to its final rule and in a letter dated July 21, 1989, from the Acting Assistant Administrator for Pesticides and Toxic Substances, EPA, to the Associate Commissioner for Regulatory Affairs, FDA, that FDA establish the specified action levels to replace the tolerances. These action levels provide enforcement guidance to FDA field offices for unavoidable residues of this environmentally persistent pesticide that can continue to occur in the food and feed which had previously been covered by tolerances. They were recommended by EPA in accordance with EPA's policy statement on the revocation of tolerances for cancelled pesticides, which was published in the **Federal Register** of September 29, 1982 (47 FR 42956). Additionally, in the preamble of the final rule and in its letter, EPA recommended revision or reaffirmation of FDA's previously established action levels for unavoidable residues of heptachlor and heptachlor epoxide in food and feed that were not subject to EPA tolerances.

On August 25, 1989, FDA established the new and revised action levels for unavoidable residues of heptachlor and heptachlor epoxide in food and feed that were recommended by EPA. Attachment B.9 of CPG 7141.01, which listed the heptachlor and heptachlor epoxide action levels previously established by FDA, has been revised to reflect these changes. The action levels now in effect for residues of heptachlor and heptachlor epoxide, either individually or in combination, are as follows:

Commodities [1]	Action level (parts per million)
Animal Feed, processed	0.01
Artichokes	0.01
Asparagus	0.01
Brassica (cole) leafy vegetables.	0.01
Bulb vegetables	0.01
Cereal grains	0.01
Citrus fruits	0.01
Cottonseed	0.02
Cucurbit vegetables	0.02
Eggs	0.01
Figs	0.01
Fish	0.3 (edible portion)
Fruiting vegetables	0.01
Grass forage, fodder, and hay.	0.01
Leafy vegetables (except Brassica).	0.01
Legume vegetables	0.01
Milk	0.1 (fat basis)
Nongrass animal feeds	0.01
Peanuts	0.01
Pineapple	0.02
Pome fruits	0.01
Rabbit	0.02 (fat basis) [2]

Commodities [1]	Action level (parts per million)
Root and tuber vegetables.	0.01
Salsify tops	0.01
Small fruits and berries	0.01
Stone fruits	0.01
Sugarcane	0.01

[1] Action levels for crop groups cover all commodities specified in 40 CFR 180.34(f).

[2] For rabbits that contain insufficient fat to conduct an analysis on a fat basis, analyze the rabbits on a whole product basis (edible portion) and assuming a 10-percent fat content use 0.02 part per million as the action level.

In establishing the action levels above, FDA advised its field offices that these as well as other established action levels for unavoidable pesticide residues in food and feed are not binding on the courts, the public (including the regulated food and feed industries), or FDA. The agency stressed in its memorandum to the field offices that enforcement action can be considered at levels below any of the action levels and that enforcement action is not necessarily required when any of the action levels is exceed.

FDA has also revised Attachment A of CPG 7141.01 which previously listed enforcement levels that the agency may have used for heptachlor and heptachlor epoxide residue findings in those food and feed commodities previously listed in 40 CFR 180.104 as having zero tolerances. Because EPA revoked these zero tolerances, FDA enforcement guidance was no longer needed; thus, Attachment A of CPG 7141.01 was revised by deleting the guidance for heptachlor and heptachlor epoxide from the listing.

The agency is also announcing that two relatively minor changes have been made in CPG 7141.01. First, the entry for Aramite has been deleted from Attachment A of CPG 7141.01 (which lists enforcement levels for pesticides having a zero tolerance). Including Aramite on this listing is no longer necessary because, in the **Federal Register** of May 4, 1988 (53 FR 15822), EPA issued a final rule that revoked the zero tolerances for Aramite residues in various foods and feeds. FDA field offices were informed on May 30, 1988, that the Aramite listing should be deleted from Attachment A of CPG 7141.01; however, this action was not considered sufficiently significant to warrant issuing at that time a revision of Attachment A of CPG 7141.01 and a notice in the **Federal Register** announcing the change.

Second, the residue definition and "analytical notes" for measuring chlordane residues that appeared in the listing of the chlordane action levels under Attachment B.3 of CPG 7141.01 have been changed. The change clarified the residue definition and chlordane reference standards to be used by FDA laboratories when measuring chlordane residues in food or feed either as total chlordane or as a summation of individual isomers of chlordane.

Copies of EPA correspondence recommending new and revised action levels for heptachlor and heptachlor epoxide, revised Attachment A, Attachment B.3, and Attachment B.9 of CPG 7141.01, and the memorandum to FDA field offices notifying them of establishment of the heptachlor and heptachlor epoxide action levels and revocation of the zero tolerances for Aramite are on file in the Dockets Management Branch (address above) under the docket number found in brackets in the heading of this document.

Interested persons may, on or before February 2, 1990, submit written comments, data, and information regarding the action levels and the other specified changes in CPG 7141.01 to the Dockets Management Branch (address above). Two copies of any comments are to be submitted, except that individuals may submit one copy. Comments are to be identified with the docket number found in brackets in the heading of this document. Received comments may be seen in the office above between 9 a.m. and 4 p.m., Monday through Friday.

Dated: November 20, 1989.

Ronald G. Chesemore,

Acting Associate Commissioner for Regulatory Affairs.

[FR Doc. 89-28258 Filed 12-1-89; 8:45 am]

BILLING CODE 4160-01-M

[Docket No. 89N-0502]

Drug Export; Actonel™ (Etidronate Disodium Tablets, USP 400 MG; Didronel®; Diphonex) Tablets and Fortipan™ (Calcuim Carbonate Tablets, USP 500 MG; Felonel) Tablets in a Sequential Therapy Package Consisting of Five Blister Cards

AGENCY: Food and Drug Administration, HHS.

ACTION: Notice.

SUMMARY: The Food and Drug Administration (FDA) is announcing that Norwich Eaton Pharmaceuticals, Inc., has filed an application requesting approval for the export of the human drug Actonel™ (Etidronate Disodium Tablets, USP 400 mg; Didronel®; Diphonex) Tablets and Fortipan™ (Calcium Carbonate Tablets, USP 500 mg; Felonel) Tablets in a sequential therapy package consisting of five blister cards to Canada.

ADDRESSES: Relevant information on this application may be directed to the Dockets Management Branch (HFA-305), Food and Drug Administration, Rm. 4-62, 5600 Fishers Lane, Rockville, MD 20857, and to the contact person identified below. Any future inquiries concerning the export of human drugs under the Drug Export Amendments Act of 1986 should also be directed to the contact person.

FOR FURTHER INFORMATION CONTACT: Mary F. Cooper, Division of Drug Labeling Compliance (HFD-313), Center for Drug Evaluation and Research, Food and Drug Administration, 5600 Fishers Lane, Rockville, MD 20857, 301-295-8073.

SUPPLEMENTARY INFORMATION: The drug export provisions in section 802 of the Federal Food, Drug, and Cosmetic Act (the act) (21 U.S.C. 382) provide that FDA may approve applications for the export of drugs that are not currently approved in the United States. Section 802(b)(3)(B) of the act sets forth the requirements that must be met in an application for approval. Section 802(b)(3)(C) of the act requires that the agency review the application within 30 days of its filing to determine whether the requirements of section 802(b)(3)(B) have been satisfied. Section 802(b)(3)(A) of the act requires that the agency publish a notice in the **Federal Register** within 10 days of the filing of an application for export to facilitate public participation in its review of the application. To meet this requirement, the agency is providing notice that Norwich Eaton Pharmaceuticals, Inc., P.O. Box 191, Norwich, N.Y. 13815-0191, has filed an application requesting approval for the export of the drug Actonel™ (Etidronate Disodium Tablets, USP 400 mg; Didronel®; Diphonex) Tablets and Fortipan™ (Calcium Carbonate Tablets, USP 500 mg; Felonel) Tablets in a sequential therapy package consisting of five blister cards to Canada. This product in conjunction with adequate calcium intake is indicated for the prevention and treatment of bone loss observed in patients with postmenopausal osteoporosis while reducing the risk of osteoporotic fractures. The application was received and filed in the Center for Drug Evaluation and Research on October 30, 1989, which shall be considered the filing date for purposes of the act.

Interested persons may submit relevant information on the application

to the Dockets Management Branch (address above) in two copies (except that individuals may submit single copies) and identified with the docket number found in brackets in the heading of this document. These submissions may be seen in the Dockets Management Branch between 9 a.m. and 4 p.m., Monday through Friday.

The agency encourages any person who submits relevant information on the application to do so by December 14, 1989, and to provide an additional copy of the submission directly to the contact person identified above, to facilitate consideration of the information during the 30-day review period.

This notice is issued under the Federal Food, Drug, and Cosmetic Act (sec. 802 (21 U.S.C. 382)) and under authority delegated to the Commissioner of Food and Drugs (21 CFR 5.10) and redelegated to the Center for Drug Evaluation and Research (21 CFR 5.44).

Dated: November 24, 1989.

Sammie R. Young,

Acting Director, Office of Compliance Center for Drug Evaluation and Research.

[FR Doc. 89-28257 Filed 12-1-89; 8:45 am]

BILLING CODE 4160-01-M

Small Business Participation; Notice of Open Meeting

AGENCY: Food and Drug Administration, HHS.

ACTION: Notice.

SUMMARY: The Food and Drug Administration (FDA) is announcing a forthcoming small business exchange meeting to be chaired by Edward T. Warner, Director, New York District. The topic to be discussed is small business relationships with FDA.

DATES: The meeting will be held on Monday, December 18, 1989, 1 p.m. to 4 p.m.

ADDRESSES: The meeting will be held at the Plainedge Public Library, 1060 Hicksivlle Rd., Massapequa, NY 11758.

FOR FURTHER INFORMATION CONTACT: George R. Walden, Small Business Assistance Program, Food and Drug Administration, 830 Third Avenue, Brooklyn, NY 11232, 718-965-5528.

SUPPLEMENTARY INFORMATION: The purpose of this meeting is to encourage dialogue between small businesses and FDA officials. The meeting will provide a forum for the owners and managers of small businesses to express their concerns about FDA, encourage discussion about the effects of regulation and regulatory alternatives, convey knowledge about the agency's operations and procedures, and increase participation by small business persons in FDA's decisionmaking process.

Dated: November 27, 1989.

Alan L. Hoeting,

Acting Associate Commissioner for Regulatory Affairs.

[FR Doc. 89-28259 Filed 12-1-89; 8:45 am]

BILLING CODE 4160-01-M

Health Resources and Services Administration

Filing of Annual Report of Federal Advisory Committee; Advisory Commission on Childhood Vaccines

Notice is hereby given that pursuant to section 13 of Public Law 92-463, the Annual Report for the following Health Resources and Service Administration's Federal Advisory Committee has been filed with the Library of Congress: Advisory Commission on Childhood Vaccines.

Copies are available to the public for inspection at the Library of Congress Newspaper and Current Periodical Reading Room, Room 1026, Thomas Jefferson Building, Second Street and Independence Avenue SE., Washington, DC, or weekdays between 9:00 a.m. and 4:30 p.m. at the Department of Health and Human Services, Department Library, HHS North Building, Room G-400, 330 Independence Avenue SW., Washington, DC, telephone (202) 245-6791. Copies may be obtained from: Ms. Rosemary Havill, Vaccine Injury Compensation Program, Bureau of Health Professions, Room 7-90, Parklawn Building, 5600 Fishers Lane, Rockville, Maryland 20857, Telephone (301) 443-6593.

Dated: November 28, 1989.

Jackie E. Baum,

Advisory Committee Management Officer, HRSA.

[FR Doc. 89-28255 Filed 12-1-89; 8:45 am]

BILLING CODE 4160-15-M

Office of Human Development Services

Administration on Aging; Statement of Organization, Functions and Delegations of Authority; Correction

Correction Notice. Part D. chapter D (Office of Human Development Services) of the Statement of Organization, Functions and Delegations of Authority of the Department of Health and Human Services (45 FR 64253), July 7, 1988, as amended most recently at 54 FR 21673, May 19, 1989, is amended to restate chapter D.20 Functions, paragraph E. Administration on Aging (AoA), with the following statement: Administers a program of grants to American Indians, Alaskan Natives, and Native Hawaiians under title VI of the Older Americans Act (45 CFR 1328).

Section DG, Administration on Aging (54 FR 21673, 5/19/89) is amended as follows:

DG.10. Organization. The title of the Office is amended to read: Office for American Indian, Alaskan Native and Native Hawaiian Programs.

DG.20. Functions. C. The title of the Office is amended to read: Office for American Indian, Alaskan Native and Native Hawaiian Programs.

DG.20. Functions. D. Office of State and Community Programs (DGN), third paragraph, line 38, references Office of State and Tribal Progams, is amended to read: Office of State and Community Programs.

Dated: November 27, 1989.

James E. Larson,

Acting Deputy Assistant, Secretary for Information and Resources Management.

[FR Doc. 89-28207 Filed 12-1-89; 8:45 am]

BILLING CODE 4130-01-M

DEPARTMENT OF THE INTERIOR

Bureau of Indian Affairs

Receipt of Petition for Federal Acknowledgment of Existence as an Indian Tribe

November 21, 1989.

This is published in the exercise of authority delegated by the Secretary of the Interior to the Assistant Secretary—Indian Affairs by 209 DM 8.

Pursuant to 25 CFR 83.8(a) (formerly 25 CFR 54.8(a)) notice is hereby given that the Salinan Nation, c/o Ms. Jenny McLeod, P.O. Box 610546, San Jose, California 95161-1315, has filed a petition for acknowledgment by the Secretary of the Interior that the group exists as an Indian tribe. The petition was received by the Bureau of Indian Affairs on October 10, 1989, and was signed by members of the group's governing body.

This is a notice of receipt of petition and does not constitute notice that the petition is under active consideration. Notice of active consideration will be sent by mail to the petitioner and other interested parties at the appropriate time.

Under § 83.8(d) (formerly 54.8(d)) of the Federal regulations, interested parties may submit factual and/or legal arguments in support of or in opposition to the group's petition. Any information

submitted will be made available on the same basis as other information in the Bureau of Indian Affairs' files. Such submissions will be provided to the petitioner upon receipt by the Bureau. The petitioner will be provided an opportunity to respond to such submissions prior to a final determination regarding the petitioner's status.

The petition may be examined by appointment in the Department of the Interior, Bureau of Indian Affairs, Branch of Acknowledgment and Research, Mail Stop 4627–MIB, 18th and C Streets NW., Washington, DC 20240, Phone: (202) 343–3592.

Eddie F. Brown,

Assistant Secretary, Indian Affairs.

[FR Doc. 89–28291 Filed 12–1–89; 8:45 am]

BILLING CODE 4310–02–M

Bureau of Land Management

[ID–010–00–4320–02]

Boise District Advisory Council; Meeting

AGENCY: Boise District, Bureau of Land Management, Interior.

ACTION: Notice.

SUMMARY: The Boise District Advisory Council will meet December 14, 1989, to discuss the proposed expansion of the Saylor Creek Bombing Range in the district's Bruneau, Jarbidge, and Owyhee Resource Areas. As time permits, the council will also discuss the status of the Owyhee Resource Management Plan, NERCO DeLamar Company's proposed Stone Cabin mine near Silver City, status of the Birds of Prey research project, Silver City lot sales, and illegal dumping on public lands.

DATE: The meeting will begin at 8:30 a.m. on Thursday, December 14. It will be held in the district office conference room.

ADDRESS: The Boise District Office is located at 3948 Development Avenue, Boise, Idaho 83705.

FOR FURTHER INFORMATION CONTACT: Barry Rose, BLM Boise District (208) 334–9661.

Rodger E. Schmitt,

Associate District Manager.

[FR Doc. 89–28202 Filed 12–1–89; 8:45 am]

BILLING CODE 4310–66–M

[Alaska AA–48675–0]

Proposed Reinstatement of a Terminated Oil and Gas Lease

In accordance with title IV of the Federal Oil and Gas Royalty Management Act (Pub. L. 97–451), a petition for reinstatement of oil and gas lease AA–48675–0 has been received covering the following lands:

Copper River Meridian, Alaska

T. 11 N., R. 10 W.,
Sec. 35, E. 1/2.
(320 Acres)

The proposed reinstatement of the lease would be under the same terms and conditions of the original lease, except the rental will be increased to $5 per acre per year, and royalty increased to 16 ⅔ percent. The $500 administrative fee and the cost of publishing this Notice have been paid. The required rentals and royalties accruing from July 1, 1989, the date of termination, have been paid.

Having met all the requirements for reinstatement of lease AA–48675–0 as set out in section 31 (d) and (e) of the Mineral Leasing Act of 1920 (30 U.S.C. 188), the Bureau of Land Management is proposing to reinstate the lease, effective July 1, 1989, subject to the terms and conditions cited above.

Dated: November 22, 1989.

Ruth Stockie,

Chief, Branch of Mineral Adjudication.

[FR Doc. 89–28260 Filed 12–1–89; 8:45 am]

BILLING CODE 4310–JA–M

INTERNATIONAL DEVELOPMENT COOPERATION AGENCY

Agency for International Development

Housing Guaranty Program; Investment Opportunity; Portugal

The Agency for International Development (A.I.D.) has authorized the guaranty of a loan for the Government of Portugal as part of A.I.D.'s development assistance program. The proceeds of this loan will be used to finance shelter projects for low-income families in Portugal. The Government of Portugal has authorized A.I.D. to request proposals from eligible investors. The name and address of the Borrower's representative to be contacted by interested U.S. lenders or investment bankers, and the amount of the loan and project number are indicated below:

Government of Portugal

Project: 150–HG–006—$25,000,000, Attention: Nuno Luz de Almeida/J. Santos Rodrigues, Instituto Nacional de Habitacao, Avenida Columbano Bordalo Pinheiro, 5–8th Floor, 1000 Lisboa, Portugal, Telex No.: 64641 INH P, Telephone No.: 351/(1) 726–8209 or 2608, Telefax No.: 351/(1) 726–0729

Interested investors should submit their bids to the Borrower's representative on December 19, 1989 no later than 10:00 a.m. (EST). Bids should be open for a period of 48 hours from the bid closing date. Copies of all bids should be simultaneously sent to the following:

Mr. David Leibson, Housing and Urban Development Officer, Embaixada dos Estados Unidos, Avenida das Forcas Armadas, 1507 Lisboa Codex, Lisbon, Portugal, Telex No.: 12528 AMEMB P, Telephone No.: 351/(1) 726–6600 or 6659, 8880, 8670, Telefax No.: 351/(1) 726–9109

Sean P. Walsh, Agency for International Development, PRE/H, Room 401, SA–2, Washington, D.C. 20523–0214, Telex No.: 892703 AID WSA, Telefax No.: 202/663–2552 (preferred communication)

For your information the Borrower is currently considering the following terms:

(a) *Amount:* U.S. $25 million.
(b) *Term:* Up to 30 years.
(c) *Grace Period:* 10 years on repayment or principal.
(d) *Interest Rate:* Fixed, or variable, or variable with option to convert to fixed.
(e) *Closing Date:* Estimated 60 days from date of selection of investor.
(f) *Fees:* Borrower agrees to pay all closing costs at closing from the proceeds of the loan. Lenders are requested to include all legal fees in their placement fee.

Selection of investment bankers and/or lenders and the terms of the loan are initially subject to the individual discretion of the Borrower and thereafter subject to approval by A.I.D. Disbursements under the loan will be subject to certain conditions required of the Borrower by A.I.D. as set forth in agreements between A.I.D. and the Borrower.

The full repayment of the loans will be guaranteed by A.I.D. The A.I.D. guaranty will be backed by the full faith and credit of the United States of America and will be issued pursuant to authority in section 222 of the Foreign Assistance Act of 1961, as amended (the "Act").

Lenders eligible to receive an A.I.D. guaranty are those specified in section 238(c) of the Act. They are: (a) U.S. citizens; (2) domestic U.S. corporations, partnerships, or associations substantially beneficial owned by U.S. citizens; (3) foreign corporations whose share capital is at least 95 percent owned by U.S. citizens; and, (4) foreign

partnerships or associations wholly owned by U.S. citizens.

To be eligible for an A.I.D. guaranty, the loans must be repayable in full no later than the thirtieth anniversary of the disbursement of the principal amount thereof and the interest rates may be no higher than the maximum rate established from time to time by A.I.D.

Information as to the eligibility of investors and other aspects of the A.I.D. housing guaranty program can be obtained from:

Peter M. Kimm, Director, Office of Housing and Urban Programs, Agency for International Development, Room 401, SA-2, Washington, DC 20523-0214, Telephone: 202/663-2530.

Dated: November 30, 1989.

Fredrik A. Hansen,

Deputy Director, Office of Housing and Urban Programs, Agency for International Development.

[FR Doc. 89-28357 Filed 12-1-89; 8:45 am]

BILLING CODE 6116-01-M

Senior Executive Service

November 21, 1989.

On November 15, 1989 the following persons were added as members of the Performance Review Board: Barry Goldberg, George Hill, Barbara Turner.

Dated: November 21, 1989.

Jan Barrow,

Executive Secretary, Performance Review Board.

[FR Doc. 89-28290 Filed 12-1-89; 8:45 am]

BILLING CODE 6116-01-M

Research Advisory Committee; Meeting

Pursuant to the provisions of the Federal Advisory Committee Act, notice is hereby given of the A.I.D. Research Advisory Committee meeting on December 14-15, 1989 in Conference Room 'C' of the Pan American Health Organization Building, 525 Twenty-Third Street NW., Washington, DC. The Committee will (1) continue its earlier discussions on the amount and type of scientific review that is appropriate for A.I.D.'s science and technology projects; and (2) begin its consideration of research priorities for A.I.D. in the area of global warming and climate change. The Committee will also hear brief reports from A.I.D. on forestry research and biological diversity.

The meeting will begin at 8:30 a.m. on both days and adjourn at 5:00 p.m. on December 14 and 12:00 noon on December 15. The meeting is open to the public. Any interested persons may attend, may file written statements with the Committee before or after the meeting, or may present oral statements in accordance with procedures established by the Committee and to the extent time available for the meeting permits. Dr. Curtis R. Jackson, Director, Office of Research and University Relations, Bureau for Science and Technology, is designated as the A.I.D. Representative at the meeting. Persons desiring more specific information should contact Dr. Jackson at (703) 875-4005 or Room 309, 1601 North Kent Street, Rosslyn, Virginia.

Dated: November 15, 1989.

Curtis R. Jackson,

A.I.D. Representative, Research Advisory Committee.

[FR Doc. 89-28265 Filed 12-1-89; 8:45 am]

BILLING CODE 6116-01-M

DEPARTMENT OF JUSTICE

Lodging of Consent Decree Pursuant to the Clean Water Act

In accordance with Departmental policy at 28 CFR 50.7, notice is hereby given that on November 15, 1989, a proposed consent decree in *United States* v. *Bridge City, Texas, et al.*, Civil Action No. B-89-0978-CA, was lodged with the United States District Court for the Eastern District of Texas, Beaumont Division. The complaint filed by the United States sought injunctive relief and civil penalties for alleged violations by defendant Bridge City of the terms and conditions of its National Pollutant Discharge Elimination System ("NPDES") permit issued by the U.S. Environmental Protection Agency ("EPA") pursuant to section 402(a) of the Clean Water Act, 33 U.S.C. 1342(a), and two administrative orders issued by EPA. The proposed consent decree requires Bridge City to comply with the Clean Water Act and its NPDES permit in the future and imposes a $20,000 penalty for past violations.

For a period of thirty (30) days from the date of this publication, the Department of Justice will receive comments relating to the proposed consent decree. Comments should be addressed to the Assistant Attorney General, Land and Natural Resources Division, Department of Justice, Washington, DC 20530, and should refer to *United States* v. *Bridge City, Texas, et al.*, Department of Justice reference number 90-5-1-1-3267.

The proposed consent decree may be examined at the Office of the United States Attorney, 700 North Street, Suite 102, Beaumont, Texas 77701 and at the Region VI Office of the U.S. Environmental Protection Agency, 1445 Ross Avenue, Dallas, Texas 75202. The proposed decree may also be examined at the Environmental Enforcement Section, Land and Natural Resources Division at the Department of Justice, Room 1748, Ninth Street and Pennsylvania Avenue NW., Washington, DC 20530, or may be obtained by mail from the Environmental Enforcement Section, P.O. Box 7611, Ben Franklin Station, Washington, DC 20044. When requesting a copy, please refer to *United States* v. *Bridge City*, DOJ #90-5-1-1-3267, and enclose a check in the amount of $1.60 payable to the Treasurer of the United States.

Richard B. Stewart,

Assistant Attorney General, Land and Natural Resources Division.

[FR Doc. 89-28269 Filed 12-1-89; 8:45 am]

BILLING CODE 4410-01-M

Lodging of Consent Decree; General Motors Corp.

In accordance with the Policy of the Department of Justice, 28 CFR 50.7, notice is hereby given that a proposed Consent Decree in *United States* v. *General Motors Corporation*, Civil Action No. C-3-89-444 was lodged with the United States District Court for the Southern District of Ohio on 11/7/89. The action was filed pursuant to the Clean Air Act, 42 U.S.C. 7413, against General Motors Corporation ("GM").

The complaint alleges unlawful levels of emissions of volatile organic compounds ("VOC") were released from automotive motor mount paint coating lines at the General Motors Inland Division facility in Dayton, Ohio. The Consent Order enjoins GM from resuming the operation of these lines until GM is in full compliance with the Ohio State Implementation Plan's VOC limits. It also requires GM to pay a civil penalty of $32,389.00. The decree also requires GM to reduce VOC emissions, to levels below those permitted in the Ohio State Implementation Plan, at is Vandalia, Ohio facility.

The Department of Justice will receive comments relating to the proposed Consent Decree for a period of thirty (30) days from the date of this publication. Comments should be addressed to the Assistant Attorney General of the Land and Natural Resources Division, U.S. Department of Justice, Washington, DC 20530. All comments should refer to *United States*

v. *General Motors Corporation*, DOJ Reference No. 90–5–2–1–1041.

The proposed Consent Decree may be examined at the Office of the United States Attorney, 200 West Second Street, Room 602, Dayton, Ohio, 45402 and at the Office of Regional Counsel, United States Environmental Protection Agency, Region V, 230 South Dearborn Street, Chicago, Illinois, 60604. Copies of the proposed Consent Decree may be examined at the Environmental Enforcement Section, Land and Natural Resources Division, U.S. Department of Justice, Room 1515, Ninth Street and Pennsylvania Avenue NW., Washington, DC 20530. A copy of the proposed Consent Decree may be obtained by mail from the Environmental Enforcement Section, Land and Natural Resources Division of the U.S. Department of Justice. A request for a copy of the proposed Consent Decree with exhibits should be accompanied by a check in the amount of $1.10 (ten cents per page copying costs) payable to the "United States Treasurer."

Richard B. Stewart,

Assistant Attorney General, Land and Natural Resources Division.

[FR Doc. 89–28266 Filed 12–1–89; 8:45 am]

BILLING CODE 4410–01–M

Lodging of Consent Decree; Mid-State Disposal, Inc. et al.

In accordance with section 122(i) of the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), 42 U.S.C. 9622(i), and the policy of the Department of Justice, 28 CFR 50.7, notice is hereby given that on November 15, 1989, a proposed consent decree in *United States* v. *Mid-State Disposal, Inc., et al.*, Civ. Act. No. 89–C–1017–S, was lodged with the United States District Court for the Western District of Wisconsin. This action was brought pursuant to the cleanup of the Mid-State Disposal Superfund site ("Site") located in Cleveland Township, Marathon County, Wisconsin, and for the recovery of costs expended by the United States in connection with the Site.

The consent decree is entered into between plaintiffs, the United States and the State of Wisconsin ("State"), and defendants, Weyerhaeuser Company, Steel King Industries, Felker Brothers Corporation and Mid-State Disposal, Inc., (collectively "Settling Defendants"). The Settling Defendants are among the parties potentially responsible for the contamination at the Site. The Decree requires the Settling Defendants to finance, design, and perform a $19 million remedial action at the Site, which includes requiring the Settling Defendants, *inter alia*, to: (1) Place soil/clay caps over the three waste disposal areas; (2) collect and dispose of leachate from the Site; (3) install a system to collect and vent gas released from the Site; (4) monitor the groundwater in the shallow and deeper portions of the aquifer; (5) install an alternate water supply for residences in an area down-gradient from the Site; and (6) perform long term operation and maintenance of each aspect of the remedy, other than for the alternate water supply. The Decree also requires the Settling Defendants to pay any oversight costs incurred by EPA and/or the State in the future.

Under the Decree, the State will perform the long term operation and maintenance for the alternate water supply. The State will also contribute $992,000 to the financing of the remedial action.

In addition, the Decree provides that if the monitoring wells identify further groundwater contamination, then the United States Environmental Protection Agency, in consultation with the State, may require the Settling Defendants to perform further study of the groundwater at the Site.

The Department of Justice will receive comments relating to the proposed consent decree for a period of 30 days from the date of this publication. Comments should be addressed to the Assistant Attorney General of the Land and Natural Resources Division, Department of Justice, Washington, DC 20530. All comments should refer to *United States* v. *Mid-State Disposal, Inc., et al.*, DJ Ref. # 90–11–3–392.

The proposed consent decree may be examined at the office of the United States Attorney, Room 420, 120 N. Henry Street, Madison, Wisconsin 53703 and at the Region V Office of the Environmental Protection Agency, 230 S. Dearborn Street, Chicago, Illinois 60604. Copies of the proposed consent decree may also be examined at the Environmental Enforcement Section, Land and Natural Resources Division, United States Department of Justice, Room 1515, Ninth Street and Pennsylvania Avenue NW. Washington, DC 20530. A copy of the proposed decree may be obtained by mail from the Environmental Enforcement Section, Land and Natural Resources Division of the Department of Justice. Any request for a copy of the decree should be accompanied by a check in the amount of $7.00 for copying costs payable to the "United States Treasurer."

Richard B. Stewart,

Assistant Attorney General, Land and Natural Resources Division.

[FR Doc. 89–28267 Filed 12–1–89; 8:45 am]

BILLING CODE 4410–01–M

DEPARTMENT OF LABOR

Pension and Welfare Benefits Administration

[Prohibited Transaction Exemption 89–99; Exemption Application No. D–7751 et al.]

Grant of Individual Exemptions; Kendall Homes, Inc. Defined Benefit Pension Plan & Trust et al.

AGENCY: Pension and Welfare Benefits Administration, Labor.

ACTION: Grant of individual exemptions.

SUMMARY: This document contains exemptions issued by the Department of Labor (the Department) from certain of the prohibited transaction restrictions of the Employee Retirement Income Security Act of 1974 (the Act) and/or the Internal Revenue Code of 1954 (the Code).

Notices were published in the Federal Register of the pendency before the Department of proposals to grant such exemptions. The notices set forth a summary of facts and representations contained in each application for exemption and referred interested persons to the respective applications for a complete statement of the facts and representations. The applications have been available for public inspection at the Department in Washington, DC. The notices also invited interested persons to submit comments on the requested exemptions to the Department. In addition the notices stated that any interested person might submit a written request that a public hearing be held (where appropriate). The applicants have represented that they have complied with the requirements of the notification to interested persons. No public comments and no requests for a hearing, unless otherwise stated, were received by the Department.

The notices of pendency were issued and the exemptions are being granted solely by the Department because, effective December 31, 1978, section 102 of Reorganization Plan No. 4 of 1978 (43 FR 47713, October 17, 1978) transferred the authority of the Secretary of the Treasury to issue exemptions of the type proposed to the Secretary of Labor.

Statutory Findings

In accordance with section 408(a) of the Act and/or section 4975(c)(2) of the Code and the procedures set forth in ERISA Procedure 75–1 (40 FR 18471, April 28, 1975), and based upon the entire record, the Department makes the following findings:

(a) The exemptions are administratively feasible;

(b) They are in the interests of the plans and their participants and beneficiaries; and

(c) They are protective of the rights of the participants and beneficiaries of the plans.

Kendall Homes, Inc., Defined Benefit Pension Plan & Trust (the Pension Plan) and Profit Sharing Plan & Trust (the P/S Plan together, the Plans), Located in Flanders, New Jersey [Prohibited Transaction Exemption 89–99; Exemption Application No. D–7751]

Exemption

The restrictions of section 406(a), 406(b)(1) and (b)(2) of the Act and the sanctions resulting from the application of section 4975 of the Code, by reason of section 4975(c)(1) (A) through (E) of the Code, shall not apply to: (1) A proposed series of loans, originated within a five year period, by the Plans to Kendall Homes, Inc., the sponsor of the Plans, and its affiliated real estate development corporations, and (2) the personal guarantee of such loans by K.G. Hunnewell, Jr., a party in interest with respect to the Plans, provided that:

(a) Eastbank, N.A., a qualified, independent fiduciary acting for the Plans, expressly approves each loan as being in the best interests of the Plans and their participants and beneficiaries and monitors each loan to ensure that the Plans' interests are safeguarded,

(b) All terms and conditions of the loans are at least as favorable to the Plans as those which the Plans could obtain in arm's-length transactions with unrelated parties;

(c) The loans represent in the aggregate no more than 25% of the total assets of the Plans as of the date of each such transaction; and

(d) The aggregate total of all such loans made by either the Pension Plan or the P/S Plan will not exceed 25% of the assets of the particular Plan at the time of any individual loan transaction.

For a more complete statement of the facts and representations supporting the Department's decision to grant this exemption refer to the notice of proposed exemption published on September 14, 1989 at 54 FR 38004.

Temporary Nature of Exemption: This exemption is effective only for those loans which are originated within five years of the date on which this exemption is published in the **Federal Register.**

For Further Information Contact: Mr. E.F. Williams of the Department, telephone (202) 523–8883. (This is not a toll-free number.)

Carstens Health Industries, Inc., Employees Profit Sharing and 401(k) Plan (the Plan), Located in Chicago, Illinois [Prohibited Transaction Exemption 89–100; Exemption Application No. D–7959]

Exemption

The restrictions of section 406(a), 406 (b)(1) and (b)(2) of the Act and the sanctions resulting from the application of section 4975(c)(1) (A) through (E) of the Code, shall not apply to a proposed sale by the Plan of certain real estate limited partnership units (the Units) to Carstens Health Industries Inc., the sponsor of the Plan and as such, a party in interest with respect to the Plan, provided the sales price is the greater of $226,300 or the fair market value of the Units at the time of the sale.

For a more complete statement of the facts and representations supporting the Department's decision to grant this exemption refer to the notice of proposed exemption published on October 2, 1989 at 54 FR 40541/40542.

For Further Information Contact: Ekaterina A. Uzlyan of the Department, telephone (202) 523–8194. (This is not a toll-free number.)

The Jay A. Baier, Ltd., Employees Profit Sharing Plan and Trust (the Plan), Located in Chicago, Illinois [Prohibited Transaction Application 89–101; Exemption Application No. D–8026]

Exemption

The sanctions resulting from the application of section 4975 of the Code, by reason of section 4975(c)(1) (A) through (E) of the Code, shall not apply to the proposed sale by the Plan of undivided 25% and 50% interests in two real estate partnerships to Jay A. Baier, a disqualified person with respect to the Plan.[1]

For a more complete statement of the facts and representations supporting the Department's decision to grant this exemption refer to the notice of proposed exemption published on October 2, 1989 at 54 FR 40542.

For Further Information Contact: Ekaterina A. Uzlyan of the Department, telephone (202) 523–8194. (This is not a toll-free number.)

Western Telecom Profit Sharing and Employee Savings Plan (the Plan), Located in Orem, Utah [Prohibited Transaction Exemption 89–102; Exemption Application No. D–8052]

Exemption

The restrictions of section 406(a), 406 (b)(1) and (b)(2) of the Act and the sanctions resulting from the application of section 4975 of the Code, by reason of section 4975(c)(1) (A) through (E) of the Code, shall not apply to the sale for cash by the Plan of certain real property located in Kamas, Utah to Kamas Woodland Telephone, Inc., a party interest with respect to the Plan; provided that all terms of such transaction are no less favorable to the Plan than those which the Plan could obtain in an arm's-length transaction with an unrelated party.

For a more complete statement of the facts and representations supporting the Department's decision to grant this exemption refer to the notice of proposed exemption published on September 14, 1989 at 54 FR 38009.

For Further Information Contact: Ronald Willett of the Department, telephone (202) 523–8881. (This is not a toll-free number.)

James E. McIntosh, M.D., P.A. Defined Benefit Pension Plan (the Plan), Located in Tyler, Texas [Prohibited Transaction Exemption 89–103; Exemption Application No. D–8077]

Exemption

The sanctions resulting from the applicaion of section 4975 of the Code, by reason of section 4975(c)(1) (A) through (E) of the Code, shall not apply to the sale for cash by the Plan of certain unimproved real property located in Missoula County, Montana to James E. McIntosh, M.D., a disqualified person with respect to the Plan; provided that all terms of such transaction are no less favorable to the Plan than those which the Plan could obtain in an arm's-length transaction with an unrelated party.

For a more complete statement of the facts and representations supporting the Department's decision to grant this exemption refer to the notice of proposed exemption published on Monday, October 2, 1989 at 54 FR 40543.

For Further Information Contact: Ronald Willett of the Department, telephone (202) 523–8881. (This is not a toll-free number.)

General Information

The attention of interested persons is directed to the following:

(1) The fact that a transaction is the subject of an exemption under section 408(a) of the Act and/or section 4975(c)(2) of the Code does not relieve a

[1] Because Jay A. Baier is the only participant in the Plan and the Employer is wholly owned by Jay A. Baier, there is no jurisdiction under Title I of the Act pursuant to 29 CFR 2510.3–3(b). However, there is jurisdiction under Title II of the Act pursuant to section 4975 of the Code.

fiduciary or other party in interest or disqualified person from certain other provisions of the Act and/or the Code, including any prohibited transaction provisions to which the exemption does not apply and the general fiduciary responsibility provisions of section 404 of the Act, which among other things require a fiduciary to discharge his duties respecting the plan solely in the interest of the participants and beneficiaries of the plan and in a prudent fashion in accordance with section 404(a)(1)(B) of the Act; nor does it affect the requirement of section 401(a) of the Code that the plan must operate for the exclusive benefit of the employees of the employer maintaining the plan and their beneficiaries;

(2) These exemptions are supplemental to and not in derogation of, any other provisions of the Act and/or the Code, including statutory or administrative exemptions and transitional rules. Furthermore, the fact that a transaction is subject to an administrative or statutory exemption is not dispositive of whether the transaction is in fact a prohibited transaction.

(3) The availability of these exemptions is subject to the express condition that the material facts and representations contained in each application accurately describes all material terms of the transaction which is the subject of the exemption.

Signed at Washington, DC, this 29th day of November, 1989.

Ivan Strasfeld,

Director of Exemption Determinations, Pension and Welfare Benefits Administration, U.S. Department of Labor.

[FR Doc. 89-28304 Filed 12-1-89; 8:45 am]

BILLING CODE 4510-29-M

NATIONAL FOUNDATION ON THE ARTS AND THE HUMANITIES

Federal Council on the Arts and the Humanities; Arts and Artifacts Indemnity Panel Advisory Committee; Renewal

The Arts and Artifacts Indemnity Panel Advisory Committee is being renewed for an additional two years.

The Chairman, National Endowment for the Humanities, a member of the Federal Council on the Arts and the Humanities has determined that the renewal of this committee is necessary and in the public interest in connection with the performance of duties imposed upon the Federal Council on the Arts and Humanities by law. This determination follows consultation with the Committee Management Secretariat, General Services Administration.

Dated: November 28, 1989.

Catherine Wolhowe,

Advisory Committee, Management Officer.

[FR Doc. 89-28230 Filed 12-1-89; 8:45 am]

BILLING CODE 7356-01-M

Cancellation of Meeting of Humanities Panel

The meeting of the Humanities Panel scheduled for December 1, 1989, and published in the **Federal Register** on November 17, 1989, at pages 27843-44, has been cancelled. The meeting was to review applications for Humanities Projects in Libraries and Archives, submitted to the Division of General Programs.

Catherine Wolhowe,

Advisory Committee, Management Officer.

[FR Doc. 89-28232 Filed 12-1-89; 8:45 am]

BILLING CODE 7536-01-M

NUCLEAR REGULATORY COMMISSION

Proposed Availability of FY 90 Funds for Financial Assistance (Grants) To Support Research at Educational Institutions and the Exchange of Information; Announcement of Revised Funding Availability

AGENCY: Nuclear Regulatory Commission.

ACTION: Notice.

SUMMARY: In the **Federal Register** of June 30, 1989 (54 FR 27778), the Nuclear Regulatory Commission announced the availability of FY90 funds to support research grants to educational institutions. That announcement stated that the ceiling for such grants was approximately $1,200,000, with about $400,000 of that amount available for new grants in FY90. Unexpected budget reductions have now reduced these figures to $1,000,000 and $200,000, respectivley. The remainder of the June 30, 1989 announcement, with the exception of the revised funding figures, remains in effect. All other elements of the program remain unchanged, e.g., application procedures, deadlines, and technical topic areas.

ADDRESS: Nuclear Regulatory Commission, Attn: Grants Officer, Division of Contracts and Property Management, Office of Administration, Washington, DC 20555.

FOR FURTHER INFORMATION CONTACT: Ms. Kimberly Malone, (301) 492-4297 or Ms. Yvonne Terry, (301) 492-4210.

Dated at Bethesda, MD this 28th day of November, 1989.

For the U.S. Nuclear Regulatory Commission.

Elois J. Wiggins,

Grants Officer, Contract Negotiation Branch No. 2, Division of Contracts and Property Management, Office of Administration.

[FR Doc. 89-28277 Filed 12-1-89; 8:45 am]

BILLING CODE 7590-01-M

Advisory Committee on Reactor Safeguards; Meeting Agenda

In accordance with the purposes of section 29 and 182b. of the Atomic Energy Act (42 U.S.C. 2039, 2232b), the Advisory Committee on Reactor Safeguards will hold a meeting on December 14-16, 1989 in Room P-110, 7920 Norfolk Avenue, Bethesda, Maryland. Notice of this meeting was published in the **Federal Register** on October 18, 1989.

Thursday, December 14, 1989, Room P-110, 7920 Norfolk Avenue, Bethesda, Md.

8:30 a.m.-8:45 a.m.: Comments by ACRS Chairman (Open)—The ACRS Chairman will comment on items of current interest.

8:45 a.m.-11:15 a.m.: Access Authorization at Nuclear Power Plants (Open/Closed)—The Committee will review and report on the proposed final rule, 10 CFR part 73, Access Authorization Program at Nuclear Power Plants. Representatives of the NRC staff will participate, as appropriate.

Portions of this session will be closed as necessary to discuss Safeguards Information for specific nuclear plants.

11:15 a.m.-12 noon: Future ACRS Activities (Open)—The Committee will discuss anticipated ACRS subcommittee activities and items proposed for consideration by the full Committee.

1 p.m.-2:30 p.m.: Evaluation of Operational Data (Open)—The Committee will hold a briefing and discussion regarding the basis for and use of Systematic Analysis of Licensing Performance (SALP) ratings.

2:45 p.m.-3:45 p.m.; Technical Training and Qualification Program for NRC Employees (Open)—The Committee will be briefed by NRC staff representatives regarding technical training facilities and programs for NRC employees.

3:45 p.m.-4:15 p.m.: ACRS Subcommittee Activities (Open)—The Committee will hear and discuss reports of ACRS subcommittee activities in designated areas, including thermal-hydraulic phenomena.

4:15 p.m.–5 p.m.: ACRS Practices and Procedures (Open)—The Committee will discuss proposed changes in ACRS practices and procedures regarding the ACRS Bylaws and the Memorandum of Understanding between the NRC staff and the Committee.

5 p.m.–5:30 p.m.: Selection/Appointment of ACRS Members/Officers—(Open/Closed)—The Committee will discuss the status of candidates proposed for appointment to the Committee and the qualifications of nominees for ACRS officers during Calendar Year 1990.

Portions of this session will be closed as necessary to discuss information the release of which would represent a clearly unwarranted invasion of personal privacy.

Friday, December 15, 1989

8:30 a.m.–10 a.m.: Containment Performance Improvement Program (Open)—The Committee will review and report on a proposed NRC program to evaluate the potential for containment improvements to deal with severe accidents at nuclear power plants. Representatives of the NRC staff will participate, as appropriate.

10:15 a.m.–12 noon: Coherence in the NRC Regulatory Process (Open)—The Committee will meet with NRC's Acting Executive Director for Operations to discuss the ACRS report of November 24, 1989, Coherence in the Regulatory Process and related matters.

1:30 p.m.–2:30 p.m.: Fitness for Duty (Open)—The Committee will review and report on the proposed revision to 10 CFR part 55 to require compliance with NRC's fitness-for-duty programs and conforming modification to the Commission's enforcement policy.

2:45 p.m.–5:30 p.m.: Preparation of ACRS Reports to the NRC (Open)—The Committee will discuss proposed ACRS reports regarding items considered during this meeting.

Saturday, December 16, 1989

8:30 a.m.–12:30 p.m.: Preparation of ACRS Reports to the NRC (Open)—The Committee will discuss proposed ACRS reports to the NRC regarding items considered during this meeting.

Procedures for the conduct of and participation in ACRS meetings were published in the **Federal Register** on September 27, 1989 (54 FR 39594). In accordance with these procedures, oral or written statements may be presented by members of the public, recordings will be permitted only during those portions of the meeting when a transcript is being kept, and questions may be asked only by members of the Committee, its consultants, and Staff. Persons desiring to make oral statements should notify the ACRS Executive Director as far in advance as practicable so that appropriate arrangements can be made to allow the necessary time during the meeting for such statements. Use of still, motion picture and television cameras during this meeting may be limited to selected portions of the meeting as determined by the Chairman. Information regarding the time to be set aside for this purpose may be obtained by a prepaid telephone call to the ACRS Executive Director, Mr. Raymond F. Fraley, prior to the meeting. In view of the possibility that the schedule for ACRS meetings may be adjusted by the Chairman as necessary to facilitate the conduct of the meeting, persons planning to attend should check with the ACRS Executive Director if such rescheduling would result in major inconvenience.

I have determined in accordance with subsection 10(d) Public Law 92–463 that it is necessary to close portions of this meeting as noted above to discuss safeguards and security information at nuclear plants (5 U.S.C. 552b(c)(3)) and information the release of which would represent a clearly unwarranted invasion of personal privacy (5 U.S.C. 552b(c)(6)).

Further information regarding topics to be discussed, whether the meeting has been cancelled or rescheduled, the Chairman's ruling on requests for the opportunity to present oral statements and the time allotted can be obtained by a prepaid telephone call ot the ACRS Executive Director, Mr. Raymond F. Fraley (telephone 301/492–8049), between 7:30 a.m. and 4:15 p.m.

Dated: November 8, 1989.

John C. Hoyle,

Advisory Committee Management Officer.

[FR Doc. 89–28276 Filed 12–1–89; 8:45 am]

BILLING CODE 7590–01–M

Licensing Support System Advisory Review Panel

Pursuant to the Federal Advisory Committee Act of October 6, 1972 (Pub. L., 94–463, 86 Stat. 770–776) the U.S. Nuclear Regulatory Commission (NRC) announces the establishment of the Licensing Support System Advisory Review Panel ("Panel"). The Commission has determined that the establishment of this Panel is necessary and in the public interest in order to obtain advice and recommendations on the design, development, and operation of the Licensing Support System (LSS). The LSS is an electronic information management system containing information relevant to the Commission's high-level waste licensing proceeding.

The purpose of the Panel is to provide advice and recommendations on topics, issues, and activities related to the design, development, and operation of the LSS. Panel membership will be primarily drawn from those interests that will be affected by the use of the LSS, including the Department of Energy, the NRC, the State of Nevada, Tribal interests, affected units of local governments in Nevada, the nuclear industry, and environmental groups. These interests will provide a balanced representation of the different viewpoints, concerns, and needs related to the siting and licensing of the HLW repository, and the use of the LSS in that process. The Patent and Trademark Office and the National Archives, Federal agencies with expertise and experience in electronic information management systems, will also participate on the Panel. The Commission has appointed the NRC representative on the Panel, John C. Hoyle, as Chairman.

The first meeting of the Panel is scheduled for December 19 and 20, 1989 in Reno, Nevada at the Peppermill Hotel. The meeting will begin at 9 a.m. and conclude at 5 p.m. each day. The agenda for the first meeting will include a discussion of the status of LSS activities, establishment of the protocols for Panel activities, an overview of how the LSS capture stations will operate, and future agenda items. This meeting will be open to the public.

The establishment of the Panel will be effective upon the filing of its charter with the Commission and with the standing committees of Congress having legislative jurisdiction over the NRC.

For further information on the LSS Advisory Review Panel, including details related to its first meeting, contact Francis X. Cameron, Deputy LSS Administrator, U.S. Nuclear Regulatory Commission, Washington, DC 20555; Telephone: 301–492–4030.

Dated at Rockville, Maryland this 29th Day of November, 1989.

For the Nuclear Regulatory Commission.

John C. Hoyle,

Advisory Committee Management Officer.

[FR Doc. 89–28275 Filed 12–1–89; 8:45 am]

BILLING CODE 7590–01–M

[Docket No. 50-245]

Northeast Nuclear Energy Co.; Issuance of Amendment to Facility Operating License

The U.S. Nuclear Regulatory Commission (Commission) has issued Amendment No. 40 to Facility Operating License No. DPR-21 issued to Northeast Nuclear Energy Company (the licensee), which revised the Technical Specifications for operation of the Millstone Nuclear Power Station, Unit No. 1, located in New London County, Connecticut. The amendment is effective as of the date of issuance.

The amendment modified the Technical Specifications to add the maximum number of spent fuel assemblies that can be stored in the spent fuel pool. This limit reflects the expanded capacity of the spent fuel pool.

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.

Notice of Consideration of Issuance of Amendment and Opportunity for Hearing in connection with this action was published in the **Federal Register** on August 23, 1988 (53 FR 32124). No request for a hearing or petition for leave to intervene was filed following this notice.

The Commission has prepared an Environmental Assessment related to the action and has determined not to prepare an environmental impact statement. Based upon the environmental assessment, the Commission has concluded that the issuance of this amendment will not have a significant effect on the quality of the human environment.

For further details with respect to the action see: (1) The application for amendment dated June 24, 1988, (2) Amendment No. to License No. DPR-21, (3) the Commission's related Safety Evaluation, and (4) the Commission's Environmental Assessment. All of these items are available for public inspection at the Commission's Public Document Room, the Gelman Building, 2120 L Street NW., Washington, DC and at the Waterford Public Library, 49 Rope Ferry Road, Waterford, Connecticut 06385. A copy of items (2), (3) and (4) may be obtained upon request addressed to the U.S. Nuclear Regulatory Commission, Washington, DC, 20555, Attention: Director, Division of Reactor Projects—I/II.

Dated at Rockville, Maryland, this 28th day of November 1989.

For the Nuclear Regulatory Commission.

Michael L. Boyle,

Project Manager, Project Directorate I-4, Division of Reactor Projects—I/II, Office of Nuclear Reactor Regulation.

[FR Doc. 89-28278 Filed 12-1-89; 8:45 am]

BILLING CODE 7590-01-M

OFFICE OF PERSONNEL MANAGEMENT

Senior Executive Service; Performance Review Board

AGENCY: Office of Personnel Management.

ACTION: Notice.

SUMMARY: Notice is hereby given of the appointment of members of the OPM Performance Review Board.

FOR FURTHER INFORMATION CONTACT: Anne A. Andrews, Personnel Policy and Program Development Branch, Office of Personnel and EEO, Administration Group, Office of Personnel Management, 1900 E Street NW., Washington, DC 20415, (202) 632-9402.

SUPPLEMENTARY INFORMATION: Section 4314(c) (1) through (5) of title 5, U.S.C., requires each agency to establish, in accordance with regulations prescribed by the Office of Personnel Management, one or more SES performance review boards. The board shall review and evaluate the initial appraisal of a senior executive's performance by the supervisor, along with any recommendations to the adopting authority relative to the performance of the senior executive.

Office of Personnel Management.

Constance Berry Newman,

Director.

The following have been selected as regular members of the Performance Review Board of the Office of Personnel Management:

Bill R. Phillips [Chair], Deputy Director, Office of Personnel Management
James B. Lancaster, Jr., Associate Director for Administration
Claudia Cooley, Associate Director for Personnel Systems and Oversight
Curtis J. Smith, Associate Director for Career Entry and Employee Development
Dona Wolf, Director of Policy
Frank D. Titus, Assistant Director for Financial Control and Management
Steven R. Cohen, Regional Director, Chicago Region
William G. Norton, Director, Office of Executive Administration.

The following have been selected as ad hoc members of the Performance Review Board of the Office of Personnel Management:

Anthony F. Ingrassia, Deputy Associate Director for Personnel Systems and Oversight
Leonard R. Klein, Deputy Associate Director for Career Entry and Employee Development.

[FR Doc. 89-28256 Filed 12-1-89; 8:45 am]

BILLING CODE 6325-01-M

SECURITIES AND EXCHANGE COMMISSION

Self-Regulatory Organizations; Applications for Unlisted Trading Privileges and of Opportunity for Hearing; Boston Stock Exchange, Inc.

November 28, 1989.

The above named national securities exchange has filed applications with the Securities and Exchange Commission ("Commission") pursuant to section 12(f)(1)(B) of the Securities Exchange Act of 1934 and Rule 12f-1 thereunder for unlisted trading privileges in the following securities:

Americus Trust for Bristol Myers Shares Scores, No Par Value (File No. 7-5614)
Americus Trust for Hewlett Packard Shares Scores, No Par Value (File No. 7-5615)
Americus Trust for Philip Morris Shares Scores, No Par Value (File No. 7-5616)
Americus Trust for Eastman Kodak Shares Scores, No Par Value (File No. 7-5617)
Americus Trust for Coca-Cola Shares Scores, No Par Value (File No. 7-5618)
Americus Trust for GTE Corp. Shares Scores, No Par Value (File No. 7-5619)
Americus Trust for American Express Shares Scores, No Par Value (File No. 7-5620)
Americus Trust for Xerox Shares Scores, No Par Value (File No. 7-5621)
American Fructose Corp.
Class B Common Stock, $.10 Par Value (File No. 7-5622)
Americus Trust for Amoco Shares Scores, No Par Value (File No. 7-5623)
Bond International Gold, Inc.
Ordinary Shares, Common Stock, $.01 Par Value (File No. 7-5624)
Chile Fund, Inc.
Common Stock, $.001 Par Value (File No. 7-5625)
Coeur D'Alene Mines Corp.
Common Stock, $1.00 Par Value (File No. 7-5626)
Enron Oil & Gas Co.
Common Stock, No Par Value (File No. 7-5627)
LSI Logic Corp.
Common Stock, $.01 Par Value (File No. 7-5628)
Austria Fund, Inc.
Common Stock, $.01 Par Value (File No. 7-5629)

Portugal Fund, Inc.
Common Stock, $.001 Par Value (File No. 7–5630)
Potash Corp. of Saskatchewan
Common Stock, No Par Value (File No. 7–5631)

These securities are listed and registered on one or more other national securities exchange and are reported in the consolidated transaction reporting system.

Interested persons are invited to submit on or before December 19, 1989, written data, views and arguments concerning the above-referenced applications. Persons desiring to make written comments should file three copies thereof with the Secretary of the Securities and Exchange Commission, 450 Fifth Street NW., Washington, DC 20549. Following this opportunity for hearing, the Commission will approve the applications if it finds, based upon all the information available to it, that the extensions of unlisted trading privileges pursuant to such applications are consistent with the maintenance of fair and orderly markets and the protection of investors.

For the Commission, by the Division of Market Regulation, pursuant to delegated authority.

Jonathan G. Katz,

Secretary.

[FR Doc. 89–28226 Filed 12–1–89; 8:45 am]

BILLING CODE 8010–01–M

Self-Regulatory Organizations; Applications for Unlisted Trading Privileges and of Opportunity for Hearing; Boston Stock Exchange, Incorporated

November 28, 1989.

The above named national securities exchange has filed applications with the Securities and Exchange Commission ("Commission") pursuant to section 12(f)(1)(B) of the Securities Exchange Act of 1934 and Rule 12f-1 thereunder for unlisted trading privileges in the following securities:

AMC Government Opportunity Fund, Inc.
Common Stock, $.01 Par Value (File No. 7–5556)
ACM Managed Income Fund, Inc.
Common Stock, $.01 Par Value (File No. 7–5557)
Acuson Corp.
Common Stock, $.0001 Par Value (File No. 7–5558)
Albany International Corp.
Common Stock, $.001 Par Value (File No. 7–5559)
Allstate Municipal Income Trust
Shares of Beneficial Interest, No Par Value (File No. 7–5560)
American Health Properties, Inc.
Common Stock, $.01 Par Value (File No. 7–5561)
American Savings, Bank, F.S.B.
Common Stock, No Par Value (File No. 7–5562)
CML Group, Inc.
Common Stock, $.10 Par Value (File No. 7–5563)
CPI Corp.
Common Stock, $.40 Par Value (File No. 7–5564)
CUC International, Inc.
Common Stock, $.01 Par Value (File No. 7–5565)
Carolco Pictures, Inc.
Common Stock, $.01 Par Value (File No. 7–5566)
Chili's, Inc.
Common Stock, $.10 Par Value (File No. 7–5567)
Colonial High Income Municipal Trust
Shares of Beneficial Interest, No Par Value (File No. 7–5568)
Colonial Investment Grade Municipal Trust
Shares of Beneficial Interest, No Par Value (File No. 7–5569)
Conseco, Inc.
Common Stock, No Par Value (File No. 7–5570)
Diversified Energies, Inc.
Common Stock, $1.00 Par Value (File No. 7–5571)
Edison Brothers Stores, Inc.
Common Stock, $1.00 Par Value (File No. 7–5572)
Federal Mogul Corp.
Common Stock, $5.00 Par Value (File No. 7–5573)
Franklin Principal Maturity Trust
Shares of Beneficial Interest, Common Stock, $.01 Par Value (File No. 7–5574)
Franklin Universal Trust
Shares of Beneficial Interest, Common Stock, $.01 Par Value (File No. 7–5575)
Global Income Plus Fund, Inc.
Common Stock, $.001 Par Value (File No. 7–5576)
Grace Energy Corp.
Common Stock, $1.00 Par Value (File No. 7–5577)
Healthsouth Rehabilitation Corp.
Common Stock, $.01 Par Value (File No. 7–5578)
Helvetia Fund, Inc.
Common Stock, $.001 Par Value (File No. 7–5579)
High Income Advantage Trust, III
Shares of Beneficial Interest, Common Stock, $.01 Par Value (File No. 7–5580)
High Yield Income Fund, Inc.
Shares of Beneficial Interest, Common Stock, $.01 Par Value (File No. 7–5581)
High Yield Plus Fund, Inc.
Common Stock, $.01 Par Value (File No. 7–5582)
Hyperion Total Return & Fund, Inc.
Common Stock, $.01 Par Value (File No. 7–5583)
Jackpot Enterprises, Inc.
Common Stock, $.01 Par Value (File No. 7–5584)
Kemper Strategic Municipal Income Trust
Shares of Beneficial Interest, Common Stock, $.01 Par Value (File No. 7–5585)
Lomas Mortgage Securities Fund, Inc.
Common Stock, $.01 Par Value (File No. 7–5586)
MFS Income/Opportunity Trust
Shares of Beneficial Interest, No Par Value (File No. 7–5587)
MNC Financial, Inc.
Common Stock, $2.50 Par Value (File No. 7–5588)
Magnetek, Inc.
Common Stock, $.01 Par Value (File No. 7–5589)
Ogden Projects, Inc.
Common Stock, $.50 Par Value (File No. 7–5590)
Patriot Premium Dividend Fund, Inc.
Common Stock, $.01 Par Value (File No. 7–5591)
RAC Income Fund, Inc.
Common Stock, $.01 Par Value (File No. 7–5592)
RAC Mortgage Investment Corp.
Common Stock, $.01 Par Value (File No. 7–5593)
ROC Taiwan Fund
Shares of Beneficial Interest, Common Stock, $.01 Par Value (File No. 7–5594)
RPS Realty Trust
Shares of Beneficial Interest, Common Stock, $.10 Par Value (File No. 7–5595)
Rexene Corp.
Common Stock, No Par Value (File No. 7–5596)
Reynolds & Reynolds Co.
Class A Common Stock, $.625 Par Value (File No. 7–5597)
Shoney's, Inc.
Common Stock, $1.00 Par Value (File No. 7–5598)
Sterling Chemicals, Inc.
Common Stock, $.01 Par Value (File No. 7–5599)
TIS Mortgage Investment Co.
Common Stock, $.001 Par Value (File No. 7–5600)
Templeton Global Governments Income Trust
Shares of Beneficial Interest, Common Stock, $.01 Par Value (File No. 7–5601)
Templeton Value Fund, Inc.
Common Stock, $.01 Par Value (File No. 7–5602)
VMS Mortgage Investment Fund
Common Stock, $.01 Par Value (File No. 7–5603)
Winchells Donut House, LP
Depositary Units, No Par Value (File No. 7–5604)
Zweig Total Return Fund
Common Stock, $.0001 Par Value (File No. 7–5605)
Federal National Mortgage Association
Warrants, No Par Value (File No. 7–5606)
First Phillipine Fund, Inc.
Common Stock, $.01 Par Value (File No. 7–5607)

These securities are listed and registered on one or more other national securities exchange and are reported in the consolidated transaction reporting system.

Interested persons are invited to submit on or before December 19, 1989, written data, views and arguments concerning the above-referenced applications. Persons desiring to make written comments should file three copies thereof with the Secretary of the

Securities and Exchange Commission, 450 Fifth Street NW., Washington, DC 20549. Following this opportunity for hearing, the Commission will approve the applications if it finds, based upon all the information available to it, that the extensions of unlisted trading privileges pursuant to such applications are consistent with the maintenance of fair and orderly markets and the protection of investors.

For the Commission, by the Division of Market Regulation, pursuant to delegated authority.

Jonathan G. Katz,

Secretary.

[FR Doc. 89-28227 Filed 12-1-89; 8:45 am]

BILLING CODE 8010-01-M

Self-Regulatory Organizations; Applications for Unlisted Trading Privileges and of Opportunity for Hearing; Midwest Stock Exchange, Incorporated

November 28, 1989.

The above named national securities exchange has filed applications with the Securities and Exchange Commission ("Commission") pursuant to Section 12(f)(1)(B) of the Securities Exchange Act of 1934 and Rule 12f-1 thereunder for unlisted trading privileges in the following securities:

Angeles Participating Mortgage Trust
Class A Shares of Beneficial Interest, No Par Value (File No. 7-5608)
Convex Computer Corporation
Common Stock, $.01 Par Value (File No. 7-5609)
MFS Special Value Trust
Shares of Beneficial Interest, Without Par Value (File No. 7-5610)
Nuveen California Performance Plus Municipal Fund, Inc.
Common Stock, $.01 Par Value (File No. 7-5611)
Nuveen New York Performance Plus Municipal Fund, Inc.
Common Stock, $.01 Par Value (File No. 7-5612)
Delta Woodside Industries, Inc.
Common Stock, $.01 Par Value (File No. 7-5613)

These securities are listed and registered on one or more other national securities exchange and are reported in the consolidated transaction reporting system.

Interested persons are invited to submit on or before December 19, 1989, written data, views and arguments concerning the above-referenced applications. Persons desiring to make written comments should file three copies thereof with the Secretary of the Securities and Exchange Commission, 450 Fifth Street NW., Washington, DC 20549. Following this opportunity for hearing, the Commission will approve the applications if it finds, based upon all the information available to it, that the extensions of unlisted trading privileges pursuant to such applications are consistent with the maintenance of fair and orderly markets and the protection of investors.

For the Commission, by the Division of Market Regulation, pursuant to delegated authority.

Jonathan G. Katz,

Secretary.

[FR Doc. 89-28228 Filed 12-1-89; 8:45 am]

BILLING CODE 8010-01-M

DEPARTMENT OF STATE

Bureau of Consular Affairs

[Public Notice 1142]

Certain Nonimmigrant Visas; Validity

Public Notice 1114 of July 3, 1989 authorized consular officers to issue, in their discretion, nonimmigrant visas under section 101(a)(15)(B) of the Immigration and Nationality Act valid for an indefinite period of time to otherwise eligible nationals of the countries listed in that Notice which offer reciprocal or more liberal treatment to nationals of the United States who are in a similar class.

This notice adds Western Samoa to the list contained in Public Notice 1114 in order to conform with present reciprocal or more liberal treatment accorded United States nationals in a similar class.

This notice amends Public Notice 1114 of July 3, 1989 (54 FR 27969).

Dated: November 17, 1989.

Elizabeth M. Tamposi,

Assistant Secretary for Consular Affairs.

[FR Doc. 89-28270 Filed 12-1-89; 8:45 am]

BILLING CODE 4710-06-M

DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

[Docket No. IP89-11; Notice 1]

Receipt of Petition for Determination of Inconsequential Noncompliance; Automobiles Peugeot

Automobiles Peugeot (Peugeot) of Paris, France, has petitioned to be exempted from the notification and remedy requirements of the National Traffic and Motor Vehicle Safety Act (15 U.S.C. 1381 *et seq.*) for an apparent noncompliance with 49 CFR 571.110, Federal Motor Vehicle Safety Standard (FMVSS) No. 110, "Tire Selection and Rims," on the basis that it is inconsequential as it relates to motor vehicle safety.

This notice of receipt of a petition is published under section 157 of the National Traffic and Motor Vehicle Safety Act (15 U.S.C. 1417) and does not represent any agency decision or other exercise of judgment concerning the merits of the petition.

Paragraph S4.3 of Standard No. 110 requires that a tire placard be permanently affixed to the glove compartment door or an equally accessible location, and shall display the:

(a) Vehicle capacity weight;

(b) Designated seating capacity (expressed in terms of total number of occupants and in terms of occupants for each seat location);

(c) Vehicle manufacturer's recommended cold tire inflation pressure for maximum loaded vehicle weight and subject to the limitation of S4.3.1, for any other manufacturer-specified vehicle loading condition; and

(d) Vehicle manufacturer's recommended tire size designation.

Peugeot labeled incorrect information on 33,259 tire placards of several model years of its Peugeot 405 and Peugeot 505 vehicles. The following listing shows which models are in noncompliance with Standard No. 110 and the particular labeling noncompliance.

Model	Tire type	Noncompliances
1986 505 Sedan STI	195/60 R15H	1. Printed the recommended cold inflation pressure for normal loading (2 rear occupants) instead of for maximum loade vehicle weight. 2. Lacked working "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight".

Model	Tire type	Noncompliances
		3. Incorrect designated rear seating positions and associated weight.
1987 505 Turbo Sedan	195/60 R15H	Lacked wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight".
1987 505 Sedan STI	195/60 R15H	1. Printed the recommended cold inflation pressure for normal loading (2 rear occupants) instead of for maximum loaded vehicle weight. 2. Lacked wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight". 3. Incorrect designated rear seating positions and associated weight.
1986 505 Sedan GLS	185/70 R14T	1. Printed the recommended cold inflation pressure for normal loading (2 rear occupants) instead of for maximum loaded vehicle weight. 2. Lacked wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight". 3. Incorrect designated rear seating positions and associated weight.
1987 505 Liberte SED	185/70 R14T	1. Printed the recommended cold inflation pressure for normal loading (2 rear occupants) instead of for maximum loaded vehicle weight. 2. Lacked wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight". 3. Incorrect designated rear seating positions and associated weight.
1986 505 T. Diesel SED	185/70 R14T	1. Printed the recommended cold inflation pressure for normal loading (2 rear occupants) instead of for maximum loaded vehicle weight. 2. Lacked wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight". 3. Incorrect designated rear seating positions and associated weight.
1987 and 1988 505 Sedan GL/DL	185/70 R14T	1. Printed the recommended cold inflation pressure for normal loading (2 rear occupants) instead of for maximum loaded vehicle weight. 2. Lacked wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight". 3. Incorrect designated rear seating positions and associated weight.
1986 505 Station Wagon GLS	195/70 R14T	Lacked wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight".
1986 505 T. Diesel Station Wagon	195/70 R14T	Lacked wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight".
1987 505 Liberte Station Wagon	195/70 R14T	Lacked wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight".
1987 505 Turbo Station Wagon	195/70 R14T	Lacked wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight".
1988 505 Station Wagon GLS	195/70 R14T	Lacked wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight".
1988 505 Station Wagon SW8	195/70 R14T	1. Lacked wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight".
1989 505 Station Wagon DL	195/65 R15T	1. Printed the recommended cold inflation pressure for normal loading (2 rear occupants) instead of for maximum loaded vehicle weight. 2. Lacked wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight". 3. Incorrect designated rear seating positions and associated weight.
1989 505 Station Wagon SW8	195/65 R15T	1. Printed the recommended cold inflation pressure for normal loading (2 rear occupants) instead of for maximum loaded vehicle weight. 2. Lacked wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight". 3. Incorrect designated rear seating positions and associated weight.
1989 505 Turbo SW	195/65 R15T	1. Lacked wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight". 2. Printed the recommended cold inflation pressure for normal loading (2 rear occupants) instead of for maximum loaded vehicle weight.
1989 505 Turbo SW8	195/65 R15T	1. Printed the recommended cold inflation pressure for normal loading (2 rear occupants) instead of for maximum loaded vehicle weight. 2. Lacked wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight". 3. Incorrect designated rear seating positions and associated weight.
1986 505 Turbo Sedan	205/60 R15H	Lacking wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight".

Model	Tire type	Noncompliances
1986 505 Turbo SW	205/60 R15H	1. Lacking wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight". 2. Printed the recommended cold inflation pressure for normal loading (2 rear occupants) instead of for maximum loaded vehicle weight.
1987 505 Turbo SW S	205/60 R15H	1. Lacking wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight". 2. Printed the recommended cold inflation pressure for normal loading (2 rear occupants) instead of for maximum loaded vehicle weight.
1987 505 Turbo SED. S	205/60 R15H	Lacked wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight".
1987 and 1988 505 V6 Sedan	205/60 R15H	Lacked wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight".
1988 505 Turbo Sedan	205/60 R15H	Lacked wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight".
1988 505 Turbo SW	205/60 R15H	Lacked wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight".
1989 505 V6 Sedan STX	205/60 R15H	Lacked wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight".
1989 505 Turbo Sedan	205/60 R15H	1. Lacked wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight". 2. Incorrect designated rear seating positions.
1988 505 Sedan STI	185/65 R15H	Lacked wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight".
1988 505 V6 SED. GLX	185/65 R15H	Lacked wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight".
1989 505 Sedan S	185/65 R15H	1. Lacked wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight". 2. Incorrect designated rear seating positions.
1989 505 V6 Sedan S	185/65 R15H	1.Lacked wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight". 2. Incorrect designated rear seating positions.
1989 405 SED. DL/S	185/65 R14 M+S	1. Lacked wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight". 2. Incorrect designated rear seating positions.
1989 405 Sedan Mil6	195/60 R14V	1. Lacked wording "Vehicle Capacity Weight" and "Cold Inflation Pressure at Maximum Loaded Vehicle Weight". 2. Incorrect designated rear seating positions.

Automobiles Peugeot sold a total of 33,259 vehicles of the various models listed in the above chart which do not comply with FMVSS No. 110. The certification labels provided the correct maximum axle weight rating, however a fewer number of designated seating positions was specified than the maximum. Also, the cold tire inflation pressures were given for normal loaded vehicles (2 rear occupants) instead of maximum loaded vehicle weight (3 rear occupants).

Peugeot supports its petition by stating that the maximum axle weight rating provided can support the weight of the vehicle when the maximum designated seating positions are occupied. Peugeot also provided affidavits from the Michelin Tire Company which supported the fact that the tires which were placed on the vehicles that were marked with the incorrect vehicle capacity weight or tire pressure can still function properly under the conditions labeled on the tire placards.

Interested persons are invited to submit written data, views and arguments on the petition of Automobiles Peugeot, described above. Comments should refer to the docket number and be submitted to: Docket Section, National Highway Traffic Safety Administration, Room 5109, 400 Seventh Street SW., Washington, DC 20509. It is requested that five copies be submitted.

All comments received before the close of business on the closing date indicated below will be considered. The application and supporting materials, and all comments received after the closing date, will be considered to the extent possible. When the petition is granted or denied, the Notice will be published in the **Federal Register** pursuant to the authority indicated below.

Comment closing date: January 3, 1990.

Authority: 15 U.S.C. 1417; delegations of authority at 49; CFR 1.50 and 49 CFR 501.8.

Issued on: November 29, 1989.

Barry Felrice,

Associate Administrator for Rulemaking.

[FR Doc. 89-28252 Filed 12-1-89; 8:45 am]

BILLING CODE 4910-59-M

DEPARTMENT OF THE TREASURY

Public Information Collection Requirements Submitted to OMB for Review

November 28, 1989.

The Department of Treasury has submitted the following public information collection requirement(s) to OMB for review and clearance under the Paperwork Reduction Act of 1980, Public Law 96-511. 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 2224, 1500 Pennsylvania Avenue NW., Washington, DC 20220.

Bureau of Alcohol, Tobacco and Firearms

OMB Number: 1512-0052.

Form Number: ATF F 5130.9.

Type of Review: Extension.

Title: Brewer's Monthly Report of Operations.

Description: ATF Form 5130.9 is a periodic report detailing specific operations and activities to account for taxable commodities used in operations. For this reason, ATF F 5130.9 is a method to safeguard tax revenue. This form shows taxable and nontaxable removals, overages, shortages and losses at breweries. ATF can pinpoint problems at breweries on a timely basis and take steps to protect the revenue.

Respondents: Businesses or other for-profit, Small businesses or organizations.

Estimated Number of Respondents: 208.

Estimated Burden Hours Per Response: 1 hour.

Frequency of Response: Monthly.

Estimated Total Reporting Burden: 2,496 hours.

OMB Number: 1512–0469.

Form Number: None.

Type of Review: Extension.

Title: Labeling of Sulfites in Alcoholic Beverages.

Description: In a final rule published in the **Federal Register** on July 9, 1986 (51 FR 34706), the Food and Drug Administration established 10 parts per million as the threshold for declaration of sulfites in food and wine products. The Bureau of Alcohol, Tobacco and Firearms on September 30, 1986, published a final rule (ATF–236) (51 FR 34706) establishing the same threshold for declaration of sulfites in alcoholic beverages.

Respondents: Businesses or other for-profit, Small businesses or organizations.

Estimated Number of Respondents: 4,787.

Estimated Burden Hours Per Response: 40 minutes.

Frequency of Response: On occasion.

Estimated Total Reporting Burden: 3,159 hours.

OMB Number: 1512–0482.

Form Number: ATF Reporting Requirements 5100/1.

Type of Review: Extension.

Title: Labeling and Advertising Requirements under the Federal Alcohol Administration Act.

Description: Under the Federal Alcohol Administration Act, bottlers and importers of alcoholic beverages are required to display certain information for consumers on labels and in advertisements. Other optional statements are also required.

Respondents: Businesses or other for-profit, Small businesses or organizations.

Estimated Number of Respondents/ Recordkeepers: 6,060.

Estimated Burden Hours Per Response: 1 hour.

Frequency of Response: On occassion.

Estimated Total Reporting/ Recordkeeping Burden: 1 hour.

Clearance Officer: Robert Masarsky (202) 566–7077, Bureau of Alcohol, Tobacco and Firearms, Room 7011, 1200 Pennsylvania Avenue NW., Washington, DC 20226.

OMB Reviewer: Milo Sunderhauf (202) 395–6880, Office of Management and Budget, Room 3001, New Executive Office Building, Washington, DC 20503.

Lois K. Holland,

Departmental Reports Management Officer.

[FR Doc. 89–28246 Filed 12–1–89; 8:45 am]

BILLING CODE 4810–25–M

Internal Revenue Service

[Notice 89–109]

Ocean Thermal Depreciation Property

AGENCY: Internal Revenue Service, Treasury.

ACTION: Notice.

SUMMARY: Under section 48(l) of the Internal Revenue Code of 1986, the Secretary of the Treasury or his delegate ("the Secretary") is to designate only two locations where taxpayers will be permitted to depreciate ocean thermal energy conversion (OTEC) property under section 168(e)(3)(B). This notice affords taxpayers an opportunity to make requests for specific designations, prior to any designations being made by the Secretary.

DATES: Interested persons are invited to submit requests for specific designations by March 4, 1990.

FOR FURTHER INFORMATION CONTACT: Martin Schaffer at 202–566–3553 (not a toll-free call).

ADDRESS: Send requests to: Internal Revenue Service, Attn: CC:PS&I:6, (Notice 89–109), Room 5116, P.O. Box 7604, Ben Franklin Station, Washington, DC 20044.

SUPPLEMENTARY INFORMATION:

Background

Section 48(l)(3)(A) was added to the Internal Revenue Code by the Energy Tax Act of 1978. This section was amended by the Crude Oil Windfall Profit Tax Act of 1980 by adding subsection (ix) to include OTEC property as qualifying for the energy tax credit. Section 168(e)(3)(B) was added by the Tax Reform Act of 1986 to permit a more rapid cost recovery for OTEC property.

Part III—Administrative, Procedural and Miscellaneous Designation of locations for ocean thermal energy property

Notice 89–109

Under section 48(l)(3)(A)(ix) of the Internal Revenue Code of 1986, the term "alternative energy property" includes equipment that converts ocean thermal energy to usable energy and that is placed in service at either of two locations designated by the Secretary of the Treasury or his delegate ("the Secretary") after consultation with the Secretary of Energy. Under section 168(e)(3)(B)(vi)(I) of the Code, for purposes of determining cost recovery deductions, the term "five-year property" includes any property which is described in section 48(l)(3)(A)(ix). According to section 46(b)(2)(A)(x) of the Code, property described in section 48(l)(3)(A)(ix) is also eligible for a 15 percent energy tax credit (this provision is due to expire December 31, 1989).

The Secretary intends to designate the locations referred to in section 48(l)(3)(A)(ix) in consultation with the Department of Energy and the National Oceanic and Atmospheric Administration. Interested persons are invited to submit requests for specific designations to the Internal Revenue Service by March 4, 1990. A user fee is not required. Each request should provide sufficient information to allow the Secretary to make a fair and accurate designation of locations. At a minimum, each request must describe the specific area to be designated (with boundaries running between points of latitude and longitude, if necessary for specificity); explain the suitability of the location for the conversion of ocean thermal energy to usable energy; and discuss in general the plant design features of any proposed project. For ocean thermal energy projects containing property that is to be used predominantly outside the United States (as that geographic term is defined in section 7701(a)(9) of the Code), the request must demonstrate that the property would qualify for the benefits of sections 168(e)(3)(B)(vi)(I) or 46(b)(2)(A)(x) (see sections 168(g) and 48(a)(2)). Upon review of this information, the Secretary may request further specifics if deemed necessary for a fair and accurate decision. Upon request, a public hearing will be held

prior to any designation of locations referred to in section 48(l)(3)(A)(ix).

Dale D. Goode,

Chief, Regulations Unit, Assistant Chief Counsel (Corporate).

[FR Doc. 89-28111 Filed 12-1-89; 8:45 am]

BILLING CODE 4830-01-M

[Delegation Order No. 193 (Rev. 2)]

Organization Functions and Authority Delegations; District Director

AGENCY: Internal Revenue Service, Treasury.

ACTION: Delegation of authority.

SUMMARY: This delegation order authorizes certain officials to perform the functions of the Commissioner. The text of the delegation order appears below.

EFFECTIVE DATE: November 8, 1989.

FOR FURTHER INFORMATION CONTACT: Melva Scruggs, PFR:P:O, Room 3524, 1111 Constitution Avenue NW., Washington, DC 20224, telephone (202) 566-4273 (not a toll-free call).

Order No. 193 (Rev. 2)

Effective Date: November 8, 1989

Authorization to Perform Functions of the Commissioner

Pursuant to the authority vested in me as Commissioner of Internal Revenue by Treasury Department Order No. 150-10, the Senior Deputy Commissioner is authorized to perform any function the Commissioner is authorized to perform.

The Deputy Commissioner (Operations), Deputy Commissioner (Planning and Resources/Chief Financial Officer), and Chief Information Officer are each authorized to perform only those functions the Commissioner is authorized to perform which arise out of, relate to, or concern the activities or functions each administers.

Each of these officials shall perform functions under this authority in his or her own capacity and under his or her own title and shall be responsible for referring to the Commissioner any matter on which action would appropriately be taken by the Commissioner.

This authority may not be redelegated.

Delegation Order No. 193 (Rev. 1), effective August 30, 1987, is superseded.

Fred T. Goldberg, Jr.,

Commissioner.

[FR Doc. 89-28205 Filed 12-1-89; 8:45 am]

BILLING CODE 4830-01-M

Sunshine Act Meetings

Federal Register
Vol. 54, No. 231
Monday, December 4, 1989

This section of the FEDERAL REGISTER contains notices of meetings published under the "Government in the Sunshine Act" (Pub. L. 94-409) 5 U.S.C. 552b(e)(3).

FEDERAL DEPOSIT INSURANCE CORPORATION

Agency Meeting

Pursuant to the provisions of the "Government in the Sunshine Act" (5 U.S.C. 552b), notice is hereby given that at 2:02 p.m. on Tuesday, November 28, 1989, the Board of Directors of the Federal Deposit Insurance Corporation met in closed session to consider the following matters:

Application of The Howard Savings Bank, Newark, New Jersey, a Bank Insurance Fund member and a State nonmember savings bank, for consent to purchase certain assets of and to assume the liability to pay deposits made in the three Lakewood, New Jersey, branch offices of Security Savings Bank, SLA, Vineland, New Jersey, a Savings Association Insurance Fund member and a state chartered savings and loan association; for consent to convert insurance coverage from the Savings Association Insurance Fund to the Bank Insurance Fund as contemplated by the Financial Institutions Reform, Recovery, and Enforcement Act of 1989; and for consent to establish the three Lakewood, New Jersey, branch offices of Security Savings Bank, SLA as branches of The Howard Savings Bank.

Administrative enforcement proceedings.

Matters relating to the possible closing of certain insured banks.

Recommendation regarding the liquidation of a depository institution's assets acquired by the Corporation in its capacity as receiver, liquidator, or liquidating agent of those assets:

Silverado Banking, Savings & Loan Association Denver, Colorado

In calling the meeting, the Board determined, on motion of Director C.C. Hope, Jr. (Appointive), seconded by Director Robert L. Clarke (Comptroller of the Currency), concurred in by Director M. Danny Wall (Director of the Office of Thrift Supervision), and Chairman L. William Seidman, that Corporation business required its consideration of the matters on less than seven days' notice to the public; that no earlier notice of the meeting was practicable; that the public interest did not require consideration of the matters in a meeting open to public observation; and that the matters could be considered in a closed meeting by authority of subsections (c)(4), (c)(6), (c)(8), (c)(9)(A)(ii), and (c)(9)(B) of the "Government in the Sunshine Act" (5 U.S.C. 552b(c)(4), (c)(6), (c)(8), (c)(9)(A)(ii), and (c)(9)(B)).

The meeting was held in the Board Room on the sixth floor of the FDIC Building located at 550—17th Street, Washington, DC.

Dated: November 29, 1989.

Federal Deposit Insurance Corporation.

Robert E. Feldman,

Deputy Executive Secretary.

[FR Doc. 89-28339 Filed 11-29-89; 5:03 pm]

BILLING CODE 6714-01-M

Corrections

Federal Register
Vol. 54, No. 231
Monday, December 4, 1989

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 AGRICULTURE

Small Business Competitiveness Demonstration Program

Correction

In notice document 89-27385 beginning on page 48287 in the issue of Wednesday, November 22, 1989, make the following corrections:

1.On page 48288, in the second column, in the sixth line, insert the word "a" between the words "and" and "Procurement". 12. On the same page, in the third column, in the first line, "research" should read "search".

3. On the same page, in the second column below the table, in the first line remove the word "not".

BILLING CODE 1505-01-D

DEPARTMENT OF COMMERCE

International Trade Administration

University of Chicago, et al.; Consolidated Decision on Applications for Duty-Free Entry of Scientific Instruments

Correction

In notice document 89-25048 appearing on page 43447 in the issue of Wednesday, October 25, 1989, make the following correction:

On page 43447, in the 3rd column, in the 1st complete paragraph, the 12th line should read "$>1\times10^{-4}$ amps/torr He."

BILLING CODE 1505-01-D

COMMITTEE FOR PURCHASE FROM THE BLIND AND OTHER SEVERELY HANDICAPPED

Procurement List 1990; Additions and Deletion

Correction

In notice document 89-26575 appearing on page 47258 in the issue of Monday, November 13, 1989, make the following correction:

In the second column, under **Additions**, in the *Commodities* list, the second line should read "2540-00-737-3309".

BILLING CODE 1505-01-D

COMMITTEE FOR PURCHASE FROM THE BLIND AND OTHER SEVERELY HANDICAPPED

Procurement List 1990; Proposed Additions

Correction

In notice document 89-26576 beginning on page 47258 in the issue of Monday, November 13, 1989, make the following correction:

On page 47258, in the third column, the last line should read "6532-01-127-2213".

BILLING CODE 1505-01-D

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Food and Drug Administration

[Docket No. 89N-0465]

Drug Export, Abbott IMx® HBsAg Test Kit

Correction

In notice document 89-26073 beginning on page 46652 in the issue of Monday, November 6, 1989, make the following corrections:

1. On page 46652, in the third column, the heading should read as set forth above.

2. On page 46653, in the second column, in the second complete paragraph, in the fifth line, insert "and" following "Food".

BILLING CODE 1505-01-D

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Food and Drug Administration

Advisory Committee; Meeting

Correction

In notice document 89-25699 appearing on page 46128 in the issue of Wednesday, November 1, 1989, make the following correction:

On page 46128, in the first column, under "*Agenda-Open public hearing.*" in the first line, "preset" should read "present".

BILLING CODE 1505-01-D

DEPARTMENT OF LABOR

Mine Safety and Health Administration

30 CFR Part 44

Termination of Waivers Granted Under the Federal Metal and Nonmetallic Mine Safety Act of 1966

Correction

In rule document 89-27446 appearing on page 48564 in the issue of Wednesday, November 22, 1989, make the following correction:

In the second column, in the fourth line, "April 2, 1990" should read "May 21, 1990".

BILLING CODE 1505-01-D

MERIT SYSTEMS PROTECTION BOARD

Call for Riders for the U.S. Merit Systems Protection Board Publication, "Questions and Answers About Whistleblower Appeals"

Correction

In notice document 89-27855 beginning on page 48956 in the issue of Tuesday, November 28, 1989, make the following correction:

On page 48956, in the third column, under **DATE:**, in the third and fourth lines, "[insert date 30 days from date of publication]" should read "December 28, 1989".

BILLING CODE 1505-01-D

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

[89-81]

National Environmental Policy Act; Notice of Intent To Prepare a Draft Environmental Impact Statement (DEIS, TIER-2); Ulysses Mission

Correction

In notice document 89-27331 beginning on page 48168 in the issue of Tuesday, November 21, 1989, make the following correction:

On page 48169, in the second column, in the **DATE:** paragraph, the 30-day comment period was incorrectly calculated. The **DATE:** paragraph should read:

DATE: Written comments must be submitted on or before December 21, 1989.

BILLING CODE 1505-01-D

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 71

[Airspace Docket No. 89-ASW-27]

Revision of Transition Area; Chickasha, OK

Correction

In rule document 89-27154 appearing on page 47971 in the issue of Monday, November 20, 1989, make the following correction:

In the 2nd column, in the 1st paragraph, in the 16th line, "99°" should read "97°".

BILLING CODE 1505-01-D

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 73

[Airspace Docket No. 89-ASW-28]

Amendment to Times of Designation for Restricted Areas at White Sands Missile Range; NM

Correction

In rule document 89-26312 beginning on page 46887 in the issue of Wednesday, November 8, 1989, make the following correction:

On page 46888, in the first column, in the sixth line, insert "not" following "would".

BILLING CODE 1505-01-D

DEPARTMENT OF THE TREASURY

Internal Revenue Service

26 CFR Part 1

[T.D. 8264]

RIN 1545-AK26

Temporary Regulations Under Section 383 of the Internal Revenue Code of 1986; Use of Pre-Change Attributes

Correction

In the correction to rule document 89-22108 appearing on page 46187 in the issue of Wednesday, November 1, 1989, make the following correction:

§ 1.383-1T [Corrected]

On page 46187, in the third column, under § **1.383-1T**, in the fourth line, "383(l)(2)" should read "382(l)(2)".

BILLING CODE 1505-01-D

DEPARTMENT OF THE TREASURY

Internal Revenue Service

26 CFR Part 1

[T.D. 8259]

RIN 1545-AM99

Real Estate Mortgage Investment Conduits; Reporting Requirements and Other Administrative Matters

Correction

In rule document 89-20916 beginning on page 37098 in the issue of Thursday, September 7, 1989, make the following corrections:

§ 1.6049-7T [Corrected]

1. On page 37106, in the third column, in § 1.6049-7T(f)(3)(ii)(B), in the fifth line, "865(c)(3)" should read "856(c)(3)".

2. On page 37107, in the first column, in § 1.6049-7T(f)(3)(ii)(C), in the second and sixth lines, "865(c)(3)(F)" should read "856(c)(3)(F)".

BILLING CODE 1505-01-D

federal register

Monday
December 4, 1989

Part II

Department of Labor

Mine Safety and Health Administration

30 CFR Part 75
Electrical Safety Standards for Underground Coal Mines; Proposed Rule

30 CFR Parts 56 and 57
Electrical Standards for Metal and Nonmetal Mines; Proposed Rule

30 CFR Parts 56, 57, 70, and 71
Noise; Advance Notice of Proposed Rulemaking

30 CFR Part 16
Approval Requirements for Electrical Detonators; Advance Notice of Proposed Rulemaking

DEPARTMENT OF LABOR

Mine Safety and Health Administration

30 CFR Part 75

RIN 1219-AA10

Electrical Safety Standards for Underground Coal Mines

AGENCY: Mine Safety and Health Administration, Labor.

ACTION: Proposed rule.

SUMMARY: This proposed rule would revise the Mine Safety and Health Administration's electrical safety standards for underground coal mines. The proposed revisions would upgrade existing provisions consistent with advances in mining technology, provide alternative methods of compliance and reduce paperwork requirements where possible.

DATE: Written comments must be submitted on or before March 9, 1990.

ADDRESS: Send written comments to the Mine Safety and Health Administration, Office of Standards, Regulations and Variances, Room 631, Ballston Tower No. 3, 4015 Wilson Boulevard, Arlington, Virginia 22203.

FOR FURTHER INFORMATION CONTACT: Patricia W. Silvey, Director, Office of Standards, Regulations and Variances, MSHA, 4015 Wilson Boulevard, Arlington, Virginia 22203; phone (703) 235-1910.

SUPPLEMENTARY INFORMATION:

I. Paperwork Reduction Act

This proposed rule contains information collection requirements in §§ 75.154, 75.155, 75.156, 75.157, 75.159, 75.160, 75.508, 75.527 and 75.1009. These paperwork requirements have been submitted to the Office of Management and Budget (OMB) for review under section 3504(h) of the Paperwork Reduction Act of 1980. Comments on the proposed paperwork provisions should be sent directly to the Office of Information and Regulatory Affairs, Office of Management and Budget, Attention: Desk Officer for MSHA (see address at the end of this discussion). The respondents in each of the paperwork provisions would be mine operators. Each of the following public burden hour estimates includes the time for reviewing instructions, gathering and maintaining the data needed, and completing and reviewing the collection information. In each instance, the resultant information collection would be used by MSHA to assess compliance with the proposed requirements. The information collection requirements contained in the proposal are discussed below.

MSHA qualification of mine electricians and cable splicers (§§ 75.154/75.155/75.157/75.159). In order to become qualified to perform specified underground electrical work, individuals would be required to submit a written application to MSHA and successfully complete qualification tests developed by the Agency and administered by either a state or MSHA. The written application is necessary for administrative purposes in order to determine whether applicants meet the knowledge and experience prerequisites for qualification. It is estimated that the number of applications would average 1,300 per year, requiring 15 minutes per response. States that offer qualification tests must notify the District Manager in writing of the time and place of testing. This would allow the Agency to monitor the state tests and assure that testing is administered in a consistent and equitable fashion. The number of notifications is estimated to be 36 annually, requiring an average of five minutes per notification.

MSHA estimates that 1,932 additional applications will be received per year for qualification in low-voltage cable splicing and repair. The estimated average time per response for this requirement is five minutes. A record of all certified and qualified persons is essential to determine whether difficult and dangerous electrical work is being performed only by those persons who are qualified to do so. The average time required to record each certified or qualified person is estimated to be 15 minutes. The number of records is estimated to be 39,932 annually. The total recordkeeping burden for the qualification of mine electricians is estimated to be 11,467 hours per year.

Electrical annual refresher training and approved training programs (§§ 75.156/75.160). Submission of qualified electrician and cable splicer training plans to MSHA for approval is necessary to assure that persons qualified to perform mine electrical work receive consistent and thorough refresher training which complies with the proposed rules. The estimated number of plans submitted per year is 1,686 and it is estimated to take an average of two hours per plan. Notification of the time and place of the annual refresher training would allow the Agency to monitor the retaining to assure the training is being conducted in accordance to the plan. The number of notifications is estimated to be 1,932 per year and require an average of five minutes per notification. The total annual recording burden for training plan submissions and retraining notification is estimated to be 3,489 hours.

Examination, testing and maintenance of electric equipment and circuits (§§ 75.508/75.1009). Records of unsafe conditions and corrective action taken pertaining to all equipment are necessary to assure that known hazards are corrected before they can cause injury. The Agency estimates that records will be made of 260,832 examinations of mobile and portable equipment and circuits annually and each record will average 20 minutes. An estimated 32,412 records will be made of stationary and hand-held equipment that should also average 20 minutes per entry.

It is estimated that 1,366 records will be made of tests and 4,099 records will be made of the examinations of high-voltage switchgear. The estimated average time of each record is 35 minutes per test record and 20 minutes per examination record. It is estimated that 342 records will also be made of high-voltage grounding resistors and circuit protective devices and that the average time to make each of these records is estimated to be 55 minutes. It is also estimated that 1,122 records will be made annually of the examination and testing of trolley systems. Each of these records should take an average of two hours. The total public reporting burden for the examination and testing of electric equipment is estimated to average 102,255 hours annually.

Map of the mine electrical systems (§ 75.527). A map of the electrical system is essential during a mine emergency for locating potential sources of hazards so that appropriate precautions can be taken. The availability and accuracy of this map could therefore be crucial to the safety of miners. The Agency estimates that an average of three hours and 20 minutes will be necessary annually to maintain a map current. It is estimated that 5,675 hours will be necessary annually to keep about 1,686 mine maps up to date.

Public reporting burden for the collection of information for these electrical standards is estimated to be 122,877 hours annually.

Send comments regarding these burden estimates or any other aspect of this collection of information, including suggestions for reducing this burden, to Patricia W. Silvey, Director, Office of Standards, Regulations, and Variances, MSHA, Room 631, Ballston Tower #3, 4015 Wilson Boulevard, Arlington, Virginia 22203, and to the Office of Information and Regulatory Affairs of OMB, Attention: Diana Rowen; Desk

Officer for the Mine Safety and Health Administration.

II. Background

The Mine Safety and Health Administration (MSHA) is proposing to revise its existing electrical safety standards for underground coal mines. These revisions are proposed pursuant to section 101 of the Federal Mine Safety and Health Act of 1977 (Mine Act), 30 U.S.C. 811, and are consistent with the goals of Executive Order 12291, the Regulatory Flexibility Act and the Paperwork Reduction Act.

On July 9, 1982, MSHA published an Advance Notice of Proposed Rulemaking (ANPRM) in the Federal Register (47 FR 30025) which announced a comprehensive review of the underground coal mining standards in 30 CFR part 75 and solicited public comments. After reviewing the comments, the Agency developed a preproposal draft of revisions to the existing electrical standards. On May 23, 1986, MSHA published a notice in the Federal Register which announced the availability of its preproposal draft and solicited written comments from all interested parties (51 FR 18899). On July 3, 1986, MSHA extended the comment period to August 15, 1986 (51 FR 24387). MSHA has received written comments regarding its preproposal draft from all segments of the coal mining community. The Agency's proposed rule takes into consideration the comments received and, where appropriate, specific comments on major provisions are discussed.

III. Discussion of Proposed Rule

A. General Discussion

Accidents and fatalities related to the use of electricity and electric equipment in underground coal mines have consistently been the cause of injuries and deaths. Since 1970, at least 110 miner fatalities which involved the use of electric equipment or circuits in underground coal mines have been reported to MSHA. These statistics reveal that working with and around electric circuits and equipment in the mining industry can be extremely hazardous for miners.

More recent information indicates that there were 26 fatalities that resulted from electrical accidents during the years 1982 to 1987. This represents approximately nine percent of the fatalities that occurred in underground coal mines during this period. In addition, there were approximately 900 nonfatal injuries from electrical accidents during this period.

The preamble to the proposed rules often makes use of injury and fatality data arising from electrical accidents. Although such information is a useful indicator of where safety standards can be improved, it is important to note the difficulty of attributing an electrical injury or fatality to just one cause. Typically, electrical accidents can occur as a result of more than one contributing hazardous electrical condition. For instance, damage to a cable which exposes its internal components would pose a shock hazard if the grounding protective devices, such as a broken grounding conductor, are also damaged or defective and do not properly cause deenergization. In such a case, both of the conditions would be a contributing cause to a resulting electrical injury or fatality.

Prevention of electrical accidents continues to be a difficult task because of the variety of conditions encountered in coal mines that can affect the function of electric equipment. However, technological advancements and improved practices can aid in the use of electricity in underground coal mines. This proposed rule reflects these advancements and would require certain measures and practices that would increase the safety protection afforded to miners. The proposal would also simplify existing standards and reduce paperwork requirements where possible.

The proposed rule would revise existing electrical safety standards in 30 CFR part 75. It would address hazards related to the use of electricity in underground coal mines by establishing improved safety standards for: qualification of persons; electric equipment in general; trailing cables; grounding; high- and low-voltage circuits; and trolley wire and trolley feeder wires.

With the goal of correcting deficiencies and providing clarity, the subparts that contain electrical standards would be reorganized and restructured to eliminate repeated references from one subpart to another. Existing standards that contain incorporations by reference would be replaced with necessary requirements, tables and charts. Electrical diagrams would also be included with the more complex standards to provide clarity.

In addition, many existing part 75 requirements would be either expanded or rewritten to better address accident history and to assist in the prevention of future accidents. These goals would be particularly addressed through proposed requirements for the use of shielded trailing cable; maintenance of circuits and equipment; electrical work procedures; protective equipment for troubleshooting, testing and handling of cables; trolley circuit protection; grounding of circuits and equipment; qualification of mine electricians, electrical retraining programs and qualification of trailing cable splicers; ground-wire monitors; battery chargers; and circuit breakers and disconnecting device identification.

Proposed requirements for shielded trailing cables would be contained in § 75.601 and would require that low-voltage alternating-current trailing cables be equipped with metallic shielding around each power conductor. This requirement would be implemented over a period of three years, depending upon the type of equipment involved. This would result in less potential for fire and electric shock due to short circuits or bare conductors in cables.

Under §§ 75.508 and 75.810 of the proposal, circuits and equipment would be required to be installed and maintained to prevent hazards. These standards would address the types and frequency of tests and examinations to be conducted on circuits and equipment. Proposed §§ 75.506 and 75.815 would set out procedures to be used by qualified electricians in the performance of electrical work. These procedures specifically pertain to proper disconnecting, locking out, grounding and tagging of circuits and equipment prior to electrical work.

The proposal would contain new requirements for use of protective equipment during troubleshooting and handling of cable. Under the proposal, troubleshooting and testing of energized circuits would be limited to low-voltage circuits, and persons performing this type of work would be required to wear properly rated rubber insulating gloves. Protective equipment would also be required to be used by persons handling energized unshielded low-voltage trailing cable and shielded high-voltage trailing cables.

Improved standards addressing the qualification of persons who perform electrical work are contained in the proposal. Under proposed § 75.153, persons applying for qualification to perform electrical work would be required to pass tests administered by MSHA or a state. The standard would recognize state programs which meet minimum requirements set out in the proposed rule. Annual refresher training would be required for electricians in accordance with proposed § 75.156 to maintain electrical qualification. New procedures pertaining to the qualification of persons for splicing and

repair of low-voltage trailing cables are also included in the proposal.

In addition, proposed standards addressing high-voltage electric face equipment would eliminate the wide use of the petition process to accommodate the safe operation of this equipment. Elimination of petitions would be accomplished through recognition in the proposal that shielded high-voltage cable can be used within 150 feet of the working face. Safety considerations related to this change would be addressed through the incorporation of newly proposed provisions which, in the past, have been included in petitions for modification.

B. Petitions for Modification

Operators with petitions for modification that involve the standards revised under the proposed rules would need to determine the status of those petitions before the effective date of the final rule. For proposed standards which are renumbered, but remain substantively unchanged from the existing standards, operators with modifications granted for these standards need not reapply. However, operators with modifications granted for standards that have been revised would need to comply with the new rule on its effective date. New petitions for modification of the rule may be submitted as necessary in accordance with 30 CFR part 44. If Agency assistance is needed, questions should be directed to the appropriate MSHA District Office.

C. Section by Section Discussion

Section 75.2(j) Definitions

The definitions in this section of the proposed rule are new, included to facilitate understanding of the electrical safety standards which follow. They would be integrated into existing § 75.2 at paragraph (j), and the existing definitions of low-, medium- and high-voltage would be deleted. However, the Agency solicits comment on whether there should be a definitions section applicable only to electrical standards, distinct from existing § 75.2.

The definitions of the electrical terms used are derived from sources commonly accepted by the mining industry and electrical and electronics engineers, including the Institute of Electronic and Electrical Engineers (IEEE) *Standard Dictionary of Electrical and Electronics Terms*, and the *National Electrical Code* (NEC). Definitions found in part 18 of MSHA's regulations were also used as a source for this proposal. In some instances, definitions taken from these sources were modified to apply to electric circuits and equipment used in the coal mining industry.

The proposed definitions represent important information for the interpretation of the electrical standards proposed in subparts B and F through K. The following discussion addresses a number of the more generally used definitions. Where appropriate, other proposed definitions are discussed together with the standards in which they are used.

The term "adequate interrupting capacity" is defined by the proposal as the ability of a circuit breaker or fuse to safely interrupt all values of current which can occur at its location in excess of its trip setting or melting point. Under this definition, adequate interrupting capacity would be determined by comparing the interrupting rating of the device with the actual characteristics of the circuit to be protected. These characteristics would include the circuit's voltage, impedance and power factor or time constant. For example, proposed § 75.602 would require trailing cables to be protected against overcurrents by a circuit breaker of adequate interrupting capacity. That is, a circuit breaker capable of safely interrupting all values of current which can occur at its location in excess of its trip setting or melting point.

"Equipment safety grounding conductor" is a new term, defined as the conductor used to connect the non-current-carrying metallic parts of equipment, raceways, and other metallic enclosures to the system grounding medium. In the Agency's view, it is important to stress that grounding is intended to safeguard persons from shock and burns, and not primarily to protect equipment. Conveying this concept would best be accomplished by using the term "equipment safety grounding conductor" as opposed to "equipment grounding conductor." The IEEE *Standard Dictionary of Electrical and Electronics Terms*, IEEE Standard 100–1977 defines "safety ground conductor" in essentially the same manner as the proposed definition.

"Extended-time rated grounding resistor" is a term used primarily in subpart H, on grounding. The proposal defines it as a resistor capable of carrying rated current for a period of time which exceeds the amount of time necessary for its temperature to reach a constant value, and which is capable of operating at its maximum operating temperature for at least 90 days per year without opening. This type of resistor is one capable of operating for an extended period at increased temperatures without failing in an open position.

A definition of the term "fail-safe" is also included in the proposal. It is used in relation to ground-wire monitors and solid-state direct-current overcurrent relays in the proposed rule. It is a descriptive term, meaning that failure of any component of such devices, other than relay contacts, will not prevent the device from performing its intended function, unless the device is designed to activate a circuit-interrupting device when failure occurs.

For instance, proposed § 75.711 would require that ground-wire monitors for cables extending to face equipment be designed and constructed to be fail-safe. A ground-wire monitor is defined under the proposal as a device which monitors equipment safety grounding conductors, and causes the associated circuit breaker to trip when a change in the impedance of the grounding circuit presents a potential shock hazard. Applying the two definitions, a fail-safe ground-wire monitor would be required under § 75.711 to operate, despite failure of its component parts. It would have to perform its intended function of monitoring and tripping the circuit breaker when necessary.

The definitions of low- and high-voltage systems represent changes in the existing standards, which recognize three voltage classifications. Low-voltage is presently defined in § 75.2(j) as up to and including 660 volts, medium-voltage as 661 to 1,000 volts, and high-voltage as more than 1000 volts. The proposed standards would eliminate the medium-voltage classification, and define a "high-voltage system or circuit" as one with a nominal voltage equal to or greater than 1,040 volts. Systems or circuits having a nominal voltage less than 1,040 volts would be classified as "low-voltage." The medium-voltage category is presently used only in relation to shielding of cables. The proposed cable shielding requirements would eliminate the need for a medium-voltage classification.

The term "nominal voltage" is defined by the proposal to mean the phase-to-phase or line-to-line root-mean-square value assigned to a circuit or system to conveniently designate its voltage class, such as 480 or 4,160 volts. The definition would clarify that the actual operating voltage of a system or circuit may vary from its nominal voltage within a range that permits satisfactory operation of equipment.

The definition of the term "overcurrent" would encompass ground faults, overloads and short-circuits, resulting from a current in excess of the rated current of equipment or the

ampacity of a conductor. The proposal would also define the terms "portable electric equipment," "mobile electric equipment," and "stationary electric equipment." Portable electric equipment would be defined as units which are designed and constructed to facilitate frequent movement from one location to another, and which are not normally located at one site for extended time periods. This would include units such as rock dusters and 10 horsepower pumps. Mobile electric equipment would be defined as units capable of being moved from one location to another by power supplied from a source located on the machine, as in battery-powered scoops, or supplied with power by means of a trailing cable, as in continuous-mining machines.

By contrast, stationary electric equipment would be defined as units which are not designed for frequent movement during normal use. This would encompass units other than mobile or portable, such as belt drives, which are fixed or fastened at a specific location for extended time periods. These distinctions are relevant since some of the proposed regulations would not apply to all three categories of electric equipment.

The terms "qualified cable splicer" and "qualified electrician" would be added to the definitions section in light of proposed standards at §§ 75.153 and 75.157. A qualified cable splicer would be a person who has met the requirements of proposed § 75.157, which contains the parameters of qualification for splicing and repairing low-voltage trailing cables.

In many of the proposed standards, qualified electricians would be required to perform certain work, such as troubleshooting and testing low-voltage circuits and equipment. These persons would be defined as having met the requirements of proposed § 75.153, which contains standards for the qualification of mine electricians. These terms would only be relevant within the context of the proposed electrical standards in subparts B, and F through K. Therefore, the existing definitions of "certified persons" and "qualified persons" at § 75.2 (a) and (b) would not be altered under the proposal.

Subpart B—Qualified Persons

Section 75.153 qualified electricians

Proposed § 75.153 specifies the process by which mine electricians would become qualified to perform underground electrical work. It is derived from existing §§ 75.153 and 75.159, and would address only qualification of mine electricians, and not all qualified persons working in underground coal mines. Several commenters to the preproposal draft suggested that a qualification program for mine electricians be adopted. These commenters pointed to the difficulty and danger involved in electrical work as the reason for requiring such a program. The proposal takes this approach.

Under paragraph (a) of the proposal, in order to become qualified to perform specified underground electrical work after the effective date of the rule, individuals would be required to successfully complete qualification tests developed by MSHA and administered by either the Agency or a state. The testing procedures, outlined in proposed § 75.154, are designed to allow the Agency to determine whether an electrician is capable of safely carrying out the underground electrical tasks required of a qualified electrician. MSHA believes that written and manual demonstrations of an electrician's familiarity with electrical hazards and safe operating procedures are crucial to mine safety.

An applicant for qualification would also have to possess at least one year of experience in a position requiring the installation and maintenance of electric circuits and equipment in a coal or other mine, in the mine equipment manufacturing industry, or in any other industry using or manufacturing similar equipment. This experience requirement, retained from existing § 75.153, would ensure that qualified electricians have a background of electrical work sufficient to prepare them to safely perform electrical tasks in underground coal mines.

The proposal would credit those who have completed two and four-year educational programs in electrical technology and electrical engineering with six months of experience. This aspect of the rule would recognize the value of formal training in these specified fields when applied to the underground coal mine environment.

Existing standards permit qualification of mine electricians with one year of experience, who satisfactorily complete an MSHA-approved electrical training program conducted by a mine operator. The proposal would modify the existing rule by no longer permitting operators to qualify mine electricians under approved electrical training plans. At mines where electrical accidents and fatalities have been on the increase, MSHA inspectors have monitored training given for electrical qualification purposes under approved plans which was incomplete and inadequate. The inspectors found that such plans do not fulfill the terms of the plans approved by MSHA.

The Agency is also aware of some approved training programs which are thorough and beneficial. Additionally, some training programs include qualification testing designed to evaluate the effectiveness of training. The intent of the proposed standard is to assure a consistent qualification process according to specific criteria, using effective training programs as models. This would result in properly qualified mine electricians and assure that electrical work is safely performed by persons with adequate knowledge and skills. Further, the standard would lessen the burden on mine operators by no longer requiring approved training of a specific type and duration. Those electricians who successfully complete the requirements of proposed §§ 75.154 or 75.155 would be qualified as mine electricians, regardless of the initial training they received.

Under paragraph (b), all qualified electricians, those qualified under the proposal as well as electricians qualified before its effective date, would be required to have annual refresher training in accordance with proposed § 75.156. Existing § 75.160 would require operators' refresher training programs to be approved by MSHA. Due to changing technology and the occurrence of avoidable electrical accidents underground, annual refresher training designed to reemphasize safe operating procedures and promote awareness of new technology would be beneficial in maintaining the continued competence of qualified electricians.

Paragraph (c) provides that those electricians qualified before the effective date of the rule would remain qualified, provided they fulfill the annual refresher training requirements of proposed § 75.156. The standard would eliminate the need for time consuming and costly requalification, but would assure that electricians presently qualified are also kept abreast of new technology and safety advancements.

The MSHA District Manager would be authorized under proposed paragraph (d) to revoke an electrician's qualification for cause, including intentional violation of the requirements of part 75 and intentional defeat of any safety device or circuit. Electricians who defeat safety devices, for example, endanger themselves as well as others, and should not be considered qualified to work with potentially dangerous electric equipment and circuits. Under the standard, due process protection would be afforded to qualified

electricians when MSHA intends to revoke their qualified status. Revocation would only be permitted for cause, and would incorporate a process for administrative appeal of Agency action. Under these provisions, electricians would be given notice, ample opportunity to present arguments against revocation, and a means of appealing revocation decisions.

Section 75.154 MSHA Qualification of Mine Electricians

Derived from existing § 75.153, this proposed standard would set forth MSHA's testing procedures for qualification of mine electricians. Under paragraph (a), applications to MSHA for qualification would have to be made in writing to the District Manager of the appropriate Coal Mine Safety and Health District. Since separate tests would be given to qualify electricians in low- and high-voltage categories, applicants would have to specify the category or categories for which qualification is sought.

Paragraph (b) describes the elements of MSHA tests for low-voltage electrical qualification. Tests would include written examination of d-c and a-c theory and application, and the requirements of Federal electrical safety standards in subparts F through H, and K of part 75. Written examination in or practical demonstration of knowledge in low-voltage coal mine electrical equipment and circuits, and electric equipment permissibility requirements would also be included. It is MSHA's view that these areas represent the elements of electrical knowledge which an electrician qualified for low-voltage work should possess in order to safely perform assigned tasks.

For high-voltage qualification under paragraph (c), electricians would be examined in writing or by practical demonstration of knowledge of coal mine electric power distribution circuits and equipment. Written examination of the requirements contained in subpart I of part 75 would also be required. Qualified electricians entrusted with the installation and maintenance of high-voltage circuits and equipment should possess knowledge of the specified subjects, in MSHA's view, to assure that high-voltage electrical work is safely and accurately performed. It is MSHA's intent that Agency personnel who are themselves qualified electricians will administer qualification tests. Their presence would assure that questions or problems arising during testing can be addressed by a person knowledgeable in the subject.

Proposed § 75.155 would permit states to administer qualification testing which meets the requirements of paragraphs (b) and (c) of this section. The option described of requiring written examination or practical demonstration of the specified subjects would be determined by MSHA or the state. The Agency is aware that some states now possess the ability to provide for practical demonstrations which allow accurate evaluation of an applicant's abilities. The standard would promote the development and use of such programs where they are available. However, in order to properly evaluate an applicant's knowledge of subjects such as electrical theory and the requirements of part 75, some subjects would be examined in writing.

Paragraph (d) would allow applicants to take tests for qualification in both the low- and high-voltage categories at the same time. However, tests for each category would be evaluated separately. If the low-voltage portion of the testing is not passed, the high-voltage portion would not be evaluated. Therefore, applicants who do not successfully meet the requirements for qualification to perform low-voltage work would not be eligible to become qualified to perform high-voltage work. This provision would recognize that a great number of common electrical tasks in coal mines involve work with low-voltage circuits and equipment. An electrician qualified in low-voltage would be specifically prepared to perform these tasks. Electricians needed to perform more complex high-voltage work would have to receive additional training in the subjects listed in paragraph (c) of the proposed standard.

Knowledge of high-voltage electricity builds on that of low-voltage electricity. Although both categories share the requirement of familiarity with elements of the low-voltage category, additional training and knowledge would be required for high-voltage qualification. Separate qualification tests would allow electricians to avoid the expenditure of additional time and resources necessary to prepare for qualification in high-voltage work, when some persons would be responsible for performing only low-voltage work at a mine.

Under paragraph (e), applicants for electrical qualification would be required to achieve test scores of at least 80 percent in the voltage category tested. MSHA would also recognize, under the proposal, that practical experience is a valuable asset for mine electricians. Therefore, up to five points, one point for each year of an applicant's experience in excess of the one-year requirement of proposed § 75.153 (a), would be added to the score of each test taken.

Some commenters to the preproposal draft expressed concern that electricians with many years of service would receive too much credit toward qualification, possibly allowing them to become qualified without possessing the required skills and knowledge. The proposed rule would address this concern by limiting credit for experience to five points, to assure that experience alone would not suffice for qualification of mine electricians.

Paragraph (f) would allow electricians to retake MSHA qualification tests if scores of at least 80 percent are not achieved. The first retest could occur within 30 days of notification of the original test results. Applicants would not be eligible for further retesting until at least 30 days after retest results are received. This system would not place a limit on the number of times one could be retested. However, reasonable time intervals between testing would be required in order to promote study to improve applicants' performance on qualification tests.

Section 75.155 State Qualification of Mine Electricians

Under this proposed standard, MSHA would recognize state programs for the qualification of mine electricians for the purpose of meeting MSHA's Federal requirements. Under paragraph (a), the Agency would recognize state programs which meet certain criteria. They would have to include at least the one-year experience requirement specified in proposed § 75.153(a)(2), and the MSHA-developed tests or demonstrations specified in proposed § 75.154 (b) and (c). Alternatively, tests or demonstrations jointly developed and agreed upon by MSHA and a state could be used.

This provision would allow miners to take advantage of state programs to become Federally qualified mine electricians in response to commenters' input that many states presently have effective training and qualification programs. The Agency would allow states to either administer MSHA's tests, or meet with MSHA and develop mutually agreed upon tests or demonstrations. If agreement cannot be reached with an individual state, that state could either give MSHA's test, as a minimum, and require any other additional testing it deems appropriate for state purposes, or simply allow MSHA to administer all Federal qualification tests in that state. This standard would recognize that many states have strong interest in participating in the electrician qualification process. The Agency would

like to promote the efforts of such states, and therefore allow the option of a mutually agreed upon testing scheme. MSHA specifically solicits comments from the states on this issue.

State programs would also have to include provisions to ensure the integrity and fairness of testing and grading procedures for MSHA recognition. This would provide consistent and fair testing of applicants for qualification. For instance, the state would bear the burden of keeping tests confidential and monitoring the materials used by applicants during testing.

Paragraph (b) would require tests given by states for MSHA qualification to be administered by a qualified electrician, as defined by proposed § 75.153. Therefore, a person with the requisite knowledge and experience would be available during testing to respond to questions about the interpretation or intent of the examinations.

Paragraph (c) would require that the District Manager of the district in which testing and grading is to be conducted be notified of the time and place of state-administered testing at least 20 days in advance. The District Manager would have the option of monitoring tests given by the states to ensure that the requirements of state programs recognized by MSHA are met. This aspect of the proposal would assure applicants that testing is administered in a consistent and equitable fashion, in accordance with Federal guidelines or the terms agreed upon by the Agency and the state.

Section 75.156 Electrical Annual Refresher Training Programs

This section is derived from existing § 75.153. Although the refresher training provisions proposed in this section would be similar to those found in part 48, these standards would apply to supervisory as well as non-supervisory mine personnel. All electricians who are qualified in accordance with federal requirements by MSHA or under a recognized state program would have to complete annual refresher training in order to remain qualified.

Under paragraph (a) of the proposal, mine operators would be required to have an annual refresher training program consisting of at least eight hours of safety instruction, and presented by a qualified electrician. This provision is similar to the general requirements of existing § 75.160. However, operators would be required to develop refresher training programs applicable specifically to qualified electricians under the proposal. Mine operators would be in the best position to provide a plan for compliance with the proposed refresher training requirements for qualified electricians working at their mines. Presentation of refresher training by an electrician qualified under § 75.153 would assure that material is reviewed by an instructor who is knowledgeable in the subject, and who is capable of answering difficult questions which may arise.

Operators' programs would be required to include a review of electrical accidents occurring in the industry and their causes, and a review of electrical safety procedures including lockout and tagging methods. To obtain copies of MSHA accident and fatality reports, operators can contact the appropriate MSHA district office. The District Manager would arrange for the reports to be sent to operators upon request from the National Mine Safety and Health Academy.

MSHA believes that training which covers these topics, at a minimum, would update mine electricians on current electrical technology and hazards associated with mine electrical work, and reiterate safe operating procedures designed to avoid these hazards. Dedication of a minimum of eight hours per year for review of these topics would be beneficial to the overall quality and safety of mine electrical work, and would not be unduly burdensome to operators.

Existing § 75.160 requires operators to have an approved plan for retraining of qualified persons. Paragraph (b) of the proposed standards would list minimum requirements for such plans. They would be required to consist of refresher training conducted by the operator, the Agency, a state, associations of mine operators, miners' representatives, other mine operators, private associations or educational institutions. The effect of this provision would be to allow operators to take advantage of any available programs which meet the proposed requirements, thereby affording several compliance alternatives. Operators need not expend time and resources to conduct their own refresher training, but could fulfill the proposed requirements by utilizing other available programs.

Paragraph (c) would state that only electricians who have completed annual refresher training under an operator's approved plan would be permitted to perform work required to be performed by a qualified electrician. This proposed standard would prohibit persons from doing the work of a qualified electrician if they have not successfully completed refresher training at least annually. Thus, persons doing such work would be aware of the latest technology and information about electrical hazards and safety procedures.

Under paragraph (d), derived in part from existing § 75.153 (g), electricians who do not successfully complete refresher training for a period of three consecutive years would no longer be considered qualified. To regain their qualified status, such persons would have to reapply for qualification in accordance with proposed § 75.153. This provision recognizes that there may be periods when a qualified electrician is not called upon to perform electrical work. They may engage solely in mechanical work, or in a non-mining occupation for a time. Such persons may let annual refresher training lapse, but they would be prohibited from doing the work of a qualified electrician during the lapsed period under the requirements of paragraph (c) of the section.

Within a three-year period, completion of refresher training would be sufficient to restore the electrician's qualified status. However, electricians who have not completed refresher training for three consecutive years could regain qualification only by resubmitting to the proposed qualification testing process. This standard would ensure that qualified electricians remain adequately trained in electrical work and safety procedures while they are called upon to do the work of a qualified electrician. If their position does not require them to perform the work of a qualified electrician, they are not required to complete annual retraining. However, to avoid having to retake qualification tests, they must take refresher training before the end of three years.

The District Manager would have the option of monitoring refresher training sessions under paragraph (e). Therefore, the rule would require that notification of the time and place of training be given to the District Manager at least 20 days in advance. The monitoring option would allow the Agency to evaluate the comprehensiveness and adequacy of refresher training programs, and therefore determine whether qualified electricians are being kept abreast of important safety information. In this way, the standard would assure that underground electrical work will be carried out in the safest possible manner for the protection of electricians and miners.

Paragraph (e) would allow the District Manager to revoke approval granted under existing § 75.160 of an operator's refresher training program for cause. If the program no longer complies with the

minimum requirements of the proposed rule, for instance, approval could be revoked. Additionally, section 110 (f) of the Federal Mine Safety and Health Act of 1977 makes the intentional falsification of records required by the Agency criminally punishable. Such action would also be cause for revocation of approval.

Section 75.157 Qualification for Low-Voltage Cable Splicing and Repair

Proposed § 75.157 sets forth new requirements for the qualification of persons to splice and repair low-voltage trailing cables. The intent of the standard is to allow persons other than qualified electricians to repair and splice low-voltage trailing cables, provided they are adequately trained. At the same time, miners handling or working around low-voltage trailing cables would be assured that they are maintained by persons qualified for the task.

The Agency received comments on the preproposal draft which both supported and objected to a qualification program for cable splicing and repair. Supporters of the standard felt that it could have significant overall safety value to the mining industry, by allowing qualified electricians to attend to more demanding electrical work in the mines. At least one commenter expressed concern regarding whether persons who are not qualified electricians could be adequately trained for the difficult tasks of splicing and repairing cables, particularly high-voltage cables. Therefore, the commenter suggested deletion of the proposed standard.

The proposal addresses these comments by allowing persons qualified under proposed § 75.157 to splice and repair only low-voltage trailing cables. Qualified high-voltage electricians would be required by proposed § 75.519 to splice and repair high-voltage cables, which can contain numerous components energized at very high voltages, and would therefore require the expertise of a qualified electrician. Under the proposal, the knowledge and skill of a qualified electrician would be applied to the demanding work of maintaining high-voltage cables, and low-voltage cables could be spliced and repaired by those persons specifically trained and qualified for the task. Therefore, miners would be protected against shock and fire hazards caused by improper splicing or repair of all cables.

For qualification in low-voltage cable splicing and repair, paragraph (a) of the standard would require individuals to have at least one year of experience as a miner on a working section of an underground coal mine, and successfully complete a written MSHA test administered by the Agency or a state. Additionally, applicants for qualification would be required to successfully perform a practical demonstration of their ability to splice and repair low-voltage trailing cables.

Under the proposal, applicants for qualification would be required to demonstrate their knowledge and skill in the subject to representatives of the Agency or a state. It is important that those persons charged with the maintenance of low-voltage cables be sufficiently knowledgeable about safe procedures and electrical hazards involved in order to protect miners from electrical injury caused by faulty splices or repairs. A practical demonstration of cable splicing ability would provide for a more comprehensive and accurate evaluation of an applicant's skill.

Paragraph (b) lists the subjects which would be covered by MSHA's written test. They would include written examination of lockout and tagging procedures, and other safety precautions relevant to splicing and repair of trailing cables, the applicable requirements of part 75, and the purpose and use of cable splicing components. These subjects represent, in MSHA's view, the minimum knowledge which should be required of qualified cable technicians in order to assure miner safety.

Paragraph (c) of the proposed rule would require written tests for low-voltage cable qualification to be administered, and practical demonstrations monitored by an authorized representative of the Agency, or an authorized representative of the state who is a qualified electrician or qualified for low-voltage cable splicing and repair. This would ensure the integrity of testing procedures and would provide for the presence of a person able to respond to technical questions which may arise regarding testing procedures or interpretation. The Agency would not be responsible for providing the facilities and equipment needed for practical demonstrations.

The parameters of the practical demonstrations required by the proposal are discussed in paragraph (d). Applicants would be required to demonstrate their ability to perform all safety precautions required by part 75 for splicing trailing cables, properly repair a damaged outer jacket, and demonstrate the proper methods of splicing metallic cable shielding. The proposed testing procedures would permit thorough evaluation of an applicant's practical abilities to correctly and safely splice and repair low-voltage trailing cables.

Under paragraph (e), the District Manager would have the opportunity to monitor all testing administered by a state for qualification. Notification of the time and place would be required to be given to the District Manager of the MSHA district in which testing will take place at least 20 days in advance for this purpose. This would assure that testing and evaluations are done in accordance with MSHA's regulations.

Revocation by the District Manager of a miner's qualification to splice and repair low-voltage trailing cables for cause would be possible under paragraph (f) of the proposal. Intentional violation of the requirements of part 75 or intentional defeat of safety devices or circuits would be examples of cause for revocation. Persons who intentionally disregard the safety of themselves and fellow miners would be considered unqualified by the Agency to perform cable splice and repair work. As in proposed § 75.153, miners would be given the protection of due process when the Agency intends to revoke their qualification.

Section 75.159 Records of Certified and Qualified Persons

The proposal would revise existing §§ 75.153 and 75.159, by requiring mine operators to maintain available for inspection at the mine, and certify by signature and date as accurate, a list of the names of all persons qualified as electricians or low-voltage cable splicers, the dates of qualification and retraining and the applicable voltage category. Existing § 75.159 now requires operators to maintain lists of all certified and qualified persons designated to perform duties under part 75. Requiring the operator to attest to the accuracy of the list would help to prevent abuses or mistaken inclusion of persons who have not been properly qualified. Under the proposal, authorized representatives of the Secretary and miners' representatives would be able to determine whether mine electrical work is being performed in a safe manner by qualified electricians. It would allow interested persons to readily determine whether electrical work and splicing and repairs of low-voltage cables are being carried out by those who have been properly qualified to do so.

Existing § 75.153(g) now requires individuals to certify to MSHA that they have successfully completed annual refresher training. The purpose of the standard is to aid the Agency in keeping records of qualified persons current and

issuing qualification cards. This standard would not be retained under the proposed rule. The Agency would retain its enforcement capabilities by requiring operators to certify to the accuracy of the list of qualified persons and the information required by the proposed amendment to § 75.159. However, the proposed revision may impact on the Agency's past practice of issuing qualification cards. Individuals would continue to be notified by MSHA that they have successfully completed the requirements for qualification. The Agency solicits comments on this issue from interested parties.

Scope Sections

Sections 75.500, 75.600, 75.700, 75.800, and 75.1000 Scope

Each subpart of the proposed rule would be preceded by a new scope section. Scope sections would be useful in order to clarify the rules which follow it and facilitate compliance efforts. It would also offer to interested parties a concise guide to what would be included and excluded from each proposed subpart. Subpart F would contain general requirements for the installation, maintenance, testing, examination, electrical protection, and performance of electric equipment and circuits. The subpart would also contain specific requirements for low-voltage trailing cables, encompassing mechanical protection, splicing and repair, disconnects, ground-wire monitors, and insulated handling equipment. The design and construction of permissible equipment and intrinsically safe circuits would not be addressed by the subpart, except as specified in §§ 75.503, 75.509, 75.511 and 75.529. Those subjects are covered primarily by the applicable approval regulations contained in 30 CFR part 18.

Subpart G, §§ 75.601 through 75.604, would contain requirements for low-voltage circuits. It would include standards for the design and construction, electrical protection, and cable coupler restraints of trailing cables and low-voltage a-c circuits. The subpart would also address electrical protection and performance of single-phase and three-phase low-voltage a-c systems which supply power to electric equipment located outby the working section. However, single-phase systems energized at 150 volts or less to ground would be addressed in subpart F. Also excluded from the coverage of the subpart are requirements pertaining to mechanical protection, splicing and repair, disconnecting devices, ground-wire monitors, and insulated handling equipment for low-voltage circuits.

Subpart H would include grounding requirements for circuits and equipment, including grounding of metallic parts, raceways and enclosures of electric equipment, methods of grounding a-c and d-c systems, grounding of a-c and d-c equipment frames and components, diode grounding systems, and system and supplemental ground fields. Additional grounding requirements for a-c systems supplying power to stationary lighting fixtures for illumination of working places are addressed by existing subpart R. The primary purpose of the proposed subpart is to reorganize, clarify and simplify existing standards, which are presently found throughout MSHA's regulations. This subpart would represent a consolidation of the grounding requirements for the equipment and systems specified.

Subpart I would contain requirements pertaining to high-voltage circuits and equipment used underground. Section titles in the subpart would specify where the requirements pertain only to high-voltage electric face equipment and associated trailing cables. More general standards applicable to all high-voltage equipment would be contained in subparts F and H. The applicable approval regulations in existing part 18 would address sizing of conductors and overload protection for circuits extending to and on board permissible face equipment.

Subpart K would contain requirements for trolley circuits, including installation, maintenance and electrical protection of trolley systems, and movement of off-track mining equipment and supplies in trolley entries.

Subpart F—Electric Equipment—General

Section 75.501 Permissible Electric Equipment

This proposed standard would set requirements for electric equipment used in working areas of a mine where the dangers of explosions and fire are most present. The section would consolidate the requirements in existing §§ 75.500, 75.500–1, 75.501, 75.501–2, 75.504, 75.505, 75.507, and 75.1002–1. It would offer a clear statement of existing requirements for the use of permissible equipment, and would incorporate MSHA experience regarding procedures for the safe use of some nonpermissible equipment in areas where permissible equipment is normally required.

Under paragraph (a) of the proposal, only permissible electric equipment, with specified exceptions, would be permitted to be located in or inby the last open crosscut, within 150 feet of pillar workings, or longwall and shortwall faces, in areas ventilated by air which has ventilated any working place or any worked-out area, whether pillared or non-pillared, or inaccessible areas. Permissible equipment is defined in existing 30 CFR 75.2(i) as equipment used in face areas which is designed, constructed and maintained so as not to cause a mine explosion or fire, or to the greatest extent possible, other accidents in their use.

This paragraph of the proposal would clarify for the purposes of this standard, MSHA's view that air which has ventilated working places or worked-out areas is air which can contain dangerous levels of methane. Electric equipment located in the specified areas would therefore be required to be permissible, in accordance with the existing approval regulations of part 18.

The hazards addressed by the standard would be methane and coal dust ignitions, explosions, and fires. By requiring that permissible equipment be used in areas where methane and dust concentrations are most dangerous, the risks to miners would be reduced. To enhance miner safety, electric equipment used in these areas would have to be designed, constructed, and maintained in accordance with MSHA approval regulations to eliminate possible ignition sources on such electric equipment.

Paragraph (b) of the proposed rule would be new, and would address comments to the preproposal draft that, at times, nonpermissible repair equipment is needed in working places. For instance, permissible welders are not available in the mining industry, but a welder may be required to repair immobilized electric equipment in a face area. To remedy this problem, the proposed standard would allow limited use of non-permissible repair equipment, provided proper safety precautions are taken. The proposal would allow the use of non-permissible electric welders, hand-held power tools, and test instruments in working areas only to repair disabled and immovable permissible equipment.

However, to assure miner safety, the area would have to be ventilated by air which has not been used to ventilate coal cutting or loading operations, and which contains less than 1.0 percent methane. Further, a fire extinguisher of the type described in existing § 75.1100–1(e), or a 240-pound supply of rock dust would be required to be located within fifty feet of the equipment being repaired. Repairs would have to be made under the supervision of a person

certified as defined in existing § 75.2(a), who would make tests before and during work to determine that less than 1.0 percent methane exists in the area, and make fire checks during and after the repair process.

The Agency's present policy is to permit repair of immobilized permissible equipment if repairs are undertaken in accordance with existing § 75.1106. The relevant provisions of that standard are therefore incorporated in the proposed rule. Although commenters suggested that fire extinguishers should be required within arm's reach of a miner making repairs, a fifty-foot requirement would make the extinguisher readily available, without necessitating continual movement of the extinguisher or large quantities of rock dust to within grasp. The risk to miners from the specified non-permissible repair equipment would be limited by the monitoring and safety precautions built into the proposal. The rule would incorporate the practical policy of allowing immobilized electric face equipment to be repaired with tools necessary for the task.

Paragraph (c) would be a new provision, containing a second exception to the standard at paragraph (a). It would allow the presence of certain equipment certified by MSHA as explosion-proof in areas where permissible equipment is required, provided such installations are approved by the District Manager. Explosion-proof distribution boxes, controller boxes and motors used as part of water pump assemblies, and cable couplers that are certified as explosion-proof by MSHA would be allowed in such areas under the standard. The use of pumps in areas where permissible equipment is required is often necessary to alleviate a dangerous buildup of water. Approved pumps of the size and type needed to meet the need are not always available, requiring the mine operator to assemble a pump capable of removing the water. In such instances, the formal approval process would be too time consuming when a practical necessity exists to remove water quickly and prevent flooding. Additionally, it would be economically burdensome for all mine pumps to be of an approved type, solely to meet a need which may or may not arise.

The proposed standard would allow the District Manager to approve the use of pumps assembled to remove water accumulations in specific instances without necessitating use of the formal approval process. By requiring that the equipment be explosion proof, the likelihood of its causing a fire or methane ignition would be remote. Additionally, safety considerations such as conductor size and circuit protection would be reviewed by the District Manager before the installations are approved, thereby assuring compliance with applicable provisions of part 75.

Section 75.502 Installation of Electric Conductors

As proposed, § 75.502 would limit the types of electric conductors permitted in areas where permissible equipment is required. It would be a new standard, replacing existing § 75.1002, which prohibits the use of all high-voltage cables inby the last open crosscut and within 150 feet of pillar workings.

Under the proposed standard, only trailing cables supplying power to permissible equipment, conductors of permissible equipment and intrinsically safe circuits, shielded cables, conductors of electric equipment needed to make repairs under proposed § 75.501(b), and conductors of electric equipment under proposed § 75.501(c) would be permitted in such areas. These types of conductors and cables would not pose increased risks of fire or explosion in face areas. Though not specifically mentioned in the proposed standard, cables which serve permissible blasting units would be allowed in these areas, as they would be considered conductors of permissible equipment.

This section of the proposal would prohibit the location of conductors such as trolley wires and trolley feeder wires within 150 feet of a mine face. Such electric conductors could provide a ready ignition source, and therefore should be prohibited from use in areas of the mine where methane and dust concentrations pose the highest risk of ignition.

Several commenters to the preproposal draft expressed the need for allowing high-voltage cables to be used in face areas in order to facilitate the use of longwall mining units. The proposal contains a new provision which would address the comments by allowing shielded cables, whether high or low-voltage, to be used in areas where permissible equipment is required. Therefore, shielded high-voltage cables, such as those used in the longwall mining process, would be permitted in face areas.

The modern development of longwall mining systems and the widespread desire to use them in the industry have resulted in a consistent influx of petitions to modify existing § 75.1002 to allow high-voltage cables to supply power to the high-voltage longwall units. The proposal would restructure the existing standard to allow use of such modern technological advances. One purpose for the existing prohibition of high-voltage cables in face areas was to limit the types of equipment used there. Some equipment requiring high-voltage power cables was not permissible. Therefore, prohibiting the use of high-voltage cables had the effect of prohibiting the use of some non-permissible equipment inby the last open crosscut or within 150 feet of pillar workings.

MSHA began to grant petitions for modification to 30 CFR 75.1002 to allow the use of high-voltage longwalls approximately three years ago. To date, there have been no fatal electrical accidents attributable to the use of the high-voltage longwall equipment allowed by petitions. Permitting high-voltage cables in face areas, in conjunction with requiring shielding of such cables and that the equipment served by them be permissible, would not increase the risks of fire and explosions. The proposed rule would permit operators to take advantage of a useful modern mining method without the need for utilizing the petition process.

Section 75.503 Construction, Maintenance, Modification, and Identification of Permissible Electric Equipment

This section would set requirements for the construction, maintenance, modification and identification of permissible electric equipment. It is derived from existing requirements at §§ 75.503, 75.504, 75.505, 75.506, and 75.506–1. It would simplify and clarify the requirements found in the existing standards in order to facilitate compliance efforts.

Paragraph (a) of the proposal would require permissible equipment to be constructed in accordance with the MSHA approval regulations in effect at the time the equipment is manufactured, and maintained in accordance with the regulations under which it was approved. These proposed standards would not represent great change from the existing regulations. Miners required to work with and around such equipment would be assured under the proposal that permissible equipment is maintained in permissible condition, in accordance with the approval regulations of part 18. MSHA has detailed permissibility requirements for electric equipment in part 18, which would work in conjunction with the proposal. In order to retain its permissible status, such equipment must

be maintained in accordance with the applicable approval regulations.

Some commenters to the preproposal draft suggested allowing non-permissible recording devices to be attached to permissible equipment used inby the last open crosscut. Such devices are often used in testing and evaluating plans for longwall sections. Presently, an experimental permit is necessary to attach nonpermissible equipment to an approved machine. The commenters stated that the time necessary to apply for and receive an experimental permit causes delays in setting up longwall sections. This suggestion was not adopted in the proposal, because operators have begun to submit applications for experimental permits far enough in advance of their planned start-up dates. Therefore, adequate lead time is being planned for, and the problem of delays has been reduced since publication of the preproposal draft.

Under paragraph (b), field modifications of permissible equipment would be required to be made and maintained in accordance with the MSHA approval regulations in effect at the time of the modification. This provision would assure that modifications of electric equipment, including modified components of such equipment, will not affect its permissible status. Additionally, modifications to permissible equipment would have to conform to the most up-to-date permissibility standards to ensure that they reflect the state of current technology and information available to the Agency.

Under paragraph (c), a new provision under the proposal, requests for modification of permissible equipment would be required to be made in writing to MSHA's Approval and Certification Center in Triadelphia, West Virginia. Planned modifications would be required to accompany the application to facilitate evaluation of the request by the Agency.

Paragraph (d) would be a new part 75 provision, which would require approval and certification plates to be attached to permissible equipment and maintained so that model numbers, approval numbers, and certification numbers are legible. Existing § 18.11 requires approval plates to identify equipment as permissible. The proposed standard would assure that the plates are maintained so that they are legible while the equipment is in use underground. Legible approval and certification identification plates would allow interested parties to determine at a glance whether equipment operating in working areas has met with the applicable MSHA regulations, thereby helping to identify risks from electric equipment.

Section 75.504 Current Between Frames of Permissible Electric Equipment

This section of the proposal would limit the amount of current permitted to flow between the frames of any two units of permissible equipment operating where permissible equipment is required. The proposed rule would simplify and clarify existing § 75.524, but would not alter the requirements found in the existing standard.

Under the proposal, when two pieces of permissible equipment come in contact, the current permitted to flow between them could be no greater than 1.0 ampere, measured across a 0.1 ohm resistor connected between the frames of the equipment. Limiting the allowable current between the frames of such equipment would reduce the risk to miners of shocks and methane explosions due to inter-machine arcing.

Section 75.505 Installation and Maintenance of Electric Circuits and Equipment

Installation and maintenance of electric circuits and equipment would be addressed by this section, derived primarily from existing § 75.511, which specifies those persons permitted to perform work on electric circuits and equipment. Paragraph (a) would require installation and maintenance of electric circuits and equipment to be performed by a low-voltage or high-voltage qualified electrician, as applicable. This would assure that difficult and dangerous electrical work is performed by those possessing the necessary skill and training to do it. The qualification procedures for such persons are described in § 75.153 of the proposed rules.

Paragraph (b) would contain an exception to the proposed requirements of paragraph (a). Persons trained to perform electrical work who are directly supervised by a qualified electrician would be permitted to perform electrical work on low-voltage circuits. The proposal represents some change from the existing standards. As in the existing rule, trained non-electricians would be permitted to install and maintain electric circuits, but the proposal would allow them to do so only in the presence of, and under the direct supervision of a qualified electrician.

The effect of the rule would be to allow persons other than qualified electricians to assist in the installation and maintenance of low-voltage electric circuits. However, mandatory supervision would bring the expertise and training of the qualified electrician to bear on the work being done.

Some commenters to the preproposal draft expressed the view that overall improvements in electrical safety would result from the standard. Further, valuable experience would be gained by allowing trained persons to work on low-voltage circuits. In this way, persons could fulfill the experience requirements of proposed § 75.153 for future qualification as mine electricians. The proposal would adopt these views.

Paragraph (c) of the proposed standard is new, and would also embody an exception to paragraph (a). Persons qualified under proposed § 75.157 would be permitted to splice and repair low-voltage trailing cables on those parts of the cable which are external to couplers or compartments without the supervision of a qualified electrician. The Agency believes that persons meeting the qualification requirements of proposed § 75.157 would be adequately prepared to safely make splices and repairs on low-voltage trailing cables. By permitting them to do so, the rule would allow qualified electricians to attend to more difficult electrical problems in the mine, while ensuring that low-voltage cable splices and repairs are made in the safest possible manner by persons qualified to perform the tasks.

Paragraph (d) would be a new provision which sets out the direct supervision requirement referred to in paragraph (b) of the proposed rule. The supervising qualified electrician would be responsible for providing direct and immediate supervision and be present during the work. The standard is intended to clarify that at least one supervising qualified electrician must be present and available to the trained person or persons working on low-voltage circuits to provide direction and assistance.

The qualified electrician would have to be in the immediate area, such as on the same working section or in the same shop area as the work being done, to provide accessibility to the persons being supervised. A one-to-one ratio of qualified electricians and trained persons would not be required. However, remote communication with the person or persons being supervised from the mine office or some other locale would not suffice under the standard. If problems should arise beyond the skill or experience of the trained persons, a qualified electrician would be available in the immediate area to quickly come to their assistance.

The supervising electrician would be required to assure that the circuit or

equipment has been deenergized, disconnected and locked out and tagged before work is begun, and to examine and test completed work before the circuit or equipment is reenergized. These measures would assure that electrical tasks are performed safely and accurately so that they will not result in injury to miners. Further, those being supervised in the work would gain valuable experience in electrical work.

Section 75.506 Work on Electric Circuits and Equipment

This section would consolidate the procedures presently required for the performance of work on electric circuits and equipment by existing §§ 75.509, 75.511, 75.705, 75.705–1, and 75.1725. It would require deenergization of electric circuits and equipment before work on them is started, except when energization is necessary for troubleshooting and testing low-voltage circuits and equipment. Paragraph (a) would be new, requiring doors and cover plates on electric equipment which allow access to electric connections to be closed at all times, except during installation, testing, and repair. This would minimize the risk of inadvertent contact with energized components of equipment and circuits.

To deenergize circuits and equipment before work is begun, paragraph (b) of the proposal would require that the appropriate disconnecting device is opened, tagged, and locked out with a padlock and tag for each person assisting in the work. Commenters to the preproposal draft suggested a requirement for more stringent safety procedures for working on electric circuits and equipment due to the dangers involved. Data available to the Agency show that since 1970, approximately 54 fatalities occurred while miners were working on energized circuits and equipment. In the past five years alone, approximately 9 of those miner deaths were related to improper use of or failure to use disconnecting devices. Deaths and injuries have also occurred when equipment was energized before all persons had completed work.

Several commenters to the preproposal draft supported the use of individual locking devices and tags for each person performing work to assure that all persons are aware of whether the circuit or equipment being worked on has been deenergized. The proposed standard would adopt these measures. MSHA believes that the use of padlocks would best assure the safety of those conducting repairs on electric circuits and equipment. Additionally, tags would have to identify each person performing the work and identify the circuit or equipment being worked on. MSHA believes that the circuit or equipment needs to be identified in addition to the person performing the work, to adequately indicate whether all persons assisting in the work have completed their tasks. The Agency solicits comment on the benefits of requiring circuit or equipment identification on the tags. The risk of mistaken or premature removal of the padlock and resulting injury to miners, would be reduced under the proposed standards.

When two or more electric circuits are located within a single compartment, each circuit would be required to be deenergized and properly locked out before electrical work is started on any circuit. Several fatalities have occurred where an individual has contacted an energized circuit while working on a deenergized circuit in the same compartment. The proposal would prevent such occurrences.

Under paragraph (c), the proposal would require that when high-voltage power conductors are required to be deenergized, they would have to be connected to the system grounding conductor by a high-voltage qualified electrician. The high-voltage circuit would have to remain grounded until work has been completed. This provision would prevent the occurrence of reenergization of high-voltage conductors while work is being performed on an associated circuit. Further, grounding would provide a fault path to leak off excess charge in the conductor to prevent shock hazards to miners.

Unlike existing § 75.511, which allows locks to be removed by authorized persons, §§ 75.506(d) and 75.815(e) of the proposal would allow only the person who installs a padlock or tag to remove it. A commenter to the preproposal suggested a requirement that electricians performing work on circuits should have padlocks with their own unique key in order to guard against accidental energization. The suggestion was adopted in the proposal to assure that only the individual who installed a lock could signify when he or she has completed work. A master key or combination would not be available to others, who could mistakenly allow a circuit to be reenergized prematurely. All parties would be made aware of who is working on what equipment or circuit under the proposal. If individuals are made responsible for installation and removal of their own locks and tags, the risk of accidental reenergization of a circuit while work is being done on it would be eliminated.

Each person required to perform work on the circuit or equipment would be responsible for installing and removing their own locking devices, to ensure their personal safety. Between shifts, the circuit or equipment should remain tagged if work has not been completed. Additionally, the supervisor or foreman could tag the equipment or circuit or lock-out with his or her own padlock between shifts. Persons required to continue work on the next shift would be responsible for installing individual locks at that time, and removing them when their work is completed.

There may be some unusual circumstances where the mine operator could demonstrate a need to remove an employee's lock. Recently, the Occupational Safety and Health Administration (OSHA) issued a final rule with such an exception (54 FR 36644). Under the OSHA rule, the employer could remove an employee's lock if, at a minimum, the employer has procedures to: verify that the employee is not at the facility; make all reasonable efforts to contact the employee to inform the employee that the lock has been removed; and can ensure that the employee knows that the lock has been removed before resuming work at the facility. The Agency solicits comments on whether, and if so under what circumstances, such an exception would be appropriate for underground coal mining.

Paragraph (e) of the proposed standard would state that when mechanical repairs or maintenance being performed on electric equipment requires removal of power in accordance with existing § 75.1725 (c), the disconnecting devices would be required to be opened, locked out with a padlock and tagged by persons performing the work. Those persons required to do mechanical work on electric equipment are exposed to serious risk of injury, particularly since they may not have any familiarity with the electrical hazards involved, or the possibility of inadvertent start-up of the equipment. The proposal would assure proper deenergization and lockout of circuits while mechanical work is being performed.

Under paragraph (f), conductors that are not supplying power to electric equipment would be required to be deenergized and either removed from their supply source or have their supply source locked out and any exposed ends insulated. The proposal addresses shock hazards created when a person comes into contact with abandoned or unused energized conductors. Conductors should be disconnected at the

conductor's supply point to assure total deenergization. The option to insulate the wiring ends and lockout the circuit is also included to allow for maintenance and repair as a compliance alternative.

Section 75.507 Electrical Troubleshooting and Testing

This section is derived primarily from existing §§ 75.509, 75.511, 75.705–1 and 75.1720, and would address safety procedures to be used when troubleshooting and testing energized circuits. Proposed § 75.506 would recognize that in some instances, it is necessary for a circuit or equipment to remain energized for troubleshooting and testing. For example, in order to discover the nature of some problems within a circuit, voltage readings must be taken while the circuit remains energized.

Under paragraph (a), the proposal would permit troubleshooting and testing only of low-voltage energized circuits by qualified electricians, when the purpose is to determine voltages and currents. Troubleshooting and testing energized circuits is extremely hazardous work. Therefore, the skills and training of a qualified electrician would be appropriate for performance of these tasks. Troubleshooting and testing would be limited to low-voltage energized circuits, primarily due to the insulation ratings of available troubleshooting and testing equipment. The insulation ratings on equipment commonly used are insufficient for miner protection for use on high-voltage circuits.

Paragraph (b) would require qualified electricians to wear rubber insulating gloves with protective coverings designed to prevent physical damage to the insulation material during troubleshooting and testing. Several commenters to the preproposal draft suggested that properly rated rubber insulating gloves be worn by persons performing troubleshooting and testing of energized circuits for protection against electric shock. A review of the fatality record has shown that at least six fatalities have occurred since 1970 due to contact with energized circuits while trouleshooting and testing without the benefit of gloves. Leather coverings, for example, would protect the insulating material of gloves against tears and physical damage which could render them ineffective for protection against electric shock to the qualified electrician.

Paragraph (c) of the proposal would require high-voltage circuits contained in the same compartment as the low-voltage circuit being tested to be deenergized, grounded, locked-out and tagged, or physically separated by a permanent barrier or partition from the low-voltage circuit before troubleshooting or testing the circuit. These methods of preventing contact with the uninvolved circuit would minimize an electrician's exposure to electric shock, electrocution, and burns from arcing. The proposal thus provides for several equally effective compliance alternatives. A "permanent" barrier is specified to assure that persons will not be forced to insert a temporary or removable barrier while work is being performed and contact energized components of the equipment.

Commenters to the preproposal draft suggested deleting the provision permitting isolation of the uninvolved energized high-voltage circuit by a barrier or partition. MSHA believes, however, that the proper use of permanent barriers of partitions would provide the same measure of protection to the electrician as would the other specified methods.

Paragraph (d) is a new provision, which would set requirements for the gloves required to be worn by qualified electricians under paragraph (b) of the standard. Rubber insulating gloves would have to be rated for at least the nominal voltage of the circuit, examined before each use for damage and defects, and removed from the underground areas of the mine when damaged or defective.

The dangers inherent in working with energized circuits require safety precautions such as the wearing of insulating gloves which are appropriately rated for the voltage of the circuit, to afford maximal protection. The proposal would make qualified electricians responsible in part for their own personal safety by requiring them to examine their gloves for damage or defects before relying on them. It would also assure that protective gloves are removed from the underground areas of the mine to prevent inadvertent use of and reliance on damaged or defective gloves.

Section 75.508 Examination and Testing of Electric Equipment and Circuits

This proposed standard would set requirements for installation, maintenance and periodic examination and testing of electric equipment used underground. The general requirements of existing §§ 75.512, 75.512–2, 75.703–3, 75.800–3, 75.800–4, 75.803, 75.900–3 and 75.900–4 would be included in and replaced by this proposed section. Paragraph (a) is new, and would require electric equipment and circuits to be installed, maintained, and used to prevent fire, electric shock, ignition, or operational hazards. Equipment or circuits that present a hazard to persons due to improper installation or maintenance, misuse, or damage would have to be deenergized and tagged as a hazard. This standard would require that equipment and circuits are maintained in continual safe condition, even between examinations and testing. If a hazardous problem is discovered at any time, the equipment or circuit would have to be deenergized and tagged as a hazard.

Paragraph (b) would require a qualified electrician to make periodic examinations of electric equipment and circuits to determine that the electrical protection, equipment grounding, permissibility, cable insulation, and control devices are being properly maintained to prevent a fire, electric shock, ignition or operational hazard from existing on the equipment. Examinations would be required to include testing of equipment and circuits when necessary to make such determinations; that is, when visual examination alone would not be sufficient to determine whether a problem exists. For instance, to discover whether continuity of the grounding conductor is being maintained in a low-voltage trailing cable, a test must be performed, because this could not be determined through visual examination alone.

Electric equipment used in underground coal mines is subjected to heavy, continual use, which can result in wear and breakdown. The mine atmosphere is also particularly harsh for electric equipment. Unless it is frequently examined, potential problems could go undiscovered, and could compromise the safety of miners working with or around such equipment. This provision would direct the steps necessary for compliance with paragraph (a) of the standard. It reflects the suggestion of commenters to the preproposal draft that more specific testing and examination requirements be included in the proposal in order to clarify the required procedures.

Paragraph (c) would specify the frequency of examinations of low-voltage electric circuits and equipment. It would retain the requirement of existing § 75.512–2 that examinations and necessary tests of mobile and portable equipment and circuits be made when installed and at least every seven days thereafter. Mobile and portable electric equipment and circuits are susceptible to the greatest risk of damage or breakdown from heavy use in a mine. The Agency believes that

frequent tests and examinations of such equipment are an essential part of an effective maintenance program. They would assist in the discovery of equipment defects before they could cause injury to miners.

Low-voltage stationary equipment and circuits would have to be examined and tested when installed and at least every 30 calendar days thereafter, as would hand-held electric power equipment under the proposed rule. The 30-day period represents a change from existing § 75.512–2, which sets a seven-day examination cycle. After considering the level of use and the possible hazards involved with hand-held and stationary equipment, the Agency's view is that examination and testing of these units every 30 days would be more appropriate. Qualified electricians would have more freedom under the proposed rule to concentrate on examination and testing of mobile and portable electric equipment, which represent a greater danger to miners.

Under paragraph (d), surface and underground high-voltage switchgear used in conjunction with circuits extending underground would have to be tested at least once every 90 calendar days. Tests would be required to include breaking the continuity of the ground-check conductor at the extreme end of the monitoring circuit when a ground-check conductor is used, to assure that the entire circuit will be properly deenergized when necessary. Additionally, the circuit breaker would be required to be opened by actuating at least one interlock switch for each power center.

Existing § 75.800–3 is interpreted to require specific testing of surface circuit breakers protecting underground high-voltage circuits, and visual examination of underground circuit breakers once each month. The proposed standard would add specific testing requirements for underground circuit breakers to be performed at least every 90 days, in addition to a visual examination, which would be required every 30 days under paragraph (e) of the section. If visual examinations are completed diligently, actuation of the underground circuit breaker every 90 days, as specified in the proposal, would be adequate to assure that it is in proper working order.

Electrical protective devices are not often called upon to deenergize high-voltage circuits. When they are needed, miners should be assured that they will properly function for their protection. Testing in the specified manner would increase the likelihood that miners are protected against injuries which can occur due to faulty protective devices and equipment. The main circuit breaker would be subject to the more stringent tests and examinations detailed in paragraph (f). Paragraph (e) would require the equipment to be visually examined at least once every 30 calendar days for hazardous conditions resulting from exposed energized parts or equipment defects.

Paragraph (f) would be a new provision, which would require surface high-voltage grounding resistors and circuit protective devices which protect underground circuits to be tested when installed and at least every twelve months thereafter. Commenters requested that specific testing procedures be included in the standard, in order to provide adequate guidance and consistency. Testing of the specified devices would be required to include passage of an amount of current through each current transformer necessary to cause the circuit breaker to open. The standard would also require activation of the circuit breaker by impressing an amount of voltage across each potential ground-fault device necessary to cause the circuit breaker to open, and a determination of whether the grounding resistor is open or shorted. These steps would ensure that protective devices and grounding resistors are maintained in operative condition.

The proposed testing requirements would involve intentional tripping of the circuit breaker to assure that protective devices will work properly at their specified voltage or current levels when called upon to do so. Experience indicates that a twelve-month testing interval is a reasonable period for determining whether adequate circuit protection is provided by the devices.

Should tests or examinations reveal a fire, electric shock, ignition or operational hazard on high-voltage equipment, paragraph (g) would require it to be removed from service or repaired. Requiring prompt repair or removal of hazardous electric equipment and circuits from service would ensure that miners working with or around them would not be injured by them. Repairs would have to be completed on such equipment before it is put back into service.

Under paragraph (h), at the completion of tests and examinations, the person responsible for making them would be required to certify by signature and date that they have been performed, and make a record of unsafe conditions found and corrective actions taken. If the same individual is responsible for examining and testing multiple units of equipment or circuits, only one certification that they have been performed would be necessary. Requiring certification of examinations and testing for each machine or circuit would be unnecessary, provided it can be ascertained that this proposed standard has been complied with.

Paragraph (i) would require the mine operator to keep records and certifications for at least one year, and make them available at the mine for inspection by authorized representatives of the Secretary and representatives of miners. These certifications and records would enable interested persons to easily determine whether equipment and circuits are being tested to assure proper maintenance. They would also aid in investigations of mine accidents and point out patterns of defects which might suggest the need for redesign of units of electric equipment.

Paragraph (j) of the proposal would be new, stating that equipment which remains idle for longer than the proposed testing intervals would not have to be examined or tested while idle. However, to address unknown hazardous conditions arising during idle periods, examination and testing would be required before such equipment is returned to service. Tests of idle equipment would serve no safety purpose, but idle equipment should be examined and tested for malfunctions or hazardous conditions, such as damaged relays or valves, before being returned to service.

Section 75.509 Switches, Control Devices, and Control Circuits

This section of the proposal is derived in part from existing §§ 75.520 and 75.1403–10(m), which contain requirements for switches and controls on underground electric equipment. The revised standard would include performance and design requirements for control circuits on electric equipment to provide for safer operation. Paragraph (a) of the proposal is derived from existing § 75.520, which requires electric equipment to be equipped with switches or other controls that are safely designed, constructed and installed. The proposal would alter and clarify the existing standard by requiring that switches and control devices be installed and maintained on equipment to prevent operational hazards. This would assure that switch wiring designed for this application is used in installation, and prevent the occurrence of malfunctioning switches and control devices.

Under paragraph (b) of the proposal, switches and control devices would have to have voltage and current ratings of at least the voltage and current of the circuit in which they are used. The hazards of electric shocks and

electrocution would be averted by requiring compatibility of voltage and current ratings.

Under paragraph (c), a new provision, a-c remote control circuits would be required to have a maximum voltage of 150 volts. Control circuits for remote switches would be restricted to 150 volts in light of the history of injuries and fatalities associated with them. At least four electrocutions have occurred since 1970, when persons have contacted the frames of control switches or control circuits energized at voltages in excess of 150 volts a-c.

Paragraph (d) would require control circuits having a neutral, or one conductor solidly connected to the grounding medium, to be wired so that ground faults in the equipment will not cause it to suddenly start, prevent it from being stopped, or prevent operation of protective devices connected in the circuit. To be safely operated, equipment must have a means of preventing accidental start-up, as well as a means of stopping it when ground faults exist on the equipment.

Protective devices should also remain operable despite failures or faults. Unexpected start-up of equipment or inability to stop it could lead to serious underground accidents. Similarly, miners must be able to rely on protective devices, such as panic bars, built into equipment they operate or work around. This provision would assure that such safety features would remain operable in emergency situations.

Control circuits, under paragraph (e) of the proposal, would be required to be wired so that stop switches will deenergize the equipment if the start switch remains in the "start" position. The requirement would ensure a means of turning off electric equipment, despite a malfunction causing the switch to become stuck in the start, or on position. The hazards posed to miners from equipment malfunctions would be reduced under this provision.

Paragraph (f) is derived from the safeguard provisions in existing § 75.1403–10(m), which addresses tram control switches on rubber-tired equipment and provides that these switches be designed to automatically return to the stop or off position when released. The proposal is intended to clarify the existing standard, and would require that tram controls on rubber-tired and crawler-mounted mobile electric equipment be designed to be automatically self-centering. The proposed standard would make clear MSHA's position that self-centering tram controls are required for the safe operation of mobile electric equipment equipped with such controls. Since enactment of the existing standard, several pinning and crushing fatalities have been related to tram controls remaining in the tram position, allowing equipment to continue to travel after the tram lever was released. The proposed rule would provide clear mandatory performance regulations for tram levers to address this hazard.

Agency experience, including its investigation of the tragic 1984 Wilberg Mine fire, has indicated that overtemperature devices should be provided and maintained on air compressors. Paragraph (g) would be a new provision which would require automatic overtemperature devices to be provided and maintained on air compressors, other than those which are component parts of locomotives and rock dusting machines. These devices would be required to automatically deenergize the compressor at predetermined settings specified by the manufacturer, but at no greater than 240 degrees Fahrenheit.

At temperatures above 250 degrees, the air compressor oil can begin to break down and its lubrication qualities can be lost. A maximum 240-degree Fahrenheit deenergization setting is consistent with the recommendations of manufacturers of air compressors most commonly used in the mining industry. The risk of fire due to excessive heat could be reduced by compliance with the standard.

Section 75.510 Disconnecting Devices

This section would address requirements for disconnecting devices used to protect underground circuits and equipment. It is derived from existing §§ 75.511, 75.519, 75.519–1, 75.520, 75.601, 75.705–6, 75.705–7, 75.705–8, 75.802, 75.808, 75.809, 75.903 and 75.904, and would embody few changes from those standards. The proposal would consolidate and clarify the existing rules covering disconnecting devices.

Paragraph (a) would require a disconnecting device to be installed in each power circuit that extends underground. When located on the surface, the disconnecting device would have to be positioned within 500 feet of where the circuit enters the underground area of the mine. When located underground, the disconnecting device would have to be within 500 feet of the bottom of the shaft or borehole through which the circuit enters the mine.

The proposal would change the distance required by existing § 75.802(c) for surface high-voltage devices from 100 to 500 feet. This change would recognize that in some instances, the 100-foot distance may lead to less safety for miners if the special circumstances of a mine are not considered. For example, the 100-foot distance could require more than one disconnecting device to be installed in a high-voltage cable which extends longer than 100 feet from the mine. The proposed rule would eliminate unnecessary exposure of miners to the risks involved in making multiple terminations in such cables to install disconnecting devices. Further, due to the natural terrain and physical lay-out at some mines, the 100-foot distance could make disconnecting devices less accessible than they should be in case of emergency. The 500-foot distance would give operators greater flexibility in placing disconnecting devices where they are most easily reached in emergency situations.

Under the new provisions of paragraph (b), disconnecting devices which are not designed for load interruption and are installed at locations specified in paragraph (a)(2) of the section, would be required to be installed so that a circuit breaker operated at the disconnecting device location can deenergize the incoming power circuit before disconnects are opened. The effect of this standard would be to provide devices which are not capable of deenergizing the circuit under load with an alternative means of deenergization. The proposal would also require a visual or audible means, such as an indicating light or a horn, at the disconnect location which enables miners to easily ascertain whether power is being supplied to the device. This would reduce the risk of injury due to arcing when a circuit is disconnected under load.

Paragraph (c) would require disconnecting devices to be installed in conjunction with each circuit breaker, and at the beginning of each branch circuit and trailing cable used underground. Since 1970, at least seven fatal electrical accidents have occurred which involved the failure to use high-voltage disconnecting devices, failure to open the correct disconnecting devices, or failure to lock the devices out. The proposal would facilitate determinations of whether disconnecting devices have properly deenergized the circuit, thereby reducing the risk of electrical accidents and injuries. Additionally, compliance with the proposal would provide for deenergization of the branch circuit to facilitate testing or repairs without necessitating deenergization of the main circuit. Miners could otherwise be tempted to work on an energized circuit to avoid having to deenergize it in its entirety.

The proposal specifies that a disconnecting device be installed at the beginning of each trailing cable. This aspect of the proposal clarifies existing § 75.903, which requires that a disconnecting device be installed in conjunction with the circuit breaker. The proposal would revise this language to require installation of the disconnecting device at the beginning of each trailing cable, to assure total deenergization of the cable.

Paragraph (d), derived from existing §§ 75.601, 75.808, and 75.903, would also require that disconnecting devices be designed to provide visual evidence that all ungrounded power conductors are disconnected when the device is open. Visual evidence would consist of the ability to observe the physical opening of the controls. This would clarify the language in existing §§ 75.601 and 75.903 which require visual evidence that the power is disconnected. It would also modify existing § 75.904 to include the identification of disconnecting devices, as well as circuit breakers.

Each device would have to be equipped with a means for installing a padlock under paragraph (e) of the proposed rule, derived from existing § 75.511. Therefore, disconnecting devices would be capable of properly deenergizing the circuit being worked on, and assuring that it will remain deenergized, in accordance with the requirements of part 75.

Paragraph (f) would require each disconnecting device to be distinctly marked to indicate the specific unit of equipment that it serves. The marking would be required to be identical to the marking of the corresponding circuit breaker or fuse holer, and durable enough to withstand the mining environment. Where a plug and receptacle are used as a disconnecting device, both components would be required to bear identical markings. These provisions would ensure that the protective devices are marked and identified with the breakers they serve and that identifying markings are maintained, despite the harsh mining atmosphere. Numerous accidents have been attributed to disconnecting the wrong cable or trailing cable because of inadequate or improper identification at the circuit breaker and at the disconnecting device.

Under paragraph (g) of the proposed rule, disconnecting devices would be required to have voltage and current ratings compatible with the circuits in which they are used. This would ensure that the operating parameters of the devices are not exceeded during normal operation.

Paragraph (h) is a new provision, which would require that except for trolley taps, low-voltage disconnecting devices not have exposed energized parts, which can represent a serious hazard to miners. Because of the nature of their design and use, trolley taps would be excluded from this provision. Paragraph (i), also new, would require high-voltage disconnecting devices installed underground after the effective date of the proposed rule to be enclosed in a grounded metallic enclosure and have no exposed energized parts. The standard would provide for physical protection of the devices. Persons having to work with or near disconnecting devices would be protected from contacting dangerous voltages which can exist when energized parts are exposed.

Comments to the preproposal draft cited the shock hazards inherent in working with exposed energized parts of high-voltage disconnecting devices as a justification for requiring them to be enclosed. However, they suggested phasing out exposed parts by employing a delayed effective date for the standard. The proposal would address these suggestions by applying the enclosure requirement only to devices installed after the rule's effective date. Existing equipment having exposed parts would be required to have guarding installed in accordance with paragraph (j) of the section. MSHA solicits further public comment on the necessity of this standard, and the proposed compliance schedule.

Paragraph (j), derived from § 75.705–9, would require disconnecting devices having exposed energized parts to be guarded to prevent inadvertent contact, and be operated only by a high-voltage qualified electrician. This provision would address equipment installed prior to the effective date of the proposed standard. Although installation within metallic enclosures as specified in paragraph (i) would be preferable for new equipment, the difficulty in retrofitting existing equipment would necessitate the use of the alternative safety procedure of guarding exposed parts and requiring that work be performed only by a qualified high-voltage electrician for equipment presently in use underground.

Guarding would reduce the incidence of accidental contact with energized parts, which could inflict serious injury on miners. Due to the electrical dangers involved in working with or near high-voltage energized equipment, only those who have demonstrated that they possess the necessary knowledge and skill by compliance with proposed § 75.153 should operate disconnecting devices.

The qualified electrician referred to in the previous paragraph would be required under proposed paragraph (k) to wear rubber insulating gloves rated at least 20,000 volts, which have protective coverings, such as leather, designed to prevent physical damage to the insulating material. The use of insulated sticks, fuse tongs or pullers would also be required when operating disconnecting devices with exposed energized parts. Paragraph (l) would require such equipment to be insulated and maintained to protect the qualified electrician from exposure to voltage.

Paragraph (m) is derived from existing § 75.705–7. It would require gloves, insulated sticks, fuse tongs and pullers to be examined before each use for visible signs of physical damage and defects. If damage or defects are found, these items would be required to be removed from the underground areas of the mine. Under the standard, qualified electricians would have some responsibility for ensuring their own personal safety. It would assure that they would not use and rely for their protection on damaged or defective gloves or tools. Protective items which have been rendered ineffective would not be used inadvertently by qualified electricians responsible for operating disconnecting devices if they are required to be taken out of the underground areas of the mine.

Rubber insulating gloves would have to be electrically tested at least every six months under paragraph (o), derived from existing § 75.706. Testing would involve procedures designed to locate damaged portions of the gloves which are not discernible through visual inspection alone. These provisions are intended for the protection of electricians against unnecessary exposure to life-threatening voltages by emphasizing compliance with accepted safety practices.

Section 75.511 Cable Couplers

Proposed § 75.511 would combine and clarify existing §§ 75.607, 75.803–1, 75.805, 75.902 and 75.902–1, which address requirements for cable couplers. The proposal is intended to provide more performance-oriented standards for the devices. Paragraph (a) would require cable couplers to enclose all power conductors of the circuit in which they are used. This provision would protect miners from electric shocks due to contact with exposed energized conductors.

Couplers would also have to be equipped with a metallic outer shell

when the nominal voltage of the circuit exceeds 600 volts under the proposal. A metallic outer shell would offer mechanical protection for connections, and serve to maintain a continuous grounding path for the coupler. The proposal would require that cable couplers have voltage ratings of at least the nominal voltage of the circuit, and current ratings of at least the maximum continuous current rating of the circuit in which the couplers are used. To protect against electric shocks or burns, couplers should have voltage and current ratings compatible with those of the circuits they serve.

The standard would require construction of cable couplers so that ground-check conductors or interlock circuit conductors will separate first, and equipment safety grounding conductors will separate last when the couplers are disconnected. The safety effect of this sequence would be two-fold. First, it would assure that energized phase conductors are not exposed if the coupler is mistakenly separated under load. Second, it would assure that equipment will remain grounded until after the phase conductors have been separated. In these ways the proposal would prevent electrical arcing and ignitions, and equipment grounding would be maintained while phase conductors are being separated.

Couplers would have to be equipped with an electrical or mechanical interlock on all three-phase circuits and d-c trailing cable circuits which prevents the coupler from being disconnected while energized. The voltage of interlock circuits would be limited to 40 volts on low-voltage circuits and 96 volts on high-voltage circuits under the proposal. This requirement would prevent accidental disconnection of the coupler while under load. Connecting or disconnecting cable couplers under load would be prohibited under the proposed rule. This is a restatement of existing § 75.607, intended to prevent electric shocks, flash burns and ignitions which can be caused by arcing when couplers are disconnected under load.

Paragraph (b) of the proposal is new, and would require cable couplers used on mobile battery-powered electric face equipment to either meet the approval regulations found at 30 CFR § 18.41, or be held in place by a threaded ring or an equivalent mechanical fastening equipped with a captive device removable only by a special tool for separation of the connection. The proposed standard would clarify the Agency's existing policy concerning the use of cable couplers on mobile battery-powered electric face equipment.

Existing § 18.41(f), specifies only the use of padlocks as an alternative for interlocks or explosion-proof couplers on mobile battery-powered electric equipment. However, MSHA currently permits the use of other types of mechanical locking devices, provided they are equally as safe. The proposal would incorporate this policy by allowing the use of the alternative method described.

Section 75.512 Trolley Taps

This standard is derived from existing §§ 75.514 and 75.607, which require electric conductor connections to be mechanically and electrically efficient, and prohibit the making or breaking of cable connections to junction boxes under load. These requirements have been adapted by the proposed standard to apply to trolley tap connections. Under the proposed standard, pressure-type connectors would be required to connect trolley wires and feeder wires to trolley taps when the load of the circuit exceeds 4.0 amperes. The use of standard hook type trolley taps would not be permitted under the proposal because of their tendency to cause arcing connections and excessive heating at connections with higher loads.

Pressure-type connectors are spring-loaded devices which allow for a very tight connection between trolley taps and trolley wires. Hook-type connectors do not mechanically apply pressure to the connection. The looser connection allows for heating and arcing, which could pose the risks of fire or shock to miners. Requiring pressure-type connectors could prevent these occurrences.

Loads of less than four amperes typically serve lighting circuits. Experience indicates that such loads would be provided with adequate conductivity at the power connection to the trolley wire or trolley feeder wire by use of hook-type connectors, presently used for this purpose. A four-ampere cut-off point would have the effect of excluding all motor loads from the ability to use hook-type connectors, but it would eliminate the need for specially-designed connectors for lighting circuits in and around belt drives, for example.

The proposal would not permit connection or disconnection of trolley taps under load. Such a practice would expose miners to unnecessary risk of serious injury from electrical arcing and ignitions. The proposal would ensure that safe work practices are employed to eliminate the hazards when connecting or disconnecting trolley taps.

Section 75.513 Lightning Protection

This proposed standard is derived from existing § 75.521, which requires lightning arresters for exposed ungrounded power conductors and telephone wires extending underground to prevent electric shocks and fires. Paragraph (a) of the proposal would incorporate the existing standard, but the term "surge arresters" would now be used. Surge arresters are defined by proposed § 75.2(j) as devices used to provide protection against lightning surges. They are designed to prevent lightning strikes on the surface from being transmitted to the mine power system and energizing equipment frames.

Paragraph (b) contains new provisions which would no longer require lightning arresters to be installed on power conductors and telephone wires, provided they are buried, installed beneath a protective metallic covering, or enclosed within grounded metallic shields, coverings, or enclosures throughout their entire length. These types of conductors would be, in MSHA's view, sufficiently protected against transmittal of dangerous voltages caused by surface electrical lightning surges. The proposed change would eliminate the need to cut into cables solely to install surge arresters. Thus, miners would not be exposed to the hazards involved in the process, which would not enhance the circuit's electrical protection. Some commenters to the preproposal draft objected to a requirement of surge arresters at particular locations, based on the difficulty of installation in some cases. The proposal would address such concerns by offering an alternative means of compliance under paragraph (b).

Paragraph (c) of the proposal would more clearly describe the proper surface locations for surge arresters than does the existing standard. On the surface, they would be required to be located within 100 feet of where the conductors enter the mine, are buried, installed beneath a protective metallic covering, or enclosed within grounded metallic shields, coverings or enclosures, or are supported by grounded metallic messenger wires.

Although the location of a lightning strike can clearly not be controlled, a 100-foot distance would limit the distance in which lightning could strike in by a lightning arrester, which could permit a voltage surge to be transmitted underground and cause energization of

equipment frames. Lightning strikes outby the arrester would cause excess voltage to be transmitted to ground.

Paragraph (d) would clarify the existing requirement at § 75.521 for the use of "suitable lightning arresters of approved type." The proposal would instead require that surge arresters be rated for the maximum voltage and current of the circuits they protect. Existing § 75.521 contains no such requirement. The change in the wording of the standard would make it more performance-oriented, clarifying that surge arresters should be compatible with the circuits they protect. Lightning surges would be prevented from causing excess voltages on power conductors which can be transmitted underground and energize equipment frames.

Paragraph (e) of the proposed rule would retain the existing requirement at § 75.521 that surge arresters extending underground be connected to a low-resistance ground field that is separated by at least 25 feet from neutral ground fields. This would separate the underground grounding circuit from the surface distribution grounding circuit, thereby reducing the likelihood of a lightning surge being transmitted underground from the surface power system.

Section 75.514 Lighting Fixtures and Photographic Lighting Equipment

Proposed § 75.514 would replace existing § 75.522–1, which contains standards for incandescent lighting used underground where non-permissible equipment may be used. Agency approval is presently required under existing regulations for all devices used for the purpose of lighting the areas of underground coal mines. The proposal would no longer require submittal to a lengthy approval process for lighting devices used in areas where permissible equipment is not required, because the hazards to miners outby face areas are such that prior approval of the equipment is not a necessity, in MSHA's view. The Agency believes that the proposed lighting standards will provide protection equivalent to that under existing standards.

Lighting equipment used in areas where permissible equipment is required currently must be approved under part 18. Proposed § 75.502 would still require such equipment to be permissible. This proposed standard would set installation requirements for lighting devices used only in outby areas, and would offer more flexibility in underground lighting by not restricting lamps to either incandescent or fluorescent types.

Paragraph (a) of the proposal would require lamps used to illuminate slopes and enclosed underground structures to be installed within glass, plastic or equivalent enclosures. The hazard addressed by the standard is breakage of glass and exposure of energized lighting conductors resulting from such damage. This condition gives rise to shock, short-circuit and ignition hazards. Equipment and materials that could damage the lighting fixture are often transported through slope areas of the mine. In addition, enclosed underground structures typically have limited clearance area. The possibility of equipment or persons damaging lighting fixtures and coming in contact with the exposed parts is therefore greater in these areas of the mine.

Under paragraph (b), incandescent lamps used to illuminate walkways and work areas would have to be contained in glass, plastic or equivalent enclosures, or installed within weatherproof sockets. If incandescent lamps are installed in weatherproof sockets, the proposal would require them to be located at least eight feet vertically and three feet horizontally from walkways and work areas. These provisions would assure that miners will not be shocked by contact with lighting devices. Further, the enclosures described would not allow combustible materials or water to contact energized lighting circuits and cause short-circuits or ignitions. The proposal allows the option of using weatherproof sockets in walkways since locating them eight feet above the walkway would provide equivalent protection by location.

For compliance with paragraphs (a) and (b), MSHA would consider any material similar in durability and capable of providing adequate protection against contact by persons, materials or the environment to be equivalent to glass or plastic. By allowing such an alternative, the proposal would not prevent the use of effective enclosure materials which may be developed in the future.

Paragraph (c) would require incandescent lamps located in areas other than those specified in paragraphs (a) and (b) to be installed in weatherproof sockets or within glass, plastic or equivalent enclosures. These provisions would also ensure that miners will not inadvertently contact the energized filaments of broken lighting devices and that lamps would not be able to contact and ignite combustible materials underground. Weatherproof sockets or the specified enclosures would assure that wet mining conditions will not cause short-circuits of lighting fixtures.

Paragraph (d) would reduce the risk of underground mine fires by prohibiting lamps from coming into contact with combustible materials. Except as provided in paragraphs (b)(2) and (c) of the standard, lamps would have to be enclosed within glass, plastic or equivalent enclosures to prevent such contact. Paragraph (e) is new, and would prohibit the use of low-pressure sodium lamps underground. This type of lamp typically contains enough sodium to cause a fire or explosion if the chemical should come in contact with coal dust in the presence of water. Therefore, low-pressure sodium lamps would not be suitable for use underground.

Paragraph (f) would set new provisions for the use of nonpermissible electronic photographic equipment in areas where permissible equipment is required, provided certain safety precautions are taken. Electronic photographic equipment could be used if the area is ventilated with air that has not been used to ventilate coal cutting or loading operations, which contains less than 1.0 percent methane. Air which has not ventilated coal cutting or loading operations would typically contain lower concentrations of methane, and thus, less risk of fire would be present. The equipment could only be used under supervision of a certified person, as defined in existing § 75.2(a), who would be required to test for methane before and during the operation.

The proposed rule would allow the use of photographic equipment underground under controlled conditions. This equipment would be permitted in face areas of underground coal mines provided proper safety measures are followed. Underground photography has been a particularly beneficial tool for operators and the Agency in investigating the causes of mine accidents and preparing training materials intended to avoid such accidents, and this provision would facilitate its use.

Section 75.515 Insulation of Electric Conductors and Cables

This section is derived from existing §§ 75.517, 75.517–1, and 75.804. The proposed standard is intended to simplify interpretation of current standards, although there is little substantive difference between the requirements of the existing and proposed rules. Existing § 75.517–2 would be deleted under the proposal, as it contains compliance dates which would no longer be applicable.

Paragraph (a) of the proposed rule would require insulation having a voltage rating of at least the nominal voltage of the circuit on electric power, control, ground-check, interlock and communication conductors and cables. Properly rated insulation would guard against dangerous eventualities such as short-circuits, flash burns and electrocutions. At least two fatalities have occurred since 1970 because the victims contacted cable whose insulation was inappropriate for the cable's voltage.

Trolley wires and trolley feeder wires installed with mine track, grounded power conductors of d-c feeder systems, equipment and system grounding conductors, and bare signal wires of less than 40 volts would be excepted from the insulation requirement, because of the nature of their uses underground. Insulation of trolley wires in track entries, for instance, would render them inoperative for their intended use. The proposed rule would clarify the term "trolley feeder wires" to indicate that only those used with mine track would be excepted from the standard. Feeder wires which are located in walkways, for instance, would have to be insulated under the proposed rule to protect miners from contacting energized conductors.

Equipment and safety grounding conductors would also be excepted from the insulation requirement under the proposal, since they present little or no shock hazard to miners. MSHA experience indicates that bare signal wires of less than 40 volts would not compromise miner safety as such circuits typically have very low energy levels.

Paragraph (b) is new, and would require exposed electric connections and resistor grids to be insulated. When insulation would be impractical, they would be required to be guarded to prevent inadvertent contact by persons or equipment. This provision would allow compliance alternatives of equal effectiveness for the protection of miners.

Section 75.516 Mechanical Protection of Conductors and Cables

This section would clarify §§ 75.516–2, 75.5l7, and 75.606. Electric conductors and cables, and communication wires and cables would be required to be protected against damage to the outer jacket and insulation. These types of cables and conductors are subjected to heavy use and rough treatment underground. They can be damaged when run over by large equipment, by rubbing against coal ribs or floor, or by wear and tear due to excessive use. This type of mechanical damage, if undiscovered, places miners at risk of injury while handling cables. The term "functional damage" means any damage which would defeat the jacket or insulation's ability to perform its protective function. Scuffing or marking of the outer jacket which does not affect the function of the jacket would not be cited under the proposal.

Existing § 75.606 requires that trailing cables be adequately protected to prevent damage by mobile electric equipment. The proposal would expand this requirement by specifying means for providing trailing cables with protection from damage by mobile electric equipment, by bridges, trenches, suspension from the mine roof, or rib or by location. These are the methods that the Agency would consider appropriate for protecting trailing cables from equipment passing over or under the cables.

The proposal would call for a bridge, trench or suspension device to be built or installed for protection of a trailing cable or for the cable to be located where it would not be exposed to damage by mobile electric equipment. The adequacy of the protection supplied by the bridge, trench, suspension device or location would be measured by how well it protected the trailing cable from physical damage. For example, where a trailing cable is located in a trench, but has been damaged by mobile electric equipment running over the trench, an MSHA inspector might conclude that there was a violation, despite use of a trench, since damage to the cable had not been prevented.

Contact with bare wires on damaged insulated conductors and cables could result in fatal electric shocks to miners. Exposed wires can also represent an ignition source for methane and coal dust. This clarified standard for the physical protection of conductors, cables, wires and trailing cables could prevent such hazards to miners.

Section 75.517 Support of Insulated Conductors and Cables

This section of the proposal is derived from existing §§ 75.516, 75.516–1, and 75.516–2, and would set requirements for the support of insulated conductors and cables. Paragraph (a) would require insulated electric conductors and cables to be installed on insulators or insulated J-hooks. The proposal would no longer limit the use of insulated J-hooks to a six-month temporary period, as does the current regulation. Insulated J-hooks would be permitted to support insulated conductors and cables under the proposal because those having appropriate dielectric and tensile strengths have been demonstrated to be excellent insulators for the protection of insulated conductors and cables.

Contact by insulated conductors and cables with combustible materials, roof, or ribs would be prohibited under the proposal, as in the existing regulations. Such contact represents a fire hazard, should the conductor's insulation become overheated or damaged. However, trailing cables, metallic shielded cables, conductors installed in conduits, equipment and system grounding conductors, and grounded power conductors on d-c feeder circuits would be excepted from the proposed support requirements. These types of conductors are designed to withstand stress and physical damage, therefore eliminating the need for the protection offered by insulators and insulated J-hooks. Conductors in conduits would be included in the excepted class because conduit provides adequate protection for the conductor.

Under paragraph (b), a new provision, materials other than insulators may be used to support cables meeting the requirements of proposed § 75.601, provided they are supported from noncombustible materials. Materials used to suspend cables would be required to be flame-resistant, insulated for at least the maximum voltage of the circuit, and have a tensile strength of at least three times the weight supported. These specifications would describe suitable materials for the support of flame-resistant trailing cables, therefore offering some flexibility to operators in their choice of support methods. This provision of the proposed rule would incorporate current Agency policy on the use of support materials other than those which would be required by paragraph (a).

Paragraph (c) would require that communications circuits be installed so as not to contact light or power circuits. The effect of this provision would be to prevent energization of the communication circuit and equipment to the voltage potential of the power circuit. The risks of electric shock or electrocution would be minimized under the standard.

Paragraph (d) would require communication wires or cables installed in track entries to be located on the opposite side of the trolley wire or trolley feeder wire. Possible physical damage to the communication circuit and the passage of voltage from the trolley circuit would thereby be prevented. The exception in the existing standard for communication wires which are buried would no longer be necessary, since burying the circuit

would be an acceptable means of installation under proposed paragraph (b), provided it does not contact light or power circuits.

Section 75.518 Insulators and Insulated J-Hooks

Proposed § 75.518 is derived from existing § 75.516–1. It would set more specific requirements than does the existing standard for insulators and insulated J-hooks suitable for the support of insulated conductors and cables. Under the proposal, insulators and insulated J-hooks would be required to have flame-resistant insulating material with a dielectric strength of at least eight times the maximum voltage of the circuit. Flame-resistance and adequate dielectric strength would assure that an overheated cable would not become grounded through the insulator and cause a ground fault in the circuit.

Additionally, a new provision of the proposal would require insulators and insulated J-hooks to have a tensile strength of at least three times the supported weight. This would prevent failure of the suspension mechanism. Failure of one of the supports could cause a chain reaction failure of all of the supports which suspend a cable. Such an occurrence could allow cables to contact the mine floor or mining equipment, which could damage the cable, creating a risk of fire or electrical injury to miners. Failure of supports could also cause heavy cable to fall and strike persons working or traveling nearby. The standard would assure that cables are adequately supported in order to prevent such injuries.

Section 75.519 Splices, Repairs and Terminations of Conductors and Trailing Cables

This section is derived from standards for maintenance of conductors and cables in existing §§ 75.511, 75.514, 75.517, 75.604, 75.804, 75.810 and 75.906. The proposal would consolidate and clarify existing requirements for splices, repairs and terminations and establish procedures for making acceptable repairs and splices in trailing cables and shielded cable. It would clarify existing standards to promote proper repair and splicing of low-voltage cables to maintain the integrity of all components within a cable, and to retain to the greatest extent possible, their original characteristics.

Under paragraph (a), high-voltage cables would be required to be spliced, terminated, or repaired by high-voltage qualified electricians. As discussed previously, the Agency feels that such persons would bring the necessary skill and knowledge to the task to assure safety. For similar reasons, paragraph (b) would require that low-voltage trailing cables be spliced, repaired or terminated by a qualified electrician or a qualified cable splicer.

Paragraph (c) of the proposal would require splices and repairs in low-voltage trailing cables to be made with splice and repair kits that meet the flame-resistance tests in existing § 18.64. Existing §§ 75.600 and 75.600–1 require that trailing cables used in underground coal mines meet the requirements for flame-resistant cables set forth in 30 CFR 18.64. The proposal would clarify the intent of the existing rule by requiring that splice and repair kits meet the flame-resistance tests in part 18.

The proposal would no longer permit the use of what are commonly called "temporary splices" in trailing cables. The *Standard Dictionary of Mining, Mineral and Related Terms* cites the Federal Coal Mine Safety Act of 1963 in defining a temporary splice as one that does not have a rubber or neoprene jacket vulcanized over the splice and bonded to the cable jacket. Presently, one temporary splice is permitted for a period of twenty-four hours in order to allow equipment served by a damaged cable to finish the shift or be moved for repairs. Such splices could be made quickly, and therefore helped to prevent costly and burdensome delays.

As noted, the proposed standard would require all low-voltage trailing cable splices to be made with splice kits. Such kits are developed to facilitate the making of splices in a quick and efficient manner. With temporary splices, the methods and types and amounts of materials used are largely up to the individual performing the work. For instance, the outer jacket is often sealed with tape in lieu of proper vulcanizing. By contrast, splice kits typically leave little room for individual differences in splicing methods. The kits contain precise instructions and materials designed to preserve the integrity of the original cable.

A review of the fatality record since 1970 reveals that at least two miners have been electrocuted as a result of contact with leakage current through temporary splices. With the use of splice kits, splices in trailing cables having adequate insulation and proper jackets can be made as easily, and in about the same time as temporary splices. Therefore, the need for temporary splices has been alleviated by advancements in splice kit technology.

Flame-resistance tests are made on assembled specimens by MSHA's Approval and Certification Center. Acceptance markings appear on the outer jacket of the repair or splice, indicating that it has passed the tests and was found to be acceptable by MSHA. This would ensure that, when the splice and repair kit was assembled in accordance with the manufacturer's instructions, the kit would have fire-resistant properties similar to those of the cable's original components. MSHA is considering proposing an approval regulation for splice and repair kits. Under such a proposal, a splice and repair kit for trailing cables would have to be approved by MSHA prior to its use in a coal mine.

Paragraph (d) would require that the outer jacket of each splice and repair in a high-voltage trailing cable be vulcanized or molded with materials that are flame-resistant in accordance with § 18.64. Under the existing regulations, splices and repairs often overlap the outer jacket of the trailing cable at each edge. This overlap, referred to as lipping, is often held down with electrical tape. The proposal would allow this practice to continue. Paragraph (e) would require splices and repairs in all other cables to be sealed to exclude moisture. Therefore, the wetness of the underground atmosphere would not cause sparking or arcing at the splice or repair site.

Under paragraph (f), only one connection point in each conductor would be permitted in a trailing cable splice. Splice kits are not designed for more than one connection point for each conductor. A potential hazard occurs when kits are utilized outside their designed use parameters. Kits are designed in order to provide the best electrical conductivity possible. Part of this design is the single connection of two severed ends of trailing cable. The introduction of more than one connection point reduces the electrical conductivity of the splice to an unacceptable level that could lead to inadequate electrical conductivity for the circuit and an eventual shock and fire hazard on the circuit and the equipment the circuit serves.

Paragraph (g) would require that terminations of shielded high-voltage cables include stress-relief on each conductor, in order to prevent unnecessary strain on and damage to the conductors capable of creating a shock hazard. Under paragraph (h), metallic shielding of single-conductor cables would be required to be connected to messenger wires and equipment safety grounding conductors at each splice and termination. Compliance with this provision would increase the likelihood of maintaining a reliable grounding circuit.

Paragraph (i) would contain performance specifications for splices and repairs. They would be required to have conductivity and current-carrying capacity sufficient to prevent insulation damage from heated conductors. This provision would require a splice or repair to match the ampacity of the rest of the cable as closely as possible, which would reduce the risk of damage to the insulation from overheating of the connection. Damaged insulation could place miners at risk of contacting energized cable components.

Severed conductors would have to be joined by welding or compression-type connectors. MSHA's experience in evaluating the reasons for trailing cable splice separation indicates that welding and compression-type connectors are the most effective and reliable. The knotting of the severed ends of conductors or other similarly inefficient means of joining conductors would result in a weaker cable which could lead to cable separation when the cable is put under tension or is otherwise stressed. The use of knotting could also cause the splice or repair to be electrically inefficient because of the incompleteness of the connection, and create a high-resistance area within the cable. This could result in overheating, arcing and sparking of the splice, causing a shock or fire hazard. The proposal would prohibit the use of such splicing methods, and require the use of tight-fitting connections, provided for by welding or compression-type connectors.

Each power, control, and ground-check conductor would have to be individually re-insulated with insulation of at least the same thickness, temperature rating, and dielectric strength as that of the original insulation. This would address the potential hazard of splice failures due to insulation deterioration caused by overheating and voltage stresses exceeding the insulation rating. Phase-to-phase and phase-to-ground short-circuits from weaker insulation would also be prevented under the provision.

Splices and repairs would be required to have semi-conducting tape replaced over the insulation of each power conductor within shielded cables. Semi-conducting tape is part of a two-part shielding system employed in the design of the cable. It is an important safety function to replace the semi-conducting tape over the power conductor insulation to ensure that the splice or repair retains the same shielding properties as the original cable.

Additionally, the proposal would require shielding in the form of metallic braid or serving (wrap), or metallic tape to be replaced over each power conductor and applied in half-lapped layers within shielded trailing cables. As discussed previously, it is critical to maintain shielding continuity in a shielded cable splice or repair. Any break in continuity of the shielding reduces its safety function. The use of metallic serving or braid would provide for durability in the trailing cable, while also providing sufficient flexibility of the replacement shielding so that it is essentially the same as the original cable.

In shielded cables other than trailing cables, metallic shielding in the form of metallic braid, or serving (wrap), or metallic tape would be required to be replaced over each power conductor and applied in half-lapped layers. The option of using tape would be permitted only for shielded cables other than trailing cables due to the increased potential for damage to trailing cables. Tape would only be effective on cables that are not subject to the constant flexing and bending of trailing cables.

Finally, the outer jacket would have to be replaced to provide at least the same thickness and protection as that of the original jacket. Therefore, the proposal would provide for the physical strength of the repaired jacket. These provisions would serve to preserve as nearly as possible, the physical and electrical characteristics of the original cable in making splices and repairs. Therefore, the likelihood of electrical arcing or heating at the connection points would be reduced.

Section 75.520 Conductor and Cable Fittings and Strain Relief Devices

This standard is derived in part from existing §§ 75.515 and 75.605, which require suitable fittings where cables enter the metal frames of motors, splice boxes, and electric compartments. The proposed rule embodies few changes from the existing rules. Paragraph (a) would require cables to enter metallic frames of electric enclosures through fittings sized for the cables, and which prevent damage to cable jackets and the insulation of the internal conductors. Permissible equipment would be covered by the applicable approval regulations. The standard would lead to secure fittings which would cause minimal strain on and damage to the connections.

Under paragraph (b), conductors would be required to enter metallic frames of enclosures through fittings with insulated bushings sized for the conductors. The term "electric enclosures" would encompass those types of compartments specified in existing § 75.515. Insulated bushings would offer physical protection for conductors to assure that secure or tight fittings will not damage them and create a shock hazard.

Paragraph (c) would embody an exception to the previous two provisions. Cables and conductors in conduit entering metallic frames of electric enclosures would not have to be equipped with fittings or bushings when protection against damage by sharp edges is provided. The exception is intended to offer a compliance alternative for the protection of cables and conductors. Conduit would offer added physical and mechanical protection and support where a cable enters a metallic box, and therefore eliminate the need for further protective measures. Metallic conduit would prevent the stresses an unprotected cable would be subjected to, and would also provide an efficient ground path in case of damage to the cable.

Paragraph (d) would require fittings to be installed so as to prevent mechanical strain on electrical connections. Hazards resulting from improper conductor and cable fittings include electric shock and electrocution from energized equipment frames. Since 1970, at least two fatal electrical accidents have been related to improperly installed fittings on cables entering electric compartments. By requiring fittings used where cables and insulated conductors enter electric compartments to be designed to prevent strain on electrical connections, chaffing and damage to the cable or conductor would be prevented, and the number of injuries to miners from these conditions would be reduced.

Trailing cables would have to be attached to the equipment being supplied by an insulated strain clamp or cable grip. As a matter of policy, both strain clamps and cable grips are permitted to meet the existing requirement at § 75.605. The proposal would make it clear that all trailing cables may use cable grips in lieu of strain clamps to provide this protection.

Section 75.521 Damaged Conductors and Cables

This proposed section is derived from existing §§ 75.517 and 75.603 which set requirements for protection of power wires and cables, and splices in trailing cables, respectively. The proposal would set conditions under which damaged or defective conductors and cables would have to be removed from service or repaired. Under the proposal, conductors and cables would be required to be deenergized, disconnected in accordance with

proposed § 75.506, and either removed from service or repaired when the outer jacket, conductor, conductor insulation, or a splice or repair has been damaged, and when a splice or repair heats or sparks.

Maintaining conductors and cables in proper physical condition is essential to the level of safety of miners handling and working around them. Damaged outer jackets or improperly made splices, for example, could subject miners to electrical injury or electrocution. Cable damage could also provide an ignition source when energized conductors are exposed to the coal mine atmosphere. The proposed standard would address these dangers.

Section 75.522 Ampacities of Low-Voltage Conductors

This standard, derived from existing §§ 75.513 and 75.513–1, would set allowable ampacities and sizes for low-voltage conductors. Ampacity is defined by the proposal as the current-carrying capacity of electric conductors expressed in amperes. The proposed standard would consolidate ampacity regulations for conductors supplying a single motor, two or more motors, battery chargers, welders, lighting fixtures, heaters, transformers and rectifiers, multiple loads and other equipment. The standard would not apply to conductor ampacities for permissible equipment, which are specified in the appropriate approval regulations.

The proposal represents some change from the existing rules. References to the 1968 edition of the NEC, which, according to comments to the preproposal draft made interpretation cumbersome, would be deleted. The proposed rule and accompanying ampacity tables would provide operators with the information necessary to select the proper conductors to safely serve electric equipment.

Under paragraph (a), electric conductors would be required to be of a size and current-carrying capacity to assure that a rise in temperature resulting from normal operating conditions does not damage the insulation and conductors. Such damage could expose persons to electric shock, electrocution, or fire hazards. Therefore, conductor sizes and ampacities should be compatible with the voltage and current levels used in the circuit.

In paragraph (b), the required ampacities of conductors supplying a single motor would be at least 125 percent of the maximum full-load current of the motor. Paragraph (c) would set the ampacity of feeder conductors which supply one or more loads to be at least the sum of the full-load currents of all the motors plus 25 percent of the highest full-load current of the largest motor.

Paragraph (d) would require the size of conductors specified in paragraphs (a) through (c) to conform with ampacity Tables F–1 through F–4, which would accompany the standard. The tables list minimum sizes of conductors for flexible cords rated 300 and 600 volts, portable power cables rated 2,000 volts or less, and conductors other than flexible cords or portable cables rated 2,000 volts or less. The tables are based on information derived from the NEC and the Insulated Cable Engineers Association (ICEA), accepted by electrical engineers as reliable resource materials containing safe industry standards.

Section 75.523 Overcurrent Protection

This section would address overcurrent protection for electric circuits and equipment with circuit breakers, fuses or other automatic circuit interrupting devices. Overcurrent protection for high-voltage trolley circuits, trailing cables, and permissible equipment would not be addressed by the standard. Standards specifically applicable to these circuits and equipment are contained in MSHA's approval regulations in part 18 and other subparts of the proposed electrical standards. Therefore, § 75.524 would only apply to equipment and circuits which are not specifically addressed elsewhere in MSHA's rules.

Performance requirements for overcurrent protective devices would be spelled out in the proposed rule, based on references to the ratings tables accompanying the proposal. The standard and tables would replace existing §§ 75.518 and 75.518–1, which refer to the 1968 edition of the NEC for information governing overcurrent protection. The tables accompanying the proposal would codify overcurrent protection requirements, and eliminate the need for reference to the code. They are based on accepted safety standards, as well as information taken from the NEC.

Paragraph (a) of the proposed rule would require all electric circuits and equipment to be protected against overcurrents by circuit breakers, fuses, or other automatic circuit interrupting devices which meet the proposed requirements, except as otherwise provided in MSHA's regulations. The overcurrent protection provisions and the tables specifying ratings and settings for protective devices would assure proper deenergization of circuits and equipment in the event of overcurrent conditions. Arcing and conductor overheating, and the resulting hazards to miners such as fires and electric shock would thereby be prevented.

Under paragraph (b), overload devices would be required to be installed in each ungrounded conductor supplying motors. They would have to be rated or set as specified in Table F–5, detailing maximum ratings or settings of motor overload protective devices, and cause deenergization of all ungrounded power conductors of three-phase motors when any phase is overloaded. This would assure that overcurrent conditions are not transmitted to all phases.

Paragraph (c) would require circuit breakers to be installed to provide short-circuit protection for branch circuits supplying three-phase motors, and rated or set as specified in Table F–6. The reference table would list maximum ratings or settings for circuit breakers providing short-circuit protection for motor branch circuits and devices supplying power to three-phase motors.

Under paragraph (d), circuit breakers or fuses would be required to be installed to provide short-circuit protection for branch circuits supplying single-phase and d-c motors. They would have to be rated or set in accordance with proposed Table F–7. This table would set maximum ratings or settings of circuit overcurrent protection devices for single-phase motors and direct-current motors.

Paragraph (e) would require that where a setting specified in Table F–6 is insufficient for the starting current of a-c motors, the setting of a circuit breaker may be increased. However, the setting would be required to be 1300 percent or less than the motor's full-load current on instantaneous-trip circuit breakers, and 400 percent of the motor's full-load current for inverse-time circuit breakers.

Paragraph (f) would require overcurrent protection in the form of either circuit breakers or fuses for motor feeder circuits, transformers, and welders in accordance with Table F–8. Under paragraph (g), circuit breakers or fuses with ratings or settings not to exceed the full-load current ratings of the equipment would be required for the protection of all circuits and equipment not specified in paragraphs (b) through (f) of the section. Under paragraph (h), all supply conductors, control circuit conductors, lighting current conductors and those not specifically addressed in the previous paragraphs would be required to be protected in accordance with their ampacity.

Under paragraph (i), overcurrent protection would not be required on incandescent lamps supplied from d-c systems, provided the length of ungrounded conductors does not exceed eight feet. MSHA experience demonstrates that a requirement for overcurrent protection in these circumstances would not be justified since the design of incandescent bulbs is such that their filaments will fuse during an overcurrent situation. An eight-foot limitation would decrease the likelihood of the ungrounded conductor contacting the mine track. The higher resistance of a much longer conductor could cause it to overheat in such a situation, posing a fire hazard to miners.

Paragraph (j) would provide that when the required rating of a fuse or circuit breaker without an adjustable-trip unit does not correspond to a standard rating for fuses or circuit breakers, the protective device used would not be permitted to exceed the next higher standard rating. In such cases, the Agency would permit the use of a lower standard rating, or the next higher standard rating.

Circuit breakers or fuses providing short-circuit protection would be required, under paragraph (k), to be installed where the circuit conductors are connected to the supply. However, feeder tap conductors which are 25 feet or less in length, have ampacities of at least one-third of the ampacity of the feeder conductors, and terminate at a circuit breaker or fuse with current ratings that do not exceed the ampacity of the feeder tap conductors, would not have to meet the requirements of this provision. The 25-foot requirement is consistent with national standards, which recognize that a longer length could unnecessarily increase the resistance in the circuit. The proposal would limit the resistance in the circuit to a value that would allow adequate fault current to flow through the system, thereby allowing the system overcurrent protection to properly operate.

Section 75.524 General Requirements for Overcurrent Devices

This proposed section is also derived from §§ 75.518 and 75.518–1, and would contain general performance standards and specifications for overcurrent devices. Under paragraph (a), connection of fuses, circuit breakers, or a combination of both in parallel would be prohibited. This would ensure that the integrity of the protective device is maintained, and that ratings for protective overcurrent devices are used which will not cause damage to the circuit. The design of fuses and circuit breakers currently employed in the industry requires full-line current for the devices to accurately operate within their parameters.

Paragraphs (b) and (c) would require fuses and circuit breakers to have voltage ratings of at least the maximum voltage, and a continuous current rating of at least the maximum full-load current of the circuit being protected. This would assure that overcurrent devices would be effective for the protection of the circuits they serve by requiring compatibility of voltage and current ratings.

Under paragraph (d), fuses and circuit breakers would be required to have interrupting current ratings of at least the maximum fault current available at the fuse or breaker. Under this provision, the protective device would be able to clear a faulted condition without damage to itself. Therefore, the effectiveness of the protective device would be preserved, and miners would be protected from electrical hazards caused by undetected overcurrents in a circuit.

Paragraph (e) would require circuit breakers to be installed so that the "up" position of the handle indicates the "on" position. The effect of this provision would be to provide a consistent indication of when the circuit breaker is operating. Without this provision, the on position for two circuit breakers in one mine could be indicated by different directional positions. In the dark and dusty atmosphere of underground coal mines, this could easily lead to mistakes. A similar situation is presented by a standard light switch in a typical home, where the up position indicates on and the down position indicates off. These standard positions help to prevent the homeowner from changing a bulb in a live socket, for instance. Similarly, the proposed standard would minimize the risk of a miner mistakenly energizing or failing to deenergize the circuit due to confusion over the appropriate position of the circuit breaker handle.

Paragraph (f) of the proposal would prohibit automatic reclosure of circuit breakers after tripping operations, except as provided in proposed § 75.1006. Therefore, circuit breakers would remain in the open position with the circuit remaining deenergized until manually reset. Unlike surface utility lines, in which changing environmental conditions can cause and clear fault conditions, faults in an underground electric circuit will not normally clear themselves because they typically occur due to persistent fault conditions. The proposal would assure that a malfunction in the electric circuit will not persist and cause repetitive tripping of the breaker, which could represent a fire and shock hazard underground. Additionally, it would assist rescue operations if the breaker has been tripped due to a miner coming in contact with an energized component of the circuit. Automatic reclosure of the circuit breaker would allow reenergization of the circuit before rescue could be attempted, placing rescuers in danger as well.

Under paragraph (g), thermal cutouts, thermal relays, and other devices used for overload protection of motor circuits would be prohibited for use as protection against short-circuits unless they are designed for that purpose. Such devices are not normally designed to clear a short-circuit condition due to the high fault currents that could occur in a circuit.

A fuse or overcurrent trip device of a circuit breaker would be required, under paragraph (h), to be connected in series with each ungrounded power conductor. Connection in series would assure that the total current is measured in the circuit in order to evaluate whether an overcurrent is present. This would protect miners by not allowing overcurrents to go undetected, which can cause damage to cable insulation from overheating, and resultant injury to miners contacting the cable. A combination of a current transformer and relay used as an overcurrent trip device would be excepted from the proposed standard because it is designed to measure the amount of current in a circuit. Therefore, the excepted combination already provides the protection which would be offered under the proposed standard.

Paragraph (i) would require overcurrent devices to be readily accessible and protected against physical damage. This provision would assure that the physical integrity of protective devices is maintained, and that they are easily reached in an emergency situation.

Paragraph (j) would prohibit the use of renewable link-type fuses for protection of low-voltage circuits and equipment. The protective function of such fuses is easily defeated. The NEC no longer references renewable link-type fuses, though it does not specifically prohibit them. Fuses are intended to open circuits under controlled conditions when an overcurrent condition occurs by breaking the circuit connection and thereby deenergizing the circuit.

Non-renewable link-type fuses are contained in a sealed casing, and the links are manufactured to assure predictability. By contrast, the links in

renewable link-type fuses can be changed or replaced. A problem which often arises is replacement of a link with heavy conductors or other inappropriate substances which will not melt and open the circuit when an overcurrent situation arises. This practice is comparable to placing a penny in a fuse to purposely or accidentally defeat the circuit tripping function of the device, which can cause serious fires and shock hazards. For these reasons, the Agency has determined that renewable link-type fuses are not reliable for use as low-voltage circuit protective devices.

Section 75.525 Identification of Circuit Breakers and Fuse Holders

This standard is derived from existing §§ 75.601, 75.809 and 75.904, and would require legible and durable markings for identification of circuit breakers, trolley taps, fuse switchboxes, and other fuse holders. Markings would be required to identify the specific unit of equipment protected. Without a means of identifying circuit breakers and fuses, and what equipment they serve, miners would be put at risk that someone will accidentally reenergize the wrong circuit and cause an unexpected start-up of a piece of equipment, for example.

Section 75.526 Nameplates and Markings

This proposed standard is new, and would require nameplates or other durable markings indicating the manufacturer's name and the rated voltage and current of motors, transformers and circuit breakers. The proposal would provide for greater familiarity with the equipment, the size and type of overcurrent protection required, and other details which would assist in maintenance of the equipment and proper sizing of conductors. The majority of the specified equipment presently in use in underground mines is sold with such nameplates attached. If a nameplate is damaged or dislodged from the machine, it would be a fairly simple matter for the mine operator to order a replacement plate from the manufacturer.

Section 75.527 Map of the Mine Electrical System

This proposed rule would require that a map of a mine's electrical system be maintained and be made available to representatives of miners and authorized representatives of the Secretary. The proposal is derived from existing §§ 75.508, 75.508–1 and 75.508–2, which require a map showing the location and electrical rating of all stationary electric apparatus in connection with the mine electrical system, and the location and details concerning mine trolley tracks when used in a mine.

Although the existing regulations would be altered by the proposed rule, MSHA believes that the same or a higher level of safety would be maintained under it. Unlike the existing standards, the proposal would specify the circuits and equipment covered, require inclusion on the map of information enabling evaluation of protection devices for trolley circuits, and extend the time period for updating the map.

Paragraph (a) of the proposed rule would require that a mine electrical system map be maintained and made available to authorized representatives of the Secretary and representatives of miners. The map would be required to show the size and location of circuit breakers, fuses, transformers, cables, rectifiers, switchgear, and disconnecting devices of high-voltage systems. The size and location of stationary equipment operated by 10 horsepower or larger motors, and trolley wires, trolley feeder wires and return feeder wires would have to be reflected on the map.

Trolley system information would be required, including size and location of track rails used as power conductors, with a notation as to whether one or both rails are bonded or welded at every joint, size, location and setting of d-c circuit breakers protecting trolley circuits, and the location of cutouts and deadblocks installed in trolley circuits. A map of a coal mine's electrical system is required so that all persons at the mine will be able to determine the location of the permanent equipment and circuits there. This is essential information, since the safety of miners may depend on the ability to identify and quickly locate the switches, circuits or equipment that should be deenergized during an emergency situation or maintenance operations.

Paragraph (b) of the proposal would allow up to five working days to reflect changes to the map after the affected circuit or equipment is reenergized and returned to service. The present regulations require changes in the electrical system to be reflected on the map by the end of the next working day. The proposed standard would address comments to the preproposal draft that five days is a more reasonable time period in which to accurately reflect electrical system changes on the map.

One of the most common changes in an underground electrical system is the extension of the trolley system. Many of the installations required to be shown on the mine map are permanent structures, which are rarely moved. Power centers serving stationary equipment, for example, would not normally be moved with any frequency. Therefore, the majority of the installations shown on the map would not be significantly affected by the proposed time extension. In MSHA's view, an extension of the compliance time to five days would not result in a decrease in safety for miners. A more detailed and accurate reflection of changes, such as the extension of a trolley system, could be made under the proposal than under the present standard.

Section 75.528 Alternating-Current Battery Chargers for Mining Vehicles

This proposed section would be new, and would set requirements for a-c battery chargers to enhance miner safety by helping to prevent electric shock and electrocution hazards. Under the proposal, a-c battery chargers for mining vehicles installed on or after the rule's effective date would be required to have a two-winding transformer which electrically isolates the battery charging circuit from the a-c supply circuit, and a control circuit with a maximum voltage not exceeding 150 volts.

Electrostatic, or "Faraday," shields would also be required between the secondary and primary windings when the battery charger is supplied from a circuit having a voltage greater than 150 volts. Shields would be required to be constructed of aluminum or copper, connected to the battery charger frame, and have a cross sectional area consistent with proposed § 75.714(c). A transformer fault can transfer the voltage of the primary or incoming circuit to the lower voltage secondary or outgoing circuit. This, in turn, could cause energization of the frame of the equipment being charged. Metallic Faraday shields would allow current to trip the circuit breaker if a fault occurs in the transformer.

For example, a breakdown of the insulation between a typical 480-volt primary winding and a 220-volt secondary winding could cause transmittal of the higher voltage to the secondary circuit. A grounded, metallic shield between the windings would prevent such a transfer of voltage and energization of the equipment frame. Since 1970, at least two fatal accidents have occurred as a result of short-circuits between primary and secondary windings of battery charger transformers. Several fatalities are also attributable to contact with frames of

control switches or bare control wires energized at voltages in excess of 150 volts. The proposed rule would help to prevent similar accidents in the future.

Only a-c battery chargers installed after the effective date of the proposed rule would be addressed by it. Battery chargers typically have a short service life underground, and therefore must be replaced with some frequency. Thus, as battery chargers are replaced over the next few years, all of the equipment should achieve compliance with the proposed standard. Additionally, retrofitting such equipment would be extremely difficult. Therefore, a delayed effective date which would cause the rule to apply only to new equipment would be appropriate.

Section 75.529 Emergency Deenergization Devices for Mobile Electric Equipment

This proposed standard would consolidate the requirements of existing §§ 75.523, 75.523–1 and 75.523–2, which set standards for automatic deenergization devices, commonly referred to as "panic bars." Panic bars are devices capable of quickly deenergizing the tramming motors of mobile electric face equipment in an emergency. Like the present standards, proposed § 75.529 would set performance requirements for deenergization devices, detailing proper placement and operational requirements, as well as MSHA acceptance procedures for alternative safety devices.

Paragraph (a) of the proposal would require devices capable of quickly deenergizing the tramming motors on underground mobile electric face equipment. Emergency deenergization devices consisting of an electro-mechanical stop switch and an actuating bar extending a sufficient distance in each direction from the stop switch would be required at each location from which the equipment can be operated. The effect of this provision would be to require a panic bar at every position on the equipment from which it can be operated or moved. Therefore, the operator of mobile electric equipment should be within reach of the deenergization device at all times.

On battery-powered articulated equipment, which normally place the operator at a 90-degree angle from the direction of travel, panic bars and emergency stop switches would be required on both sides of the operators' compartments. This proposal is consistent with MSHA policy addressing the implementation of existing § 75.523–2, and would provide operators of articulated equipment with the ability to quickly deenergize the tramming motors without having to alter position. MSHA's experience indicates that problems associated with impairment of vision and movement of those operating such equipment make it necessary to locate a means of actuating the stop switch on both sides of the equipment operator. This proposal would help prevent an equipment operator from being pinned, crushed, or rolled between the ribs, roof or other obstruction and the machine being operated.

When the equipment can be trammed from a location other than the operator's compartment, the proposal would require installation of actuating bars so that it is located between the operator and the machine at all times it is being trammed. This provision would assure that the deenergization device is readily accessible to equipment operators in case of emergency.

The proposal would retain the existing requirement that the actuating bar be capable of operating the electro-mechanical stop switch when it is moved a distance not to exceed two inches, by a force of fifteen pounds or less. MSHA recognizes that some resistance in the movement of the actuating bar is necessary to prevent unintentional actuation. However, the Agency believes that maximum limits are necessary to assure that panic bars are capable of easy actuation, by exertion of minimal force by the operator.

Panic bars would also be required to be installed so as not to interfere with the normal operation of the equipment. These performance criteria would assure that emergency deenergization devices are easily accessible in emergency circumstances at all locations from which equipment may be operated. Panic bars could be activated to stop the tramming of heavy equipment through use of minimum force, yet would be required to present no interference with other equipment controls. The proposal would reduce the risks of being pinned or crushed to miners working on such equipment.

Paragraph (b) would retain the existing exception from the panic bar requirement for mobile electric face equipment that is equipped with a substantially constructed cab which meets the requirements of part 75. According to existing § 75.1710(b)(2), a cab is a structure providing overhead and lateral protection against falls of roof, rib, and face, or rib and face rolls. Such cabs, then, are substantially designed to protect equipment operators against being crushed or pinned by heavy materials or objects. The presence of such cabs would assure that the operator would not be pinned or crushed by a collision with the rib, for example, while inside the operator's compartment.

Paragraph (c) of the proposed rule would permit the Director of Technical Support to approve other emergency deenergization devices if they would provide equivalent protection. Application for acceptance of alternative devices would be made to the Chief of MSHA's Approval and Certification Center in Triadelphia, West Virginia. This provision exists in the current standard to provide operators with the ability to utilize advancements in technology which may provide equivalent protection for miners with the approval of the Director of Technical Support.

Section 75.530 Use of Insulated Trailing Cable Handling Equipment

This section is derived in part from existing § 75.706, and would set requirements for the use of protective handling equipment while moving insulated trailing cables. Paragraph (a) is new, and would require the use of insulated hooks, tongs, slings, gloves, mitts, aprons, or other insulated personal protective equipment capable of protecting against shock when energized high-voltage and unshielded low-voltage trailing cables are moved manually. A review of the fatality and accident record since 1970 reveals that at least seven persons have been electrocuted while handling trailing cables as a result of contact with exposed conductors. Without shielding, and the protection against ground faults it provides, even a small, hard to detect opening in the power conductor insulation poses a shock hazard.

One commenter to the preproposal draft suggested that the proposed requirement for gloves during handling of trailing cables is unnecessary since other sections of the regulations require that trailing cables be maintained in a safe condition. This suggestion was not adopted in the proposal. An evaluation of the severe conditions to which trailing cables are normally exposed suggests that, even when trailing cables are properly examined and maintained, there is still the possibility that the cable could be damaged before a hazardous condition is detected. As another commenter pointed out, most of the fatal accidents previously referred to resulted from the handling of either a cable with an undetected defective splice or one with undetected damaged insulation. Furthermore, since coal mines are usually damp and wet and thereby

enhance conductivity, the potential for shock hazards associated with damaged energized trailing cables becomes even greater. Insulated handling devices would provide a significant measure of protection against such hazards.

Other commenters to the preproposal draft suggested deletion of the proposed requirement for the use of gloves during cable handling. They reasoned that if the proposal requires shielded cable, the need for insulated gloves or protective equipment would be eliminated. They stated that defects or damage in shielded cable would usually provide enough grounding current to deenergize the circuit so that the extra protection of insulated gloves or a similar protective device would be unnecessary. The proposal does not delete the requirement for protective devices, but would not require their use when handling low-voltage trailing cables that are shielded. In addition, to promote regulatory flexibility, the proposal adopts the suggestion of one commenter to allow equally safe alternative protective devices to be used, such as insulated hooks, tongs, etc. The Agency solicits comments on the benefits of retaining this requirement for persons handling high-voltage cables that are shielded.

Paragraph (b) would require that insulating equipment be rated for at least the nominal voltage of the circuit for low-voltage trailing cables, and for at least 20,000 volts for high-voltage trailing cables. These values would provide proper protection in light of the circuit voltages involved.

The required protective equipment would have to be examined before each use for visible signs of damage or defects, and removed from the underground area of the mine when found to be damaged or defective. Compliance with this standard would place responsibility on the user of protective equipment to inspect it for hazardous conditions. For example, a simple test commonly used to detect damage in insulating gloves is to fill them with air and observe if there is any leakage. Therefore, persons would not rely on equipment which would be ineffective for protection against shock while handling trailing cables.

Paragraph (c) would require that insulated handling equipment for use with high-voltage trailing cables be electrically tested every six months. More formal testing procedures of handling equipment would assure that minuscule, though possibly lethal damage will not go undetected.

Section 75.531 Deenergized Underground Power Circuits; Idle Days-Idle Shifts

This proposed standard would retain the existing requirements of § 75.706. It would require that power circuits underground be deenergized on idle days and idle shifts when not in use. Compliance with the standard would assure that unattended equipment remains deenergized while not in use, thereby reducing the likelihood of accidents underground. For instance, a roof fall could occur in an unattended area, causing combustible materials to contact an energized circuit and ignite. Rectifiers and transformers would be excepted from this requirement, since it is necessary for some types of equipment, such as pumps, to operate even during idle days and shifts.

Subpart G—Low-Voltage Circuits

Section 75.601 General Requirements for Trailing Cables

This section is partially new, and partially derived from the general requirements for trailing cables in existing §§ 75.600, 75.600–1, 75.701–1, 75.703–3, 75.906, and 75.907. The proposal would retain the existing requirement that trailing cables meet the flame-resistance tests of 30 CFR 18.64, and that underground trailing cable energized between 660 and 1,000 volts have metallic shielding. It would also phase in new shielding requirements over a period of three years. The shielding exception in existing § 75.907 that excludes cable on cable reels with insulation rated at 2,000 volts or more would be retained for a period of three years. The proposal would also include new performance specifications for trailing cables.

Paragraph (a) is derived from existing § 75.600, which requires that trailing cables used in coal mines meet the requirements established by the Secretary for flame-resistance, in § 75.600–1. The requirements for flame-resistance testing are set forth in 30 CFR 18.64. The proposal would combine these two rules by requiring that trailing cables be flame-resistant in accordance with 30 CFR 18.64. Presently, the Agency evaluates representative samples of trailing cables to ensure that the cables meet the flame-resistance tests, and the Agency would continue to evaluate samples of new trailing cable for this purpose under the proposal.

Paragraph (b) is new, and would require that the grounding conductors in shielded trailing cables be bare. Bare grounding conductors are recommended by ICEA standards. Additionally, few shielded cables being used in the industry are manufactured with insulated grounding conductors. The design of shielded trailing cables places the grounding conductor in direct contact with the shielding. The safety advantages of having the shielding and the bare grounding conductors in direct contact along the length of the cable is that the contact creates an enhanced ground path which ensures tripping reliability.

Bare grounding conductors are sized to carry ground fault currents effectively, whereas shielding is not. However, since they are in continuous contact, the safety provided by the shielding is enhanced by the current carrying properties of the bare grounding conductors. Consequently, even if the shielding is severed, it could still be effectively grounded for its entire length, and the grounding conductor could still carry enough grounding current from the shielding to trip the circuit breaker.

Paragraph (c) is new, and would require that ground-check conductors and interlock circuit conductors be contained in the cable and have a cross-sectional area equal to or greater than No. 10 AWG when the circuit power conductors are No. 10 AWG or larger, or the cross-sectional area of one circuit power conductor when the circuit power conductors are smaller than No. 10 AWG. The proposed sizing of these conductors and the proposed specification that they be located within the cable are based on ICEA standards for evaluating cable durability in the harsh environment of a coal mine. Conductors inside the trailing cables are afforded the additional mechanical protection of the shielding, the conductor insulation and the outer jacket, as well as the support and cushion of the other conductors inside the jacket.

Paragraph (d) is derived from existing § 75.906, which requires one or more grounding conductors in each trailing cable for mobile electric equipment, and existing § 75.907 which requires trailing cables energized from 661 volts to 1,000 volts phase-to-phase to have a grounding conductor. The proposal would require trailing cables to have at least one grounding conductor unless the cables supply double insulated tools or equipment, or equipment that is silicon-diode grounded. Providing a grounding conductor or other effective means of protection would prevent the energization of equipment frames and the resultant shock hazards to the miners.

MSHA has evaluated the safety features of double insulated tools and

appliances and has concluded that a grounding conductor would not be needed for such equipment. Double insulated tools are constructed with two independent and separate insulating systems. Should one system fail, the other would act as the back-up. Similarly, a trailing cable serving equipment protected by a silicon-diode system would not be required to have a grounding conductor. The diode system utilizes the grounded power conductor in the trailing cable to replace the grounding conductor, and it performs an equivalent safety function. The presence of the diode system on the frame of the equipment would allow any ground fault on the equipment to momentarily pass to the equipment and the attached diode. As the fault passes through the diode, the silicon-diode system would deenergize the circuit, thereby rendering the frame of the equipment safe.

A new provision in paragraph (e) would require that trailing cables for mobile haulage equipment have power conductors that are at least No. 6 AWG for a-c circuits, and No. 4 AWG for d-c circuits. These minimum sizes are presently required for trailing cables serving permissible equipment under 30 CFR part 18. Extending this requirement to all trailing cables would provide for physical strength in the structure of cables that would help ensure their durability in the underground coal mine environment.

Paragraph (f) is new, and would require that power conductors in trailing cables for non-haulage equipment employing cable reels be at least No. 8 AWG. This is the minimum size presently in use in the industry. Cables that are smaller than No. 8 AWG would not have suitable mechanical strength for use on cable reels because of the stress and constant flexing encountered by cables used with cable reel equipment.

Paragraph (g) is new, and would require that, one year after the effective date of the rule, trailing cables serving mobile electric equipment not employing cable reels and energized at between 150 volts phase-to-ground and 660 volts phase-to-phase (381 volts phase-to-ground) have grounded metallic shielding around each power conductor. The proposal would also require that, three years after the effective date of the rule, trailing cables energized at between 150 volts phase-to-ground and 660 volts phase-to-phase which serve mobile cable reel equipment have grounded metallic shielding around each power conductor.

The type of shielding specified in the standard is commonly referred to as SH–D cable. It is designed so that the metallic shield surrounds each power conductor individually. By contrast, SH–C cables are designed with shielding surrounding the entire conductor assembly. The proposal specifies that the shielding must be around each power conductor to address the risk of phase-to-phase faults. Cables which have shielding around the entire assembly are lighter weight, but they do not provide protection against phase-to-phase faults. Additionally, maintaining proper contact between the shielding and the grounding conductor can be problematic with the design of SH–C type cable. These problems were discussed in a paper by R.H. King and G.J. Conroy, "How to Prepare for Shielded Trailing Cables," presented at the Fifth Institute for Mine Health and Safety, Colorado School of Mines, November 1979.

The most common application of the proposal would be to three-phase equipment energized at 480 and 575 volts phase-to-phase, and single phase equipment energized at 240 volts phase-to-ground. Under present rules, trailing cables energized at voltages falling within these ranges are not required to be shielded.

The proposal would require metallic shielding to be connected to the grounding system. Such shielding would provide a low-resistance return path to ground so that phase-to-ground current will trip the ground-fault protective device required by proposed § 75.602. Therefore, a fault in the cable would cause the breaker to trip and deenergize the circuit before harming miners. If the fault current is insufficient to trip the circuit breaker, the shielding simply serves as a grounding path to conduct the current to ground instead of using a human body or mining machine as a path to ground.

Metallic cable shielding would provide an engineering safeguard for the protection of miners, which is a passive or "built-in" defense against shock and electrocution through contact with cable voltages. The Agency recognizes the advantage of engineering protection in some instances in addition to procedural safeguards that can be defeated by carelessness, mistake, lack of training or tampering. Cables which are properly shielded and maintained would not expose miners to the consequences of such human factors. The Agency has found that a reliable backup safety feature is necessary when the failure or violation of a procedural safeguard would otherwise result in the death of a miner.

These other safety features associated with preventing electrical cable-related accidents, such as ground-fault tripping and deenergization of cables before work is performed, are also included in present regulations and retained in the proposed rule. Compliance with these standards, as well as those requiring proper maintenance of electric equipment and circuits and the use of personal protective equipment are crucial to miner safety. Although perfect compliance with all of MSHA's mandatory standards and the absence of human error are desirable, due to many varying circumstances, it would be unrealistic to assume such circumstances at all times. Therefore, the elimination of as many factors contributing to electrical injuries as possible through a shielding requirement would lessen the risks to miners.

The proposal primarily addresses shock hazards, but would also address fire and ignition hazards associated with the use of trailing cables. An in-depth analysis of MSHA fatality reports revealed that a total of 21 cable-related fatalities occurring since 1970 could have been avoided through the use of metallic shielding on low-voltage trailing cables. Thirteen occurred from 1970 through 1978, while the remaining eight occurred since 1978. While diligent compliance with all existing electrical standards may have prevented some of the fatal accidents, it is not unusual for violations to exist that go unnoticed by the miners working on the section. For example, bad splices and cable damage are often difficult or impossible to detect by visual observation.

In reviewing the fatality reports of these 21 cases, the Agency determined that six could have been prevented by proper deenergization and locking and tagging out, while five others could have been prevented through proper installation and maintenance of grounding devices, existing requirements whose violations are more easily detected. Thus, MSHA estimates that ten fatalities during this 18-year period could have been avoided principally through the use of shielding.

MSHA further analyzed the types of equipment involved in the 21 fatalities and found that two-thirds involved cable reel equipment, and the remaining one-third involved machines employing drag cables. Roof bolters, shuttle cars, loading machines, continuous miners, a coal drill, a utility truck, and a bridge conveyor were involved in the accidents. In the ten-year period 1979 through 1988, eight fatal trailing cable-related accidents have occurred. Of these, six cable reel machines (three roof bolters and three shuttle cars) and two drag cable machines (a bridge conveyor and a continuous miner) were

involved. However, the last drag cable-related fatality occurred in 1980. MSHA believes this reduction may be attributable to several factors. First there has been a reduction in the use of conventional equipment, such as loaders and face drills, in favor of continuous-type mining equipment (resulting in fewer pieces of face equipment with drag cables). Furthermore, there has been a steady replacement of 480-volt continuous miners with 950-volt continuous miners, which existing rules already require to be equipped with shielded trailing cables. As a result, the number of low-voltage drag cable machines in use has decreased in recent years. This, combined with improved cable maintenance and more reliable and sensitive personal protective equipment, has resulted in some reduction in accidents on all cable equipment.

Given that these factors may have eliminated drag cable-related fatalities in recent years, the Agency solicits public comment on whether drag cables continue to present a hazard warranting metallic shielding. Are there certain uses of drag cables which may present less risk than others? Is the Agency's cost estimate of $4.4 million per year (presented in the Agency's Economic Impact and Regulatory Flexibility Analysis for the Proposed Rule for Electrical Safety in Underground Coal Mines, p. IV–9) accurate for the requirement to provide metallic shielding on all drag trailing cables? Based on the information available to the Agency, it is proposing to require metallic shielding on both drag cables and cables used on reel equipment. However, the Agency will reexamine the drag cable requirement in the final rulemaking.

Primarily, the use of shielded trailing cables would increase safety for miners required to physically handle the cables by reducing the likelihood of exposure to bare or shortcircuited energized power conductors. MSHA also conducted a preliminary analysis of 132 cable-related accident and injury reports involving mobile electric equipment occurring since 1983. Of these, 82 non-fatal accidents were identified as having occurred while employees were handling or attempting to perform maintenance on cables. The injuries included shocks and severe burns to the limbs and face areas, resulting in a combined total of 1,675 lost work days.

An unshielded trailing cable may be damaged to the point of exposing conductors, but continue to function properly. This hazardous condition will not be detected until a return path is established. The construction of unshielded cables does not provide this return path within the cable components unless the grounding conductor or power conductors come in contact with the exposed or damaged conductor when damage occurs. This would only occur if damage is extreme enough to result in mutilation or smashing of the cable. By contrast, the construction of the proposed type of shielded trailing cables provides a metallic outer covering surrounding each power conductor. A return path is provided by the shielding in a damaged cable to conduct dangerous currents to the ground-fault protective device instead of exposing personnel to contact with an energized circuit.

One of the identified fatalities occurred when an equipment operator stepped on or near an inadequately repaired area in a continuous miner trailing cable. The miner then reached for the controls of a shuttle car, and upon contacting the grounded metallic frame of the shuttle car, was exposed to the differing potential between the equipment frame and the cable voltage, 277 volts, a-c, which caused electrocution. An MSHA inspector who investigated the accident discovered that the cable appeared to be properly insulated. However, the victim was exposed to leakage current through damaged and wet cable insulation.

The shuttle car frame provided a path for current flow through the victim's body. If shielding had been present around the trailing cable power conductors, the leakage current would have been conducted to ground by the shielding, eliminating the shock hazard to the victim. The undiscovered damage to the cable may have been located if the fault current had been great enough to cause the circuit breaker to trip and deenergize the circuit before the individual contacted it.

Several of the fatalities occurred when miners mistakenly used a metallic tool to cut into an a-c trailing cable that had not been properly deenergized. The existing standards, as well as the proposal, would require circuits to be deenergized before work is begun, but human error or an erroneous assumption that the circuit has been deenergized can lead to such fatalities. For example, an individual qualified to perform mine electrical work was exposed to 277 volts, a-c when he cut into a damaged shuttle car trailing cable to make repairs. Another mine electrician had mistakenly deenergized the wrong trailing cable. In this case, despite the violation of existing procedural rules, the victim would not have been fatally injured if an additional, reliable engineering control in the form of grounded metallic shielding had been provided.

Shielded trailing cables would also reduce the likelihood of fire and ignitions in the presence of coal dust and methane by providing additional protection against conductor short circuits, and because the symmetrical construction of shielded cables reduces the occurrence of induced currents and subsequent intermachine arcing. A review of reports of dust and gas ignitions between 1983 and 1987 showed that four reported ignitions were attributable to trailing cables arcing and exploding. After reviewing this data, the Agency concluded that adequate cable shielding could have prevented these incidents.

The Agency is aware that some debate exists concerning the technical feasibility of requiring metallic shielding on low-voltage trailing cables used on cable reel equipment. In paragraphs (g) and (h), the proposed three-year phase-in schedule for shielded trailing cable serving equipment that employs cable reels is based on the Agency's review of available research and technology in this area. However, MSHA specifically solicits public comment on the technical feasibility and availability of metallic shielded cable, as well as the proposed compliance schedule.

The Agency has identified three primary areas of concern in the use of shielded cables on cable reel equipment; its ability to spool properly, increased weight, and flexibility. Improper layering of the cables resulting from poor spooling can greatly reduce the cable storage capacity on the reel and increase stresses on the cable from binding and twisting. Although the larger diameters of shielded cables will somewhat reduce the storage capacity of cable reels, this reduction should not be a significant factor if proper spooling techniques are used. Similarly, properly layered cable would not be exposed to increased stresses. It is expected that cable reel components presently in use can be modified to adequately handle the new shielded cable diameters.

Shielded cables constructed with shielding around each power conductor can weigh as much as 30 percent more than unshielded cables of the same size and design. Cable reels have been reported to experience difficulty in handling the added weight of such cables, increasing the probability of the equipment running over its own cables. This problem could be overcome by the use of higher reeling tensions.

Shielded cables are typically less flexible than unshielded cables, making them more susceptible to damage resulting from bending when used on cable reel equipment. Such damage can lessen the effectiveness of shielding and the cable's service life if appropriate coverage area is not used. Repeated reeling and the related flexing of the cables can cause metallic shielding to break or gap, losing its protective characteristics. However, research conducted on the electrical and mechanical performance of flexible shielding systems in portable trailing cables by the Anaconda Company, a major cable manufacturer, yielded encouraging results.

In Anaconda's research, two shielded cables, one with full copper braid shielding and one with cotton/copper braid shielding, were tested in a laboratory and subjected to repeated reeling and bending to simulate service conditions and accelerate the cable damage produced in a mine. A research paper by T.E. Hansen of the Anaconda Company, Wire and Cable Division, detailed the results of the testing. The paper, presented at the Tenth Annual Meeting Conference of the IEEE Industry Applications Society in 1975, concluded that:

> The performance of the cotton/copper and full copper braid shielded EP insulated cables under simulated service flexing conditions suggests both designs should retain their ground system integrity through a long service life. . . The possibility of a broken shield wire in a copper/cotton braid shield, penetrating the insulation to cause premature cable failure and a shorter service life than an unshielded cable seems remote, in agreement with a user's report that during 15 years experience, the durability of copper/cotton shielded cables was comparable to nonshielded cables in trailing cable applications. Hanson, T.E., "Performance of Flexible Shielding in Trailing Cables," Conference Record Cat. No. 75CH0999–31A, p. 5, 1975.

MSHA expects that shielded trailing cables which are able to withstand the flexing involved in normal cable reel usage can be made available within the specified compliance period.

The Bureau of Mines funded an investigation into the feasibility of using shielded cable in underground coal mines, undertaken at the Pennsylvania State University. Bureau of Mines Information Circular 8799, "Mine Power Systems Research, Trailing Cables," Contract #G0155197, R.H. King and J. Hanslovan, "Low-Voltage Shielded Cables", 1977. The investigation focused on safety effects, cost, reliability and life of shielded cables, and included laboratory testing of cable shielding. Tests were performed at the Pennsylvania State University Mine Electrical Research Laboratory in conjunction with the investigation. A flexing machine was used to simulate reeling effects, and it was found that, "No significant shield-wire breakage occurred in any of the SH–D samples; however, grounding conductors broke frequently. The shield maintained the grounding-circuit continuity when grounding conductors were damaged." Id. at 40.

The report concluded that the introduction of shielded low-voltage cables has potential for hazard reduction, and stressed the importance of adequate shielding coverage and a low-resistance contact between the shield and grounding conductor. In addressing the availability of low-voltage shielded cables, the report concluded, "Initially, a wide range of low-voltage shielded cables would not be available. Some cable manufacturers indicated that a one- to two-year tool-up period would be necessary. Others did not anticipate an extensive problem." Id. at 47.

Several mines are presently using shielded cable on cable reel equipment, other than rapid-tramming equipment such as shuttle cars, with encouraging results. The operators of four U.S. mines have voluntarily used shielded cable successfully on cable reels serving face drills, roof-bolters and cutting machines. Three of the mines are coal mines at which shielded cable has been used on all a-c equipment for several years. The largest conductor size used is #6 AWG. The mine operators have stated that usable cable lengths have not been affected by shielding at these mines.

Shielded cable has also been used voluntarily on cable reel equipment in a Wyoming trona mine for the past 27 years. The mine employs conventional mining methods which are nearly identical to those used in underground coal mines. Shielded trailing cables are used to supply roof bolters, face drills and cutting machines on up to 15 working sections at the mine.

Additionally, shielded cables have been required in other countries for many years. MSHA representatives have received information on the use of metallic shielded cables from government mining officials in Canada, the United Kingdom and Australia. In 1977, the Canadian Standards Association (CSA) first published a requirement for grounded shielding consisting of tinned copper, wire mesh or the equivalent around each power conductor in all cables operating on circuits over 125 volts in coal mines. (CSA Standard C22.5–1977, Wiring Methods, § 4.1.2.10.) The most recent edition of the Canadian standards retains the requirement. (CSA Standard M421–M85, Use of Electricity in Mines, § 6.9.3.3.) Although the CSA is a consensus standards organization, all provinces in which underground coal mining is performed currently enforce the shielding provision, according to Canadian officials.

Similarly, the Principal Electrical Inspector of Mines and Quarries in Great Britain informed MSHA that shielded trailing cables, including those serving shuttle cars and other cable reel equipment, have been required in Great Britain for approximately 15 years. MSHA was informed that the United Kingdom is at an advanced stage towards issuing new electricity regulations which retain their existing requirement for shielding of the individual conductors of trailing cables.

Both Canada and Great Britain have allowed an alternative compliance method in the form of semi-conducting shielding instead of metallic shielding. If mine operators in these countries choose the option of using semi-conducting shielding, resistance grounding with an extremely sensitive trip level must also be used. This is due to the fact that semi-conducting shielding is normally made of a rubberized or elastomeric type of material which has a higher resistance than metallic shielding. Although semi-conducting shielding is an option in Canada and Great Britain, mining officials in those countries estimate that it is seldom used by mine operators because of the difficulties encountered with its use.

The MSHA proposal would allow only the use of metallic shielding, as the Agency considers this the safest method of providing adequate protection against electric shock. Several problems may exist with the use of semi-conducting shielding. First, the sensitivity that would be required of the ground-fault protective system in order to provide adequate protection may be difficult to maintain due to nuisance tripping. Additionally, the design of semi-conducting shielding can make it more difficult to locate fault sources when the ground-fault protective device deenergizes a circuit. This is due to the elasticity and resilience of semi-conducting shielding, which can make damage less obvious. The Agency solicits comment on the feasibility and safety benefits of the use of semi-conducting shielding.

Canadian and British mining officials stated that the estimated life span of metallic shielded trailing cable used on shuttle cars ranges from four months to one year. The relatively short cable life

was explained to be due to the prohibition in both countries of the making of temporary and permanent cable splices in some cable components while underground. Due to this prohibition, a common practice is to cut damaged cable at the damaged point and to put it to use in some other capacity.

The information received from these countries indicates that the technology for providing shielding on cable reel equipment does exist and is being employed abroad. However, preliminary indications from some cable manufacturers suggest that producing the quantities and type of shielded cables that would be required under the proposal would be costly and time consuming. As a result, a period of time for development of shielded cables complying with the proposed requirements, retooling and inventory disposal must be considered. Therefore, the proposal would provide a one-year phase-in period for shielded cable on mobile electric equipment not employing cable reels, energized with a nominal a-c voltage from 150 volts phase-to-ground to 660 phase-to-phase, and a three-year phase-in for shielded cable on electric equipment employing cable reels.

The information gathered by the Agency suggests that, despite the present limited utilization of shielded cable on cable reels in this country, an effective and efficient shielded cable for this use is feasible and can be produced for widespread use in the coal mining industry. However, MSHA specifically encourages comments on the technical feasibility, benefits and costs of the proposed shielding requirement and implementation timetables so that the Agency can better evaluate the need for this requirement and its impact on the coal mining industry.

Paragraph (h) is derived from existing § 75.907, which requires medium-voltage trailing cables, energized at between 661 volts and 1,000 volts, to have grounded metallic shielding around each power conductor or over the assembly, except on equipment employing cable reels where the cable insulation is rated at 2,000 volts or more. The proposal would require that trailing cables energized with a nominal a-c voltage greater than 660 volts be provided with a grounded metallic shield around each power conductor on all equipment not employing cable reels on the effective date of the rule, since "medium voltage" trailing cables are presently required to have metallic shielding. Metallic shielding would be required for cables greater than 660 volts serving cable reel equipment three years after the effective date of the rule.

While the existing standard allows shielding around the power conductor assembly as one alternative in meeting its requirements, the proposal would no longer permit this, and instead would require that shielding be installed around each power conductor. It should be noted that cable having shielding around the entire assembly is generally not in use in the mining industry, and not readily available from cable manufacturers, although existing requirements permit its use.

The Agency believes that shielding around each power conductor (SH–D cable) is safer than shielding around the conductor assembly (SH–C cable) because of the increased protection and coverage it provides. SH–C cables do possess some advantages in weight and flexibility, but they do not provide phase-to-phase fault protection. Additionally, maintaining proper contact between the shielding and the grounding conductor can be problematic. These problems are not encountered with the use of SH–D type cables.

Paragraph (i) would require that prior to the end of the three-year phase-in period for cable reel equipment in paragraph (h), what is presently called "medium voltage" cables must be shielded. The effect of the standard is to retain the existing shielding requirement in § 75.907 until the proposed shielding requirements become effective. The difference between the proposed and existing standards is that shielding around the power conductor assembly would no longer be an optional compliance method. As discussed in connection with paragraph (h), the Agency would no longer consider this a viable alternative in meeting the shielding requirement.

Paragraph (j) is new, and would require that shielding around power conductors be applied in the form of braid or serving (wrap). Metallic braid would be required to provide at least 84 percent coverage, and metallic wire serving would have to provide at least 60 percent coverage. The Agency believes that this type of shielding, when applied according to the manufacturer's recommendations, would provide the best combination of coverage and physical durability. Tape would not be suitable for this use because it lacks the physical strength characteristics of braid and wrap. The coverage values are generally accepted and presently used in the mining industry.

A new standard at paragraph (k) would provide for a maximum limit on the length of any trailing cable, depending on the size of the cable. Table G–1 would specify trailing cable lengths. Limits on the length of trailing cables serving permissible equipment now exist in part 18. When the length of a particular cable increases, the resistance within that cable also increases. This would pose a potential electrical hazard, since an increase in length creates a corresponding decrease in available current at the end of the cable. Should a ground fault or short circuit occur in an extended length of cable, the fault currents available may be insufficient to trip protective devices and clear the fault. This could result in the occurrence of dangerous voltages on the frame of the equipment being served or in the cable, leading to shock and fire hazards.

Section 75.602 Electrical Protection for Alternating-Current Circuits

This section is derived from existing §§ 75.518, 75.601, 75.601–1, 75.602, 75.900 and 75.900–2, as applied to low-voltage a-c trailing cables and circuits. The proposal would establish requirements for overcurrent, ground-fault, and undervoltage protection, and would specify installation procedures for ground-fault current transformers. The proposal would delete the maximum allowable instantaneous circuit breaker settings for trailing cables specified in existing § 75.601–1, and would replace them with two tables that provide comprehensive settings for the types of circuit breakers used in underground coal mines. The Agency believes this would increase safety, as well as provide greater flexibility in the design and use of shortcircuit devices. Additionally, the proposal would require a test circuit for ground-fault protective devices on power centers six months after the effective date of the standard.

Paragraph (a) would consolidate and clarify existing §§ 75.601 and § 75.900. The proposal would require that trailing cables be protected against short circuits, undervoltages and ground faults by a circuit breaker of adequate interrupting capacity. Adequate interrupting capacity is defined for purposes of this proposal as the ability of a circuit breaker to safely interrupt all values of current which can occur at its location in excess of a breaker's trip setting.

Commenters expressed concern over the language of the preproposal draft. They interpreted this provision to mean that separate devices that are not an integral part of the circuit breaker would

be required to provide undervoltage and ground-fault protection. This is not the intent of the proposal. Circuit breakers with protective devices integrated into their construction that provide short-circuit and overcurrent protection would be acceptable under the proposal. The technology making this possible is reliable, especially where the voltages are lower than 1,040 volts. A single device which provides all of the protection required by the proposed standard would be acceptable.

Paragraph (b) is partially new and partially derived from existing § 75.601. The proposal would clarify the existing standard for single-phase a-c trailing cables by requiring that single-phase trailing cables energized at 150 volts or less to ground be protected against short circuits by a circuit breaker of adequate interrupting capacity. The new portion of the proposal would require the circuit breaker to also provide ground-fault protection. This would protect against the potential hazard of one of the power conductors becoming grounded, causing a possible shock or fire.

Under the proposal, fuses would not be permitted to provide ground-fault protection. A single fuse can adequately protect only one power conductor at a time, and the proposal would address the protection of all power conductors. If fuses were provided for each power conductor, and a fault occurred on one of the conductors, all of the fuses may not open, leaving one or more of the conductors energized and creating a shock hazard.

Paragraph (c) is derived from existing § 75.601–1, which requires that circuit breakers providing short-circuit protection for trailing cables be set so as not to exceed the maximum allowable instantaneous settings specified in the accompanying table. The proposal would consolidate and clarify these requirements and provide new tables that would provide greater flexibility in the use of circuit breakers protecting a-c circuits. The proposal would require that each ungrounded power conductor of a trailing cable be protected against short circuits by one of three types of circuit breakers, set in accordance with Tables G–2 and G–3, which would accompany the standard.

Circuit breakers would have to be an inverse-time circuit breaker with a maximum current rating specified in Table G–2, an instantaneous-trip circuit breaker with a maximum instantaneous setting specified in Table G–3, or a short-time delay electronic circuit breaker having a time delay not to exceed 0.1 seconds, and a maximum setting as specified in Table G–3. The Agency believes that the specified settings would provide better circuit protection than the existing settings. Inverse-time circuit breakers are not permitted under the existing rules. However, the Agency believes they would provide protection equivalent to that provided by instantaneous breakers. Commenters to the preproposal requested that more acceptable table values for maximum short-circuit protection be provided. MSHA has done this with the two new tables, and believes that the use of these tables will best serve the electrical safety needs of the coal mining industry.

Paragraph (d) is derived from existing § 75.601–1, which permits higher circuit breaker settings with the approval of an authorized representative of the Secretary. The proposal would require the District Manager to approve any such changes in writing, if technical data deem it appropriate and it would not pose a hazard to miners. This would clarify an existing Agency policy under which MSHA carefully evaluates proposed breaker setting changes before any action is taken, and then only with the consent of the District Manager.

Paragraph (e) would require overcurrent, ground-fault and undervoltage protection by circuit breakers of adequate interrupting capacity for a-c resistance-grounded three-phase circuits, a-c single-phase circuits energized at more than 150 volts-to-ground, and a-c ungrounded circuits installed in accordance with proposed § 75.701(b). The requirement that circuit breakers provide ground-fault protection is new. It would protect against the potential hazard of one of the power conductors grounding out and causing a possible shock or fire. The proposal would not allow fuses to be used for ground-fault protection or require the use of separate devices for reasons addressed in connection with proposed § 75.602(a).

Paragraph (f) of the proposal would retain and clarify existing § 75.900–2(c) by providing that when a circuit breaker is used to protect two or more branch circuits, it shall provide overcurrent protection for the smallest conductor. Compliance with the standard would ensure interruption of power whenever an overcurrent appears on any of the conductors in any branch circuit. Failure to do this could lead to overheating and damage to the conductors, resulting in shock and fire hazards.

Paragraph (g) would require overcurrent protection for low-voltage circuits in accordance with proposed section § 75.523, which contains general requirements applicable to low-voltage a-c circuits. That section is referenced here because of the importance of clarifying overcurrent protection requirements for these circuits. It should be noted that proposed § 75.523 would replace existing §§ 75.518 and 75.518–1, which incorporate by reference the 1968 edition of the NEC.

Paragraph (h) is new, and would require ground-fault devices to deenergize the faulted circuit at 40 percent or less of the maximum ground-fault current of the system. The Agency believes that this would ensure reliable tripping for a ground fault, and considers 40 percent a practical threshold value for detecting ground-fault conditions.

Paragraph (i) is also new, and would require that the ground-fault device nearest the load operate with no intentional time delay. Compliance with the standard would assure rapid deenergization of the circuit, but additional devices could be set for an intentional delay for selective tripping. However, the operating time of the device furthest from the load would be limited to one second. This would provide for a period of time in which all faults on the protected circuits must be cleared and still allow for a reasonable time delay to protect against nuisance tripping. A fault remaining on the protected circuits for more than one second would present a serious shock hazard.

Paragraph (j) is new, and would prohibit equipment safety grounding conductors from passing through or being connected in series with ground-fault current transformers. Installing ground-fault current transformers in series with an equipment safety grounding conductor would result in a failure to detect any parallel electrical path to the equipment safety grounding conductor for a ground-fault current. A similar situation occurs when equipment safety grounding conductors are passed through the ground-fault current transformers. Should a ground fault occur, devices sensing only the equipment safety grounding conductor may not be able to sense enough of the fault current to deenergize the circuit because of the parallel electrical paths. The fault current would remain on the cable and possibly on the equipment the cable serves.

Paragraph (k) is new, and would require resistance-grounded systems for trailing cables to have a test circuit, to be operated at least once each seven days, that injects a current of 50 percent or less of the maximum ground-fault current of the system, causing each circuit breaker to open. Grounding resistors and circuit breakers are the backbone safety devices of a resistance

grounded system for the prevention of fire, ignition and shock hazards. Use of a testing circuit under controlled conditions would indicate whether these devices will operate when required to do so.

Safety advantages would be gained with the use of a test circuit device in that the ground-fault device can be checked while it is still protecting the circuit, and it can be determined whether a ground-fault device needs to be replaced before an actual ground fault occurs. Since the ground-fault protective devices are passive, they do not operate until a fault exists. With a testing capability, the ability of ground-fault devices to operate if needed can be verified.

The standard would become mandatory six months after the effective date of the rule. Information available to the Agency indicates that there were 2,322 working sections in U.S. underground coal mines in 1987. Each working section represents at least one power center, which would require installation of the test circuit. MSHA is aware of existing circuitry and designs for test circuits which would comply with the proposed rule. However, based on the number of power centers involved, MSHA has estimated that a six-month phase-in of the standard is needed to allow sufficient retrofitting and installation time on all affected equipment.

Paragraph (l) is new and would require that the ground-fault current device and the circuit breaker be removed from service or repaired when the circuit breaker fails to open upon operation of the test circuit required in paragraph (k). This would ensure that both the breaker and the ground-fault devices are not used until it is determined which device is malfunctioning and that device is replaced or repaired.

Paragraph (m) is partially derived from existing § 75.900–2, which allows undervoltage devices to be circuit breakers with shunt trip or undervoltage release devices. These two options are retained in the proposal. However, it would require that when a shunt trip is used, a circuit utilizing a stored energy device must also be used to assure that the breaker will trip if the control voltage is lost. This is necessary because the shunt trip is a passive device that must be energized to trip the circuit breaker. Should power to the control circuit of the circuit breaker be lost and a fault occurs, there would be no way to trip the breaker, and the fault would remain on the circuit. A stored energy device would assure that power is retained for the device to trip the circuit breaker.

Paragraph (n) is new, and would require circuit breakers protecting multiple trailing cables operating in parallel to be interlocked so that all such trailing cables will be deenergized simultaneously. The result would be that when a unit of equipment is served by more than one trailing cable, and one of the cables is deenergized, the remaining cables would also be deenergized. This would protect against the hazard of persons mistakenly beginning work on the equipment before all trailing cables serving it have been deenergized. A shock hazard could also occur if only one breaker trips when a fault appears on the cable. The other breakers may not trip because the length of cable between their protective devices and the fault exceeds the limits of the parameters of their settings. When these breakers do not trip, the energized circuit would continue to feed the fault.

Section 75.603 Electrical Protection for Direct-Current Trailing Cables

This section would consolidate and revise the existing requirements in §§ 75.601, 75.601–1, 75.601–2, 75.601–3 and 75.900 as they apply to d-c trailing cables, and would establish some new requirements. The proposal would specify the types of circuit breakers that would be acceptable for protection of d-c trailing cables and provide more specificity as to what fuses would be allowed for short-circuit protection of ungrounded power conductors and how these fuses could be utilized.

Paragraph (a) of the proposal would consolidate and clarify existing requirements for circuit breakers and dual element fuses. It would require each ungrounded power conductor of a trailing cable to be protected against short circuits by one of three methods. It would be accompanied by revised tables that would provide greater flexibility in the application of trailing cables to d-c circuits. These tables were developed to conform to the d-c power systems presently used in underground coal mining.

The proposal would allow the use of inverse-time circuit breakers of adequate interrupting capacity, with a maximum current rating as specified in Table G–2 to protect d-c circuits. These breakers are not permitted under existing standards, but MSHA considers them as effective as the instantaneous breakers and would now allow their use. An individual fuse with a maximum current rating as specified in Table G–2 could be used under the proposal when the trailing cable is supplied from a solid-grounded system. Fuses would be inappropriate for use in conjunction with a resistance-grounded system, since they are not able to open all phases simultaneously. Also, fuses may not be sensitive enough to operate properly with resistance grounding.

Additionally, the use of an instantaneous-trip circuit breaker of adequate interrupting capacity and a maximum instantaneous setting as specified in Table G–4 would continue to be permitted under the proposal. The line-to-line instantaneous circuit breaker settings would have to be used for short-circuit protection of trailing cables supplying power to diode-grounded equipment and for those containing a separate equipment safety grounding conductor, if the circuit is provided with separate ground-fault protection. The line-to-ground values would have to be used for short-circuit and ground-fault protection of trailing cables containing a separate equipment safety grounding conductor when the circuit is not provided with separate ground-fault protection.

Paragraph (b) is derived from existing § 75.601–1, which permits an authorized representative of the Secretary to allow deviation from maximum instantaneous breaker settings when it appears justified. Since it is the Agency's policy that the District Manager carefully review and thoroughly evaluate any request to allow higher settings on breakers, MSHA has modified this requirement to conform with present policy. Under the proposal, the District Manager, and not the authorized representative, could grant permission in writing for higher breaker settings if technical data deem it appropriate and it would not pose a hazard to miners. Since fuses would be an alternative means of protecting ungrounded power conductors against short circuits under the proposal, this provision would also allow higher fuse ratings with the written permission of the District Manager.

Paragraph (c) clarifies existing § 75.601–2, which prohibits the use of fuses to provide short-circuit protection, unless specifically approved by the Secretary. The proposal would require that fuses be approved in accordance with part 28. Thus, an operator could look at the approval markings on a fuse to ascertain that it has been approved by the Secretary for use in the protection of d-c trailing cables.

Paragraph (d) is derived from existing § 75.601 which requires that when a fuse is used, it shall have adequate current interrupting capacity. The proposal would retain this rule, in effect, by requiring that fuses have a d-c voltage

rating at least equal to the maximum system voltage, and by specifying in Table G–4 the maximum current ratings allowed for use with d-c trailing cables.

Paragraph (e) is new, and would require that each trailing cable in a resistance-grounded d-c circuit be protected against ground faults by a circuit breaker that deenergizes the circuit when the ground-fault current exceeds 40 percent of the current rating of the grounding resistor. This would preclude the use of fuses in resistance-grounded systems. The 40 percent deenergization setting is conservatively within the relay setting range of 40 to 50 percent typically used by power center manufacturers.

A new provision in paragraph (f) would require trailing cables supplied from a system that has the direct neutral of the rectifier bridge supply-transformer solidly grounded to be protected against ground faults by an instantaneous-trip circuit breaker of adequate interrupting capacity that deenergizes the circuit at a current value not to exceed 50 amperes. The 50 ampere value would be sufficient to provide reliable relay operation. It is also consistent with tripping values used in other protective schemes for d-c equipment, such as the relay trip values for silicon diode grounding.

Paragraph (g) is new, and would require the ground-fault device nearest the load to operate with no intentional time delay. This would deenergize the faulted circuit as quickly as possible, thereby minimizing the potential for shock and fire hazards associated with faults. Since the proposal would only require the devices nearest the load to have no intentional time delay, other ground-fault devices protecting the circuit that feeds the circuit nearest the load could have intentional time delays, which could prevent nuisance tripping in the system.

Paragraph (h) is also new, and would prohibit equipment safety grounding conductors from passing through or being connected in series with ground-fault current transformers. If a current transformer were installed in series with or around an equipment safety grounding conductor, it would fail to detect parallel electrical paths to the equipment safety grounding conductor. Should a ground fault occur, the devices would sense only the equipment safety grounding conductor and may be unable to detect enough fault current to trip the circuit breaker.

Section 75.604 Physical Restraints for Cable Couplers

This section is derived from existing § 75.602, which requires that when two or more circuit breakers with different ratings, trip elements, or instantaneous-trip ranges are installed in the same distribution box, power center, or rectifier, a means must be provided to prevent the connection of incompatible plugs and receptacles. When there are two or more circuit breakers with dissimilar settings at the same location, there is a possibility of connecting a trailing cable to the wrong circuit breaker, which may be ineffective for protecting the cable. Dangerous overheating of the cable and resulting shock and fire hazards could occur.

The proposal would retain the existing performance standard, with some language modification for clarity. Any physical restraint which prevents the connection of a cable to a circuit breaker that is not properly rated or adjusted for that cable would be acceptable. The proposal is intended to provide flexibility in choosing compliance alternatives of equivalent safety effect.

Subpart H—Grounding

Section 75.701 Low-Voltage Alternating-Current System Grounding

This section is derived from existing §§ 75.700, 75.701, 75.704, and 75.901, and would require resistance grounding for low-voltage a-c systems, defined as those having a nominal voltage of 1,040 volts or less. Of the grounding-related fatalities in underground coal mines since 1970, approximately 80 percent involved low-voltage a-c electric equipment. The requirements in this proposed section would help to reduce the number of future fatalities in underground coal mines.

The standard would require low-voltage a-c systems extending or originating underground to be grounded by having either a direct or a derived neutral connected to the grounding medium through a grounding resistor. The effect of the provision would be to require resistance-grounding for low-voltage a-c systems extending or originating underground. A resistance-grounded system is one defined in proposed § 75.2(j) as an electrical system in which the neutral point of the transformer or generator winding is intentionally grounded through a current limiting resistor. The resistor would limit ground-fault current to a value equal to or less than the values specified by this subpart, but greater than the system capacitive charging current.

Should a phase-to-ground fault occur in a low-voltage a-c system, resistance-grounding would serve to limit the voltage which could occur on frames of equipment supplied by the system. Additionally, fire hazards would be minimized since the current flow in the resistance-grounded system would be limited to 25 amperes under proposed § 75.707.

Paragraphs (a) through (e) describe exceptions to the resistance-grounding requirement, which the Agency would consider acceptable alternative grounding methods. The list of exceptions includes solid-grounded and ungrounded systems, defined in proposed § 75.2(j) as an electrical system grounded through a connection in which no impedance has been intentionally inserted, where the short-circuit current-carrying capacity of the grounding connection is at least equal to the bolted phase-to-neutral fault current. Ungrounded systems would be defined as those without an intentionally-made connection to ground, except through potential indicating or measuring devices.

Paragraph (a) would allow the use of a solid-grounded single-phase system, provided it supplies only stationary or portable electric equipment, and has either a direct neutral or a phase conductor solidly connected to the system grounding medium, so that the phase-to-ground voltage is limited to 150 volts or less. Because of its continuous movement and use underground, mobile electric equipment is susceptible to more ground faults from damage to power conductors than are stationary and portable units. The Agency believes that resistance-grounded systems would provide the most reliable ground-fault protection for mobile electric equipment, and that solid grounding is only appropriate for the protection of electrical systems which supply stationary and portable electric equipment.

Paragraph (b) would allow the use of ungrounded low-voltage a-c systems, provided they supply only stationary equipment, have ground-fault protection which automatically deenergizes all phase conductors when any one is grounded, and have all phase conductors totally enclosed in either rigid metallic conduit, metallic armored cable, metal-clad cable, or shielded cable when the phase-to-phase voltage exceeds 150 volts. Figure H–1, which would accompany the proposal, illustrates the standard. Under the proposal, conductors with a phase-to-phase voltage of 150 volts or less would be permitted to be enclosed in non-metallic conduits or cables.

Existing § 75.901(a) provides that the Secretary may permit the underground use of ungrounded low- and medium-voltage circuits which serve stationary equipment, if the circuits are either steel

armored or installed in grounded rigid steel conduit. The proposed standard would eliminate the need to request that the Secretary permit the use of such systems, provided the installation requirements are met. Overvoltage conditions associated with ungrounded systems can diminish the useful life of cable insulation and result in machine failures more frequently than in grounded systems. Therefore, an adequate detection system used for removing ground faults is essential for the effective operation of ungrounded systems.

Effective ground-fault protection and the requirement of metallic enclosures in ungrounded systems would minimize the possibility of a fault remaining on the system and energizing the frames of electric equipment. For example, an ungrounded system would be permitted to serve a stationary bore hole pump if it has a ground-fault protection system to detect faults and automatically cause deenergization of the phase conductors, as well as having totally enclosed conductors. The standard would assure that loads are connected to the source of power and that abnormally high voltages which could injure miners will not occur on the pump's frame.

The exception in paragraph (c) would allow the use of ungrounded single-phase systems having a phase-to-phase voltage of 150 volts or less, and which originate on the secondary side of a two-winding transformer equipped with a metallic, or "Faraday," shield connected to the grounding medium. The purpose of the shield would be to isolate the low-voltage secondary winding from the primary winding in the transformer to prevent primary-to-secondary transformer faults. Shielding would protect miners from exposure to dangerous voltages due to transformer faults. Figure H–2 would illustrate the provision.

Paragraph (d) would be a new provision allowing some a-c systems to be ungrounded, provided they supply only a rectifier mounted with the source transformer or generator on a common metallic frame and have the conductors totally enclosed in either rigid metallic conduit, metallic armored cable, metal clad cable, or shielded cable when the phase-to-ground voltage exceeds 150 volts. One effect of the standard would be to allow a three-phase a-c system to supply a d-c trolley rectifier having one conductor solidly connected to the track. On a 300-volt d-c trolley system, the maximum phase-to-ground voltage of the a-c system would be less than the 150 volts-to-ground maximum specified in the proposal.

The proposal would alleviate an apparent conflict between existing §§ 75.901 and 75.701–3, and would incorporate MSHA's interpretation of those standards. Existing § 75.701–3 requires equipment receiving power from d-c power systems to be grounded. Existing § 75.901(a) presently requires underground a-c systems to be resistance grounded, or ungrounded by permission of the Secretary under certain circumstances. Rectifier systems cannot have both the a-c and d-c systems grounded at the same time. Therefore, the standard would incorporate current Agency policy by permitting some a-c systems supplying rectifiers to be ungrounded, provided they comply with the specified alternative method of ground-fault protection.

Paragraph (e) would allow the use of ungrounded systems which have the supply transformer and all other components contained in a single metallic enclosure or installed on the common metallic frame of electric face equipment. These methods would eliminate the possibility of simultaneous phase-to-ground faults at the transformer and the equipment. Simultaneous faults at these locations could energize the metallic frames of all of the equipment served by the same power system, exposing miners to electric shock or electrocution.

Section 75.702 Low-Voltage Alternating-Current System Grounding Mediums

Section 75.702 would address grounding mediums for low-voltage a-c systems. It is derived from existing §§ 75.701–2 and 75.901, which address requirements for grounding of metallic frames, casings and other enclosures of equipment receiving power from single-phase 110–220-volt circuits and low-and medium-voltage three-phase a-c power systems. The proposed standard would require the system grounding medium for low-voltage a-c systems to be the metallic frame or metallic enclosure of the generator, transformer, or transformer bank, connected to a low-resistance ground field. The effect of this provision would be to require a system grounding medium for all low-voltage a-c systems which would facilitate the conduction of abnormal electric currents to a low-resistance ground field instead of energizing the equipment frames. An illustration of the provision would be found in Figure H–3.

The requirements of the existing standards would be altered by deleting the reference to borehole casings and water lines. The use of these devices would continue to be permitted under the proposal only if they meet the requirements of proposed § 75.709, which would set requirements for low-resistance ground fields.

Section 75.703 High-Voltage Alternating-Current System Grounding

This section would address requirements for high-voltage a-c system grounding, currently found in §§ 75.802 and 75.901. Under the proposed standards, there would be only two voltage categories, high- and low-voltage. Under the proposal, resistance-grounded systems having a direct or a derived neutral connected to the grounding medium through a grounding resistor would be required on high-voltage a-c systems, defined in the proposal as those with nominal voltages greater than 1,040-volts. Some 2,400-volt circuits meeting the specifications listed in the standard would be excepted from the requirement.

Paragraphs (a) through (d) list requirements for ungrounded systems which would be excepted from the resistance-grounding requirement. Ungrounded systems which supply only stationary equipment, have a nominal voltage not exceeding 2,400 volts, ground-fault protection which automatically deenergizes all phase conductors when any phase conductor is grounded, and all phase conductors totally enclosed in rigid metallic conduit, metallic armored cable, metal clad cable, or shielded cable, would be excepted from the resistance grounding requirement. Figure H–4 would accompany the standard as an illustration.

These provisions would protect miners against serious shock and electrocution hazards while working with or near high-voltage a-c equipment and circuits. Resistance-grounded systems would be appropriate for the protection of mobile and portable electric equipment, since such equipment is subjected to heavy use, and is therefore more susceptible to power cable damage and resulting ground faults. Ungrounded high-voltage a-c systems would be permitted to serve stationary equipment having ground-fault protection which minimizes miners, exposure to electrocution and electric shock.

Section 75.704 High-Voltage Alternating-Current System Grounding Mediums

This section is derived from existing § 75.802, and would require specific grounding mediums for resistance-grounded and ungrounded high-voltage a-c systems. Paragraph (a) would

require the grounding medium for a resistance-grounded system to be a low-resistance ground field for a transformer-derived system, or the metallic frame of the supply transformer or generator that is connected to a low-resistance ground field. Allowing the frame of the supply generator connected to a low-resistance ground field to serve as the grounding medium would be a new provision.

The proposed standard would provide for a common grounding medium connected to a low-resistance ground field for the generator and the equipment it serves, thereby minimizing the possibility of simultaneous ground faults causing lethal voltages to occur on the generator and equipment frames. Under the existing standard, the grounding medium could be considered to be the low-resistance ground field, allowing the generator and equipment to have separate grounding mediums, which increases the possibility of simultaneous faults.

Paragraph (b) would require the grounding medium for an ungrounded electrical system to be the metallic frame or metallic enclosure of the supply transformer, transformer bank, or generator which is connected to a low-resistance ground field. These provisions would require all high-voltage a-c grounding mediums to be connected to a low-resistance ground field, so that dangerous voltages will not occur on the frames of equipment. Figure H–5 is intended to illustrate the standard.

Section 75.705 Direct-Current System Grounding

This section of the proposal would consolidate and clarify the requirements for grounding of d-c electrical systems in existing §§ 75.701–3 and 75.703–2. The proposal contains additions to the existing rules to provide for grounding of battery-powered systems, systems derived on-board mobile electric face equipment, and ungrounded d-c systems.

The standard would require d-c electrical systems extending or originating underground to be one of seven types. Under paragraph (a), solid-grounded d-c trolley systems having one conductor solidly connected to the track would be acceptable. In this way, the track would be used as the grounding medium for the system. If one conductor is connected to the track at all times, the equipment frames of units supplied with electric power by the trolley system would be precluded from carrying dangerous voltages in the event of a fault.

Under paragraph (b), d-c systems other than trolley systems would also be permitted to be solid grounded, provided they have one conductor solidly connected to the system grounding medium. Use of a solid-grounded d-c system having the direct neutral of the a-c system supplying only a rectifier bridge solidly connected to the grounding medium would be permitted under paragraph (c) of the proposed standard. The effect of this standard would be to provide solid grounding when neither line conductor of the d-c output of the system is grounded. Figure H–7 would illustrate this configuration. Line-to-ground voltages would be limited to one half of the system voltage by the requirements of the standard, an appropriate range, since most d-c system nominal voltages are no greater than 330 volts. Under the standard, such systems would be limited to 165 volts line-to-ground.

Under paragraph (d), resistance-grounded systems having either a direct or a derived neutral of the a-c system supplying the rectifier bridge connected to the grounding medium through a grounding resistor would be permitted. In this type of system, the voltages which could appear on equipment frames would be limited to a range which would help to avoid fire and shock hazards. Figure H–8 would illustrate this provision of the proposal.

Paragraph (e) of the standard would be new, and would allow the use of ungrounded systems only if they have ground-fault protection which automatically deenergizes all power conductors when any phase conductor is grounded, and a line-to-line system voltage of 330 volts or less. Under the standard, all d-c systems greater than 330 volts would be required to be intentionally grounded. Figure H–9 would show the configuration described. Compliance with the proposal would assure that systems which are not intentionally grounded are provided with effective alternative protection.

Paragraph (f) is a new provision allowing for the use of ungrounded battery-powered systems. The design of battery-powered equipment minimizes the possibility of multiple faults occurring, so the metallic frames of such equipment cannot become energized with voltages which present danger to miners. Therefore, such systems would be permitted to be ungrounded under the proposal. Similarly, ungrounded systems derived on-board mobile electric equipment would be permitted by paragraph (g). Experience indicates that intentional grounding of these systems would not provide a safety advantage for miners, since all components supplied by them are on a common grounded metallic frame.

Section 75.706 Direct-Current System Grounding Mediums

Proposed § 75.706 is derived from existing §§ 75.701–1, 75.701–3 and 75.703–2, and would address grounding mediums for d-c electrical systems. Paragraph (a) of the proposal would require the system grounding medium for each d-c trolley system to be the mine track. Experience indicates that mine track serves as an efficient grounding medium for these systems.

Under paragraph (b), the system grounding medium for d-c systems derived on-board mobile electric equipment, including battery-powered equipment, would be required to be the metallic frame of unit. In the Agency's view, the equipment frame is an effective medium for assuring that stray voltages will not appear on the frame of mobile electric equipment and place miners at risk of electrocution or electric shock.

Paragraph (c) would require that the metallic frame or enclosure of the power source, connected to a low-resistance ground field, serve as the system grounding medium for d-c systems other than trolley systems and systems derived on-board mobile electric equipment. This provision would be illustrated by Figure H–10. Connection to a low-resistance ground field would assure that unusual or accidental voltages would be conducted to ground by following a low-resistance path. These types of system grounding mediums would assure a safe and dependable grounding system for d-c electrical systems by minimizing the appearance of dangerous voltages between the metallic frames of equipment and earth when faults occur.

Section 75.707 Grounding Resistors

This section would set new performance requirements for d-c grounding resistors. Paragraph (a) would require grounding resistors used on low-voltage systems to have a resistance value that limits ground-fault current to 25 amperes or less. Ground-fault currents that are not limited by a grounding resistor could cause electrical arcing and resultant ignition of combustible materials. As discussed previously, a 25-ampere maximum current in the proposal would help to reduce the likelihood of such occurrences.

On high-voltage systems, grounding resistors would be required to have a resistance value that limits the voltage drop in the grounding circuit external to the resistor to not more than 100 volts during a ground fault. The standard

would be illustrated by Figure H–6. The 100-volt value has been an accepted industry standard since at least 1970. Experience indicates that limiting the voltage which can appear on the frames of high-voltage equipment to 100 volts or less would help to prevent dangerous potential shock hazards.

Under paragraph (b), grounding resistors would be required to be extended-time rated at a current value at least equal to the maximum ground-fault current that can flow through them, making resistors compatible with the currents to which they could be exposed. Under the proposed definition of "extended-time rated," resistors would have to be capable of operating at their maximum operating temperature for 90 days per year without failing. The new definition is intended to reflect the present state of technology with regard to grounding resistors. Failure of an open grounding resistor when subjected to faults which are not immediately cleared by the circuit breaker would be minimized. An open grounding resistor would allow ground faults to go undetected, thereby defeating the grounding protection for the circuit and leaving miners unprotected from dangerous voltages which could appear on equipment frames.

Paragraph (c) would require grounding resistors to be supported by insulators having voltage ratings at least equal to the phase-to-phase a-c voltage of the system. Appropriately insulated supports, capable of withstanding the phase-to-phase voltages in a circuit, would adequately protect the grounding resistor from shorting. A shorted grounding resistor could defeat the protective function of resistance grounding and expose miners to shock hazards and the risk of fire.

Paragraph (d) would require grounding resistors to be located in the same substation or enclosure, or installed on a common metallic frame with the a-c source that supplies the system. The proposed standard would clarify that the resistor should be located at the power source, which may not always be the power center. The standard would help to prevent a neutral conductor from opening between the transformer and grounding resistor, or shorting of the grounding resistor. Such an occurrence could disable ground-fault protective devices from detecting fault conditions and therefore allow dangerous voltages to occur on equipment frames.

Section 75.708 Loads Connected on Resistance-Grounded Systems

This section would require loads to be connected phase-to-phase on a-c systems and line-to-line on d-c systems that are resistance-grounded, presently required by §§ 75.806 and 75.905. The proposal would not change the requirements of the existing standards, but would consolidate them for clarity and consistency. The effect of the proposed standard would be to forbid line-to-ground connections on a-c and d-c systems, which can cause nuisance tripping of ground-fault devices.

Recurrent or "nuisance" tripping of a circuit when no fault condition exists could lead miners to circumvent the protective devices in the circuit in order to continue work. This would defeat the intended function of the grounding system and expose miners to unnecessary risk of electric shock. Additionally, each time the circuit is tripped, current is passed through the grounding resistor, which can cause damage and failure over time. The proposed standard would help to avert nuisance tripping and its possibly hazardous consequences.

The proposed rule would also prevent the use of the grounding conductor as a power conductor, which could increase the likelihood of inter-machine arcing or the appearance of abnormal voltages on the frames of equipment supplied by resistance-grounded systems. Use of the grounding conductor as a power conductor could cause it to fail or become damaged, rendering it ineffective for its intended function as part of the grounding protection system.

Section 75.709 Low-Resistance Ground Fields

Proposed § 75.709 would set requirements for the design and construction of low-resistance system and supplemental ground fields. These standards are presently found at §§ 75.700–1 and 75.701–1. Paragraph (a) of the proposal is new, and would require low-resistance ground fields used in the safety grounding system to be designed and installed in a manner to assure that the maximum exposure voltage under fault conditions will not create hazardous step and touch potentials. In evaluating ground field safety, the standard would require consideration of the parameters of the system, including soil resistivity, available fault currents, ground field construction, and the operating times of protective devices.

Paragraph (b) would require low-resistance ground fields used in the safety grounding system to have resistances to earth no greater than 25 ohms. Electric current follows the path of lowest resistance that it encounters. Therefore, the lower the resistance of a ground field, the more likely it is that protective devices can operate to remove ground faults and minimize the possibility of energization of equipment frames. A maximum 25-ohm resistance to earth would serve to maintain resistance at a low level to facilitate proper operation of ground-fault protective devices.

The system resistance value may deviate from the 25-ohm maximum only if evaluation of the system in accordance with the safety considerations of paragraph (a) indicates that a lower value of resistance is necessary, or a higher value of resistance may safely be used. In this manner, some flexibility would be added to the rule to take into consideration the special circumstances of each mine and its ground-fault protection system.

Under a new provision in paragraph (c), resistance to earth would be required to be tested by a low- or high-voltage qualified electrician as applicable, when installed and at least annually thereafter. Records of tests would be required to be made in accordance with proposed § 75.508. This would assure that resistance is maintained at the required value to assure effective operation of the grounding system.

Paragraph (d) would be a new requirement that the surface area of ground field materials have at least four square feet of contact with soil. For example, the use of three grounding rods measuring ⅝-inch in diameter and eight feet in length would achieve compliance with the proposed standard, since they would provide at least four square feet of contact with soil. Typically, many more than three grounding rods are presently used in the construction of ground fields. In MSHA's view, four square feet would be a suitable minimum surface area of contact with soil to ensure that the ground field has a low resistance to earth. The proposed requirements for ground fields would aid in protecting miners from shock and burn hazards due to voltages appearing between frames or enclosures of electric equipment and earth. A safe, dependable grounding medium would be provided for under this proposed standard.

Section 75.710 Alternating-Current Equipment Frame Grounding

General grounding requirements for a-c equipment would be addressed by this standard, which is derived from §§ 75.700–1, 75.701, 75.701–1, 75.802 and 75.901. Paragraph (a) lists structures to be connected to the system grounding medium by equipment safety grounding

conductors. Metallic frames, enclosures and other exposed non-current-carrying metallic parts of electric equipment would be required to be connected to the grounding medium in this manner, unless they are double insulated. Therefore, a common grounding medium would be shared by the unit of equipment and exposed non-current-carrying parts associated with it.

In case of insulation failure on a power conductor, which can allow contact between the energized conductor and some portion of a metal enclosure, the enclosure may become energized with the voltage of the conductor. Anyone contacting the enclosure would then be exposed to the voltage of the conductor. A common grounding medium would assure that no difference in voltages capable of injuring or electrocuting miners would exist between the structures. Metal frames which are double insulated would be excepted from the standard since the insulation system would provide adequate protection against these dangers. Damage to the first insulation system would not expose miners to energized parts. Some nationally recognized private concerns perform insulation testing to assure that dangerous leakages of current will not occur. Equipment which has been listed by such groups as double-insulated would be acceptable to the Agency for purposes of the exception.

Metallic fences and barriers around high-voltage equipment and installations would also have to be connected to the system grounding medium by equipment safety grounding conductors. This would prevent the occurrence of abnormal voltages on the structures due to contact with an energized conductor. A person who brushes against or leans upon an energized fence, for example, could otherwise be exposed to a serious shock hazard if the fence is not properly connected to the grounding system.

Metallic battery trays would also be required to be connected to the grounding medium by equipment safety grounding conductors. Therefore, a connection to the safety grounding system would be provided to minimize the risk of harm to miners contacting them.

Equipment safety grounding conductors would be required to connect metallic messenger wires to the system grounding medium under a new provision of the proposal. Messenger wires are sometimes used to support single-conductor energized cables in underground mines. If a splice in such a cable should become damaged where it is supported by messenger wire, the messenger wire could become energized with the voltage of the cable. This would present shock and fire hazards where energized messenger wires contact the mine roof or other combustible materials. Grounding of metallic messenger wires would avert such an eventuality.

Metallic structures or racks which support electric equipment or conductors would be required to be connected to the system grounding medium by equipment safety grounding conductors under a new provision of the proposal. Cable trays which hold energized power cables would be an example of structures addressed by the standard. A breakdown in the cable insulation could cause the metal tray to become energized with the voltage of the conductor, presenting a possibly lethal hazard to persons unknowingly coming into contact with the tray. Under the proposal, the tray would be required to be connected to the grounding medium in order to prevent shock injuries by limiting the voltage which can occur on the tray.

Paragraph (b) would require metallic cable shielding to be connected to the equipment safety grounding conductor at each termination. This provision would ensure a complete, low-impedance path to the grounding medium to prevent stray voltages from energizing the shielding and exposing miners to a shock hazard.

Before batteries are connected to a battery charger, paragraph (c) would require the metallic battery trays to be connected to the grounded metallic frame of the charger by equipment safety grounding conductors. Trays would be required to remain connected to the frame until the batteries have been disconnected from the charger. Several commenters to the preproposal draft stated their concern that continuous or permanent grounding of battery trays could create an unnecessary risk of fire. They suggested that grounding of battery trays should be required only during charging operations. The proposal would adopt this approach.

Over the last twenty years, there have been several occurrences of accidental energization of equipment being serviced by battery chargers, with resulting death to persons who unknowingly contacted the energized equipment frame. The proposed grounding standard would help to reduce the occurrence of similar accidents in the future by assuring that battery trays are properly connected to the grounding medium during operations which pose a risk of electrical injury.

Section 75.711 Ground-Wire Monitors for Alternating-Current Equipment

This section is derived in part from existing §§ 75.803, 75.803–1, 75.803–2, 75.902, 75.902–1, and 75.902–4. The existing standards require a fail-safe ground-wire monitor for resistance-grounded systems with a maximum ground check circuit voltage of 40 volts. They also require that systems not using a ground check conductor must be designed to open the breaker when the ground continuity is broken. Finally, they provide that when grounding equipment frames of stationary, portable or mobile electric equipment which receives power from resistance-grounded systems, separate connections shall be used. The proposal would reformat and retain these requirements with two exceptions. The performance standards in the proposal are intended to address newer monitor designs which were not contemplated by the existing standards.

Paragraph (a) is derived in part from § 75.902, which requires that resistance-grounded systems have a ground-wire monitor to continuously monitor the grounding circuit to assure continuity. The proposal would slightly modify this requirement, by requiring that resistance-grounded systems have ground-wire monitors to continuously monitor the continuity of the grounding circuits to the equipment affected, with two exceptions.

Low-voltage circuits supplying power to longwall illumination systems would be excepted from the requirement. The low-voltage illumination circuits would be excepted because they are connected to the metal frame of the power transformer that is well grounded and because of their low operating voltages and their safe location strung from the roof or supports.

Low-voltage stationary equipment meeting certain criteria would also be excepted from the requirement. Stationary equipment which is permanently installed at a fixed location, having all load components securely attached to a common metallic frame or structure and each component grounded by two independent equipment safety grounding conductors sized in accordance with § 75.714, would be exempted. At least one of the grounding conductors would have to be visible for its entire length. The power conductors outby the working section carrying ground-wire monitor circuits are not normally subjected to severe flexing and physical abuse that might cause damage to them. Since the hazard is reduced on permanently installed

stationary equipment, monitoring would no longer be the only method accepted for assuring the integrity of the grounding system.

Under paragraph (b), high-voltage resistance-grounded systems would be required to have ground-wire monitors to continuously monitor the continuity of the grounding circuits, except for circuits extending from systems which supply power to surface stationary equipment. Figure 11 would illustrate the provision. The use of ground-wire monitors would ensure a continuous grounding circuit to outby electric equipment at all times. Problems with the ground wire would be detected under the proposed requirements so that the circuit would be deenergized by a circuit breaker before a fault in the system could cause energization of equipment frames and result in electrical injuries to miners.

However, ground-wire monitors would not be required on surface circuits which supply stationary electric equipment located on the surface. These systems would be excepted from the ground-wire monitor requirement, provided the requirements of paragraph (c) are met. Circuits supplying stationary equipment without ground-wire monitors would have to have the metallic frames or enclosures of the equipment separately connected to supplemental low-resistance ground fields at the equipment, and to the system ground fields by equipment safety grounding conductors. Circuit breakers would have to be separately connected to supplemental ground fields at the circuit breaker, and to system ground fields by equipment safety grounding conductors.

Circuits without ground-wire monitors would also be required to have supplemental and system ground fields with resistance-to-earth values which do not exceed the value obtained by dividing 100 volts by the maximum ground-fault current of the system. These provisions would allow the specified systems to be exempted from the monitor provision but would instead require additional grounding. The ground fields described would establish a return path for ground-fault current that would assure that miners would not be exposed to voltages in excess of 100 volts.

Paragraph (d) would set performance requirements for ground-wire monitors used for electric face equipment. Ground-wire monitors would be required to be designed and constructed to be fail-safe. Use of the term fail-safe in existing standards for ground-wire monitors has resulted in some confusion. Therefore, the term "fail-safe" is defined in proposed § 75.2(j) as a device's ability to perform its intended function despite the failure of any component, other than relay contacts. Monitors would also be required to provide continuous monitoring of the grounding circuit for the equipment or motor it serves. Therefore, monitors would be a reliable method of continuously evaluating the condition of the ground wire to assure proper functioning of the grounding system and deenergization of the circuit in case of damage to the ground wire.

Paragraph (e) would clarify existing § 75.902, with one change that would incorporate present Agency policy. The existing standard requires that the ground-wire monitor trip the circuit breaker when either the ground or pilot check-wire is broken. The existing rule also provides for MSHA to approve a no-less-effective device to monitor the grounding circuit to assure continuity. Under the proposal, ground-wire monitors would be required to cause the affected circuit breaker to open when the ground-check conductor is broken at any point, and either the equipment safety grounding conductor is broken at any point, or the impedance of the grounding circuit increases beyond the amount necessary to cause a 40-volt drop in the grounding circuit external to the grounding resistor under ground-fault conditions for all low-voltage circuits and high-voltage trailing cables, or a 100-volt drop for high-voltage circuits other than trailing cables.

A ground-check conductor is used in conjunction with the ground-wire monitor to continuously evaluate the condition of the ground wire. The equipment safety grounding conductor provides a path for ground-fault currents so that circuit breakers will function to deenergize the circuit. Damage to either of these conductors would seriously threaten the effectiveness of the grounding system. Impedance capable of causing a voltage drop in excess of 40 volts in the grounding circuit external to the resistor would also lessen the effectiveness of a system's grounding protection. Therefore, ground-wire monitors would have to cause deenergization of the circuit if conductors are damaged or impedance is raised to a hazardous level.

The performance standards for ground-wire monitors in the proposed rule are intended to clarify the present use of the term "fail-safe." Additionally, the new standard would address new types and designs of monitors, including impedance-type monitors and continuity-type monitors, which are currently in use in the industry. The Agency is contemplating rulemaking in order to promulgate an approval regulation for ground-wire monitors on permissible equipment. However, under the proposal, the Agency would continue its practice of accepting only ground-wire monitors that meet MSHA's criteria for effective performance and fail-safe design.

This is presently accomplished through a testing and evaluation program administered by MSHA's Technical Support Engineering and Testing Division. Ground-wire monitors submitted for acceptance are carefully evaluated to assure compliance with the Agency's performance criteria for a fail-safe design. Units which meet the criteria and the applicable requirements of Part 75 would be accepted by Technical Support and assigned an MSHA acceptance number.

Under paragraph (f), the open-circuit voltage for ground-wire monitors would be limited to 40 volts or less on low-voltage circuits and circuits to electric face equipment. The maximum open-circuit voltage for circuits other than circuits to electric face equipment would be 96 volts. This voltage was arrived at by using a multiple of 24, a voltage common to relay ratings presently in use. The difference is attributable to the increased methane level and resultant fire hazard in areas where electric face equipment operates. These would provide for adequate voltage to allow operation of the devices, but the voltage would be low enough to minimize shock hazards to miners. The specified voltage is intended to coincide with voltages common to relay ratings.

The existing standards require that separate connections be used when practicable in grounding equipment frames of all stationary, portable or mobile electric equipment receiving power from resistance-grounded systems. The proposal would require that ground-check and equipment safety grounding conductors always be separately connected to the metallic frames or enclosures of electric equipment. MSHA's experience indicates that it is practicable in all cases to make separate connections, and this is reflected in current policy. If the grounding conductor and the ground-check conductor are secured by one connector, both could be accidentally dislodged or detached simultaneously, leaving the circuit unprotected against ground faults. This could not occur if the grounding conductor and the ground-check conductor were secured separately.

Section 75.712 Direct-Current Equipment Frame Grounding

This proposed section is derived in part from existing § 75.701–3, and would

include requirements for grounding of equipment supplied with power by d-c electrical systems. Paragraph (a) would require certain equipment and structures to be connected to the appropriate grounding medium, as specified in proposed § 75.706, by equipment safety grounding conductors. The requirement would apply to metallic frames, enclosures, and other exposed, non-current-carrying metallic parts of electric conductors and equipment. This method of grounding would ensure a low-impedance connection to the system grounding medium for non-current-carrying metallic structures and parts. Metallic messenger wires used to support d-c conductors would be covered by the standard for similar reasons.

Two new provisions would require metallic racks and structures supporting trolley wires and trolley feeder wires, and metallic overcasts in trolley entries to be connected to the system grounding medium by equipment safety grounding conductors. This part of the proposal would encompass structures such as steel arches, overcasts and square sets. A reliable grounding path would be provided under the standard in case of insulation failure where trolley wires are supported from metallic racks and structures. Mine fires have occurred since 1980 where electrical faults caused by insulation failure have energized racks or structures, which in turn ignited combustible materials. The proposed rule would help reduce the occurrences of underground fires and electric shock hazards caused by insulation failures.

Paragraph (b) would require silicon diode grounding systems to be installed in accordance with proposed § 75.713. Paragraph (c) would require component parts of complete units of equipment to be solidly connected to the frames of the equipment. Therefore, the hazard of a miner being exposed to differing voltages between the unit of equipment and its component parts would be averted. For example, a miner contacting the metallic headlight enclosure of a shuttle car which is not properly connected to the frame of the unit could receive an electric shock if the voltage which exists on the headlight enclosure differs from that of the equipment frame. Grounding through a common medium would serve to minimize the possibility of such an occurrence.

Section 75.713 Silicon Diode Grounding

This section of the proposal would govern the use of silicon diode grounding, currently addressed under §§ 75.701–3 and 75.703–3. Several commenters to the preproposal draft requested clarification of whether silicon diode grounding would continue to be acceptable under the proposal. This section would make clear under what conditions silicon diode grounding would be permitted. The proposed standard would contain specific design and performance standards for silicon diode grounding of the metallic frame, enclosure, or other exposed non-current-carrying metallic parts of mobile equipment. The proposal would encompass electric mining equipment such as roof-bolters, continuous miners, and shuttle cars.

Under the standard, when the metallic frames of mobile equipment are grounded by silicon diodes, the diode grounding system would have to meet certain criteria. Under paragraph (a), the polarity of each grounding diode would be required to be compatible with the grounded polarity of the d-c system. When the polarity of the grounding diode is proper, current will only flow from the frame of the equipment to the grounded power conductor during faults. However, if the polarity were reversed, dangerous voltages would remain on the frame of the equipment. Further, the overcurrent devices which would be required by paragraph (c) of the standard would be unable to detect the occurrence of a ground fault if polarity were reversed. Reversed polarity could therefore defeat the grounding system and expose miners to electrocution hazards.

Under paragraph (b), each grounding diode would be required to have a threaded base used to solidly connect the diode to the machine frame. This provision would serve to ensure a solid, complete grounding path for mobile equipment. It would prohibit the use of "hockey-puck" style connections, which utilize a pressure connector. Unlike hockey-puck connections, a threaded base diode would screw into the frame of equipment, keeping stray materials from interfering with the connection and the correct functioning of the diode. A threaded base would aid in the dissipation of heat, while a method such as soldering might be ineffective when exposed to excessive heat. Additionally, diodes are contained in explosion-proof enclosures, and are therefore rarely open to visual inspection. Pressure connectors could become loosened without detection of the problem.

Under paragraph (c), an overcurrent device would be required to be installed between grounding diodes and the grounded power conductor when a silicon diode grounding system is used. The overcurrent device would have to be designed to cause the main contactor or the circuit interrupting device to deenergize all circuits on the machine when 50 amperes or more flows through the grounding diode.

The proposal would therefore require the circuit breaker to trip when a current of 50 amperes or more passes through the diode. A current of less than 50 amperes, in MSHA's view, represents a reasonable cut-off point, which is presently in use in the industry. However, methane monitors would be permitted to remain functional to continuously test for dangerous gas levels despite deenergization of a circuit.

Paragraph (d) of the proposed standard would require installation of a polarizing diode in the control circuit which prevents the unit of equipment from being operated when the polarity of the supply conductors is reversed. This provision is derived from existing § 75.703–3(d)(8), and incorporates a commonly accepted industry practice. As discussed previously, improper polarity of the diode can defeat the grounding system. Under this provision, operation of equipment would be made impossible if the diode's polarity is reversed, thus preventing unanticipated energization of the frame of the equipment.

Under paragraph (e), the forward current rating of each grounding diode would have to be equal to or greater than 750 amperes when used to ground a continuous mining machine, or equal to or greater than 400 amperes when used to ground other equipment, regardless of the voltage of the equipment. Lower forward current ratings, in MSHA's view, could cause the grounding diode to open and fail to trip the circuit breaker during a fault, leaving the equipment frame ungrounded. The proposal would assure a safe and dependable grounding circuit which will not fail under overcurrent conditions for all equipment, without reference to voltage.

Paragraph (f) of the standard would require the peak inverse voltage rating of the grounding and polarizing diodes to be equal to or greater than 1,200 volts. The value is derived from existing § 75.703–3(d)(2) and (3). This proposed requirement would help to prevent failure of these two solid-state devices. Underground electric equipment can be subjected to severe overvoltages, which can cause the grounding or polarizing diode junction to rupture and short circuit, defeating the protective functions of the two types of diodes. If the polarizing diode ruptures, its ability to retard the function of the control circuit would be lost. This could allow

the equipment frame to be energized if polarity is reversed. The proposed standard would address these hazards.

Section 75.714 Equipment Safety Grounding Conductors

Design and performance requirements for equipment safety grounding conductors would be addressed in this proposed section, which is derived from existing §§ 75.701, 75.702, 75.703 and 75.804. Grounding conductors are an essential part of grounding systems in that they are used to connect non-current-carrying exposed parts of equipment and structures to a specified grounding system. They are the means of preventing the appearance of dangerous voltages on equipment frames and structures by providing a path from the equipment to the grounding medium for abnormal currents to follow. Proper performance and design of these conductors are essential to the prevention of electrical accidents related to inadequate or ineffective grounding conductors.

Paragraph (a) would require that equipment safety grounding conductors for portable and mobile electric equipment be one or more stranded copper conductors contained within the cable or flexible cord supplying the equipment. Grounding conductors should be enclosed inside cables serving heavily used portable or mobile electric equipment in order to protect them from physical damage and deterioration. Stranded copper conductors would provide the necessary flexibility and strength for use within cables or flexible cords.

Paragraph (b) would set requirements for equipment safety grounding conductors for stationary equipment. They would be required to be made of copper or an equivalent material, and be either contained together with the circuit conductors in the raceways, cables, or cords, or wrapped around the raceways, cables or cords containing the circuit conductors. The closer the grounding conductor is located to the power conductor, the less impedance exists between the two. Thus, fault currents will flow through the conductor to the grounding medium and not directly to earth. Minimum impedance would facilitate effective operation of the circuit protection.

Paragraph (c) would detail the required cross-sectional area of equipment safety grounding conductors. When the circuit conductor is No. 6 AWG or larger, the combined cross-sectional area would be required to be equal to or greater than one-half of the cross-sectional area of the circuit conductor. When the circuit conductor is smaller than No. 6 AWG, the combined cross-sectional area of the equipment safety grounding conductor would have to be equal to or greater than that of the circuit conductor. Experience indicates that these minimum sizes for conductors would be necessary to safely carry currents to which they may be exposed.

Paragraph (d), would require equipment safety grounding conductors installed outside of raceways, cables or cords, and used to ground stationary equipment to be No. 6 AWG or larger. Grounding conductors of this size would be able to withstand physical damage and deterioration from the underground mine environment.

Under paragraph (e), switches, fuses, circuit breakers, ground-fault devices and overcurrent devices would be prohibited from being installed in equipment safety grounding conductors. This provision would ensure that the devices specified could not interfere with the operation of the grounding conductor.

Paragraph (f) of the proposed rule would require ground-wire devices installed in the equipment safety grounding conductor for the purpose of suppressing inter-machine arcing, or in conjunction with ground-wire monitoring systems, to be designed and constructed to withstand the maximum amount of phase-to-phase fault current to which they may be exposed without creating a shock or fire hazard. The effect of this provision would be to permit the use of arc suppression devices, which can minimize ignition hazards if they are substantially designed and constructed to perform their intended function despite elevated fault currents. The proposal would provide standards designed to assure that the use of such devices would not increase the hazards to miners.

Paragraph (g) of the proposed standard would require that when ground-wire devices addressed by paragraph (f), such as arc traps and ground-wire monitor filters and diodes, are used, they would have to be connected to the grounding medium by two separate grounding conductors. A single ground-wire monitor is not capable of detecting whether ground-wire devices are properly connected to the grounding medium, as well as monitor the ground wire itself. Two separate monitors would be needed. The proposed standard would provide for a back-up grounding conductor connection in case one should fail or become damaged, without necessitating the use of two monitors.

Under paragraph (h), separate connections to the mine track, the grounded return-feeder conductor, or the metallic frame or enclosure used as the grounding medium would be required for the equipment safety grounding conductor and the return power conductor on d-c powered equipment. If the grounding and return conductors are attached to the grounding medium by the same connection, both could easily be dislodged or damaged. If both are simultaneously dislodged, the frame of the equipment could become energized to hazardous voltages, creating a risk of electrical injury to miners. Separate connections would assure the integrity of the grounding system and address the hazards.

Paragraph (i) would require equipment safety grounding conductors for draw-out equipment or plugs and receptacles to be the first conductors connected when making connections, and the last conductors broken when breaking connections. In this way, the grounding system for the equipment would remain intact while draw-out units, such as circuit breakers, are being installed or removed. Therefore, ground-fault protection against arcing and ignitions would be provided while devices are being withdrawn or separated.

Under paragraph (j), equipment safety grounding conductors would be required to be connected by welds, pressure connectors or clamps. In MSHA's view, these methods would provide for the most electrically efficient connections. Finally, paragraph (k) would require equipment safety grounding conductors to be bare or properly identified. The effect of this provision would be to alert interested parties as to which of the conductors is the connection to the grounding system.

Subpart I—High-Voltage Alternating-Current Circuits

Section 75.801 High-Voltage Systems

This section of the proposal would contain new provisions requiring high-voltage electrical systems to originate on the surface, except that systems supplying power to underground face equipment would be permitted to originate either on the surface or underground. Systems which originate on the surface would pose less of a fire and shock hazard than those which originate underground. Power sources for high-voltage systems generate large amounts of electricity to supply mining equipment. If they are located underground where miners regularly work and travel, they could pose an electric shock or fire hazard.

Additionally, effective grounding systems are necessary to protect miners from exposure to energized equipment

frames caused by faults in the system. Proposed Subpart H would require high-voltage systems to be resistance-grounded and connected to a low-resistance ground field. Although quite effective for grounding purposes, the resistors used in this type of grounding system typically generate heat when subjected to a sustained grounded phase condition, which could ignite underground combustible materials. It would therefore be hazardous to allow such an ignition source to exist underground in the presence of combustible materials.

However, the standard would allow high-voltage systems that supply power to underground face equipment to originate either on the surface or underground. The Agency is aware of the availability of some specially-designed power centers which can be used safely underground to facilitate the use of high-voltage face equipment. Some equipment used in face areas, such as longwall mining units, utilize high horsepower motors which would require very large and heavy cables for transmission of power to low-voltage face equipment. Allowance of high-voltage systems serving face equipment to originate underground would alleviate the difficulty and danger of having to use such cables.

The proposed standards would set requirements for the use of high-voltage systems which originate underground to minimize risks of injury to miners from fire or electric shock. For instance, the allowable amount of heat generated by such systems would be limited under proposed § 75.808 to reduce the risk of fire. That standard would also set grounding requirements that would limit ground-fault current to less than 6.5 amperes for systems with voltages of 2,400 volts or less, and 3.75 amperes for systems with voltages greater than 2,400 volts. The proposed standards would also require ground-fault protection for motor circuits to be highly sensitive, set at 0.1 amperes or less, thereby providing a high degree of protection against ground faults.

In systems which typically originate on the surface, circuit breakers are not normally set to trip when exposed to a ground fault of less than 10 amperes. However, proposed § 75.808 would require super sensitive protective devices on underground systems which would trip the circuit breaker at an extremely low current value of 0.1 amperes.

The provisions of subpart I would also require two back-up systems for ground-fault protection of underground power sources. This would assure that faults will not exist in the system for extended periods of time sufficient to overheat the grounding resistor and cause a mine fire or shock hazard. MSHA believes that compliance with the proposed safety standards would make the use of systems which originate underground to supply face equipment safe for miners. The Agency also solicits comments on whether the need for high-voltage equipment other than that supplying face equipment is anticipated.

Section 75.802 Protection for Circuits, Other Than Trailing Cables

This section would set requirements for the protection of high-voltage circuits other than trailing cables. It is derived in part from existing §§ 75.518–1, 75.800, 75.800–1 and 75.800–2, which require circuit breakers for high-voltage circuits underground, and detail location and schematic requirements for circuit breakers. The proposal would consolidate present standards for ground-fault and undervoltage protection of high-voltage circuits, and set minimum operating requirements for protective devices.

Paragraph (a) would require circuit breakers of adequate interrupting capacity to protect high-voltage systems that supply underground electric equipment. These circuit breakers would be required to be equipped with devices which provide overcurrent protection, ground-fault protection and, except for branch circuits supplying only stationary surface loads, undervoltage protection. Figure I–1 would accompany the proposed standard to illustrate the provision.

Requiring circuit breakers to be of adequate interrupting capacity would protect against fire hazards by ensuring that circuit breakers will clear fault conditions which could otherwise generate extreme heat at the fault location. If a circuit breaker is underrated, high levels of fault current could cause it to be destroyed, possibly injuring persons operating the breakers.

Overcurrent protection in the form of devices such as relay circuits would serve to protect high-voltage systems against short circuits and overloads. Undervoltage protection on high-voltage circuits would also help to prevent injuries resulting from unexpected start-up of electric equipment after a power outage. Effective undervoltage protection would assure that the system carries enough voltage so that circuit breakers will remain energized for protection of the circuit. Undervoltage devices are designed to detect the voltage of the circuit and cause the circuit breaker to open and deenergize the circuit upon a sudden loss of voltage and keep it deenergized until manually reset. Otherwise, unexpected start-up of belts or equipment could injure miners.

Undervoltage devices would not be required for branch circuits which supply only stationary surface loads. The exception would have primary impact on surface loads such as ventilation fans, which would not normally represent a hazard if suddenly restarted after an undervoltage situation, since persons do not regularly work near such equipment. For instance, it may be desirable for surface ventilation fans to restart as quickly as possible to maintain a safe underground atmosphere for miners. By contrast, underground equipment such as pumps could cause a fire or methane ignition if it restarts suddenly while unattended.

Proposed § 75.2(j) would define undervoltage as a lack of or failure of voltage, as compared to the current interpretation of the term, which characterizes undervoltage as a 40–60 percent drop in system voltage. The change would eliminate the occurrence of circuit trips when there is a sudden load on the system resulting in a normal voltage drop. For example, use of a high-voltage continuous miner can create a heavy load on the system with no resultant hazard. The proposed definition would not require activation of undervoltage devices unless an abnormal lack of, or failure of voltage occurs.

Paragraphs (b) through (j) would contain performance requirements for the circuit protective devices which would be required under the section. Under paragraph (b), high-voltage circuits extending underground would be required to be protected by at least one circuit breaker located on the surface. This provision is derived from existing § 75.800–1, and should clarify that some breakers could be located underground for the protection of branch circuits. Compliance with the standard would assure accessibility of the device in the event of an emergency and facilitate testing and maintenance operations.

The standard would make clear that additional circuit breakers could be installed underground to provide overcurrent and ground-fault protection for branch circuits. It would allow establishment of new points of origin for ground-check circuits. For example, a circuit breaker located at the beginning of a branch circuit would allow selective deenergization of the circuit in order to address problems which may arise in an isolated part of it. The necessity to deenergize the entire circuit from the surface would be avoided under the proposed standard.

Under paragraph (c), overcurrent protection for high-voltage circuits would be required to consist of devices which protect at least two power conductors, which is consistent with existing § 75.5l8–1 and the NEC. In three-phase high-voltage circuits, overcurrents normally occur on at least two of the three power conductors. The standard would provide for an effective overcurrent detection system. Protection of only one power conductor could allow overcurrents to go undetected and place miners at risk if the circuit is not properly deenergized by the protective device.

Under paragraph (d), one circuit breaker used to provide overcurrent protection for two or more branch circuits would be required to provide overcurrent protection for the smallest conductor. If protection is provided only for the larger conductors, an overcurrent on the smallest conductor in the circuit could go undetected and increase the risks of fire or shock hazards.

Paragraph (e) would require overcurrent devices to have a pickup value of 125 percent or less of the ampacity for the smallest power conductors in the protected circuit, as listed in Tables I–1 and I–2, which would accompany the proposed rule. The devices would be required to have inverse-time current characteristics which cause them to operate within two seconds when a current ten times the allowable ampacity of the smallest power conductor flows in the circuit. Tables I–1 and I–2 specify allowable ampacities of shielded, high-voltage mine power cables with copper and aluminum conductors, respectively.

These performance requirements are derived from MSHA policy and the NEC. Therefore, the exiting incorporation by reference of the NEC in § 75.518–l would be deleted under the proposed rule. The pickup value is the minimum value at which devices used to detect overcurrents in the circuit will recognize the overcurrent condition and cause deenergization of a circuit. According to the NEC, currents in excess of 125 percent of the conductor ampacity could cause damage to the circuit and resulting potential fire or shock hazards to miners.

The proposed inverse-time current characteristics requirement would be a new provision. It would define the current levels which would be tolerated by the circuit without causing damage to conductors. Allowance of a current ten times the conductor's ampacity for a period of two seconds would not normally represent a hazardous condition. For example, the standard would allow brief inrush currents to enable equipment to be started up. Otherwise, the inrush of current required for energization of a piece of electric equipment would be detected as an overcurrent, and the circuit would immediately be deenergized.

Paragraph (f) would be a new standard, which would require ground-fault protective devices to be adjusted to deenergize the faulted circuit at 40 percent or less of the maximum ground-fault current of the system. This provision would set the maximum trip value of the circuit at 40 percent of ground-fault current, while existing § 75.800 does not presently specify a trip value. The maximum trip value would be determined under the proposal by the current rating of the grounding resistor used. For example, on a system with a 25-ampere grounding resistor, the ground-fault protective device would be required to operate at a fault current of 10 amperes. MSHA's view is that a 40 percent value is a reasonable level for ground fault tripping.

Under paragraph (g), a new provision, the ground-fault protective device located nearest to the load would be required to activate with no intentional time delay. The operating time of upstream ground-fault protective devices within a system could be increased under the proposal to provide selective tripping, but the operating time of the most upstream device could not exceed 3.0 seconds under the proposal.

Rapid response time of ground-fault detection devices would assure speedy tripping in overcurrent and fault situations, and thus prevent prolonged exposure to dangerous voltages. The circuit breaker nearest to the load or piece of equipment affected, would have to respond instantaneously in order to prevent fire and shock hazards. To provide for selective tripping, operating time for upstream circuit breakers may be increased, provided the most upstream device, nearest the source, operates within three seconds of the first device in order to assure rapid deenergization of the circuit.

Under paragraph (h), also new, equipment safety grounding conductors would not be permitted to pass through or be connected in series with ground-fault current transformers. It is important to prohibit such a configuration, because if a ground fault occurs in the circuit, the fault current could flow in a parallel path. Under this condition, the current transformer would not detect the fault and open the circuit, and multiple faults could result. Compliance with the proposal could reduce the occurrence of shock and fire hazards caused by fault conditions.

Paragraph (i) would require undervoltage devices to be undervoltage trip coils, or shunt trip coils energized by undervoltage relays or ground-wire monitor relays. Experience indicates that these types of devices provide the most reliable form of undervoltage protection for underground high-voltage circuits to prevent injuries to miners. Shunt trip coils without undervoltage or ground-monitor relays would not cause the circuit to trip until reenergization occurs after a loss of voltage. This could lead to sudden momentary restarting of equipment, which would place miners in danger of physical injury from unexpected energization of underground equipment. Shunt trip coils would be required to be operated by stored energy devices such as a battery or capacitor, to allow the device to receive power for activation despite deenergization of the circuit.

Paragraph (j) would be a new standard, prohibiting circuit breakers installed to protect underground high-voltage circuits from automatically reclosing after operation. This would be a new requirement for circuit breakers. Automatically reclosing circuit breakers are commonly used with success by electric utilities where faults are often caused by temporary environmental phenomena, such as lightning or wind gusts, which clear themselves naturally. However, in the underground mine environment, automatic reclosures could be dangerous to miners, because faults rarely clear themselves in high-voltage mine power systems. Injuries can occur underground when circuit breakers automatically reclose after a fault. For example, if a fault is caused when a miner inadvertently contacts an energized high-voltage conductor, it is essential that the circuit breaker not automatically reclose after tripping in order to protect the miner or those attempting rescue from shock or electrocution.

Compliance with the provision would also prevent the automatic and unexpected restarting of electric equipment. If the circuit breaker has to be manually reset after a power outage, for instance, the opportunity for unexpected reenergization of underground mine equipment would be minimized. Therefore, miners would be protected against crushing or pinning accidents from underground equipment which suddenly starts up.

Section 75.803 High-Voltage Distribution Equipment

This section is derived in part from existing § 75.803–1, and would set requirements for barriers on high-

voltage distribution equipment. Paragraph (a) would be new, requiring that high-voltage distribution equipment be enclosed in a grounded metallic enclosure and have no exposed energized parts. This would assure that miners will not inadvertently come into contact with lethal voltages. To allow adequate compliance time and reduce the compliance burden, disconnecting devices installed underground on or before the effective date of the rule would be excepted from the standard.

Under paragraph (b), also new, high-voltage a-c distribution equipment would be required to be equipped with interlock and emergency stop switches. The devices would have to automatically deenergize the incoming power conductors to the distribution equipment when a cover, lid or panel that exposes energized high-voltage parts is removed or when the emergency stop switch is activated.

The proposed standard would require installation of magnetic switches or microswitches which are capable of detecting when a lid or cover over energized parts of equipment is opened. The interlock switches would be required to cause deenergization of the equipment whenever energized parts are exposed. For example, if a cover panel over an energized circuit is inadvertently removed in order to work on electric components of a unit of high-voltage equipment, it would be automatically deenergized by activation of the interlock device. Therefore, the miner engaging in work on the unit would not be exposed to dangerous voltages within the equipment. Further, activation of the emergency stop switch would serve to deenergize a unit of equipment should a hazardous situation arise.

Emergency stop switches capable of deenergizing high-voltage equipment would facilitate rescue attempts in case of emergency. Since 1970, two fatal electrical accidents have occurred when miners contacted energized high-voltage conductors or parts within equipment, and fellow miners had to call outside the mine to have the circuits deenergized prior to attempting rescue. An operative emergency stop switch on such equipment could be instrumental in lessening the effects of such accidents by allowing for rapid response to emergencies where they occur.

One commenter to the preproposal draft suggested that the requirement should only be applicable to equipment installed after the rule's effective date, in order to allow for phase-in time for replacement of existing equipment. Another commenter supported the standard as a necessary safety improvement for the benefit of miners.

A review of the fatality record since 1970 has shown that at least eight miners have been electrocuted as a result of removing high-voltage compartment covers or lids and contacting energized parts inside. At least seven of those accidents could possibly have been prevented if interlock switches had been installed to deenergize the equipment when energized parts were exposed. Due to the fatality record and the continued danger presented to miners, the Agency believes that all high-voltage electric equipment, not solely equipment installed after the effective date of the rule, should have to comply with the standard.

Paragraph (c) would set a maximum open-circuit voltage for interlock circuits at 96 volts. This would allow the use of enough voltage for the operation of the interlock circuit, but would be insufficient to cause serious injury to miners. The voltage specified in the standard is derived from the voltage permitted for ground check circuits in existing § 75.803–1. It would be compatible with the voltages allowed under the proposal for other devices used within high-voltage circuits, such as ground-wire monitors, and it should not pose operational difficulties.

Paragraph (d) would be a new standard, becoming effective 18 months after the effective date of the rule, and would require all high-voltage distribution equipment, including high-voltage switchgear and power centers to be equipped with barriers. Barriers would be required to provide separate compartments for the incoming high-voltage disconnecting switch and feed-through circuit, the power transformer, the low-voltage distribution circuits, and the control circuitry, including ground-fault protective devices and ground-wire monitors. At least two miners have been electrocuted since 1970 as a result of contact with energized components of equipment within the same compartment as the components being worked on. Compliance with the proposal would assure that persons performing work on a control circuit, for example, would not inadvertently come into contact with energized power transformer parts. Compliance with the proposed standards would reduce the risks of shock and electrocution to miners.

The standard's 18-month compliance period would allow operators and manufacturers sufficient time for retrofitting existing equipment and designing new distribution equipment which would comply with the standard. MSHA estimates that approximately 11,000 existing pieces of equipment would be affected by the proposed standard. Of that number, 60 to 70 percent would need to be entirely retrofitted for compliance. Additionally, only approximately half of the newly-manufactured equipment would be in complete compliance with the standard.

To be properly retrofitted, distribution equipment now in use should be removed from the underground areas of the mine. The compliance period would facilitate the use of a change-out retrofitting program, which would permit the removal of units of distribution equipment from service one at a time in order to be retrofitted. Therefore, production would not have to be suspended in order to retrofit all of the affected equipment at once.

Paragraph (e) would be new, requiring barriers to be constructed of grounded metal or non-conductive insulating board. The provision would assure the use of sturdy materials for isolating each compartment from the others. The use of flexible belt material, for example, would not effectively prevent contact with the energized components of a compartment adjacent to the one being worked on. Grounding, or the use of non-conductive board, would assure that abnormal voltages will not appear on the barriers and cause electrical injuries.

Section 75.804 High-Voltage Cables, Other Than Trailing Cables

This section is derived from existing §§ 75.705–1l, 75.804, 75.807 and 75.812, and would set installation and shielding requirements for high-voltage cables, other than trailing cables. Under paragraph (a), high-voltage cables would be required to be located, buried, guarded, insulated, or otherwise protected from physical damage and contact with other wires or cables. Insulation used to prevent contact with other wires or cables would have to be in addition to that provided by the conductor insulation or cable jacket. This provision would be retained from existing § 75.807, and would assure that high-voltage cables would be protected from physical damage, so as not to provide an ignition or shock hazard due to exposed energized conductors.

Under paragraph (b), high-voltage cables which are suspended above the mine floor would be required to be securely anchored. This provision would help to assure that heavy cables will not fall to the mine floor or onto equipment and injure miners or become damaged. Failure of one cable support can cause a

chain reaction failure of all supports due to the weight of high-voltage cables. Secure anchoring would reduce the likelihood of such failures and possible miner injuries.

Paragraph (c) would require single-conductor high-voltage cables to be hung on well-supported messenger wire or insulated cable hangers. Hanging such cables from messenger wires or on insulated hangers would provide cables with physical protection against damage. The use of these support methods would assure that high-voltage cables are securely hung and protected against faults caused by physical damage.

Paragraph (d) would be retained from existing § 75.812, and would prohibit movement or handling of energized high-voltage cables. High-voltage cables can represent a great hazard to miners if they are damaged or have been improperly spliced or repaired. Contact with a faulty splice, for instance, could cause fatal injuries to a miner. The great bulk and weight of high-voltage cables could prompt cable handlers to use their bodies to help support the cable being moved. In such circumstances, insulated gloves alone would not protect the miner from exposure to the cable's voltage at a damaged or improperly spliced point. The proposal would assure that cables are deenergized before being moved to prevent electrical injuries.

Paragraph (e) would be new, requiring high-voltage cable power conductors to be at least No. 8 AWG. This size conductor would offer the necessary physical strength for the cables to withstand damage. Shock hazards and the risk of fire would be reduced under the proposed standard.

Paragraph (f) would be a new provision, requiring high-voltage cables other than single-conductor cables to contain one or more bare equipment safety grounding conductors. The purpose of a bare equipment safety grounding conductor is to detect faults in a circuit. If all conductors within a cable were insulated, faults could go undetected by the grounding conductor.

Under paragraph (g), ground-check conductors and interlock circuit conductors contained within high-voltage cables would be required to be at least No. 10 AWG. Paragraph (h) would require ground-check conductors and interlock circuit conductors which are external to high-voltage cables to be at least No. 8 AWG. This would be a new requirement for interlock circuits. These conductor sizes would be appropriate for the amount of current carried and the level of use to which the conductors would be put. Ground-check conductors and interlock circuit conductors which are not contained within the cable are subject to greater physical damage. Therefore, larger conductor sizes would be required for external circuits.

Paragraph (i) would require single-conductor cables to have equipment safety grounding conductors of either a bare ground-wire or a grounded messenger wire. This provision would give operators the option of using the messenger wire such cable is hung on for grounding purposes, or a bare grounding conductor could be added to the cable.

Paragraph (j) would require high-voltage cables to have metallic shielding around each power conductor. The percentage of coverage and acceptable types of shielding would be specified under paragraph (k) of the standard. The proposed shielding requirement would prevent voltage stresses in the conductor from damaging the remainder of the cable. Shielding is presently required under existing § 75.804, but that standard does not specify any required percentage of coverage. Due to the potential difficulty of modifying the amount of shielding on power conductors in cables presently in use to comply with the new shielding coverage requirements of paragraph (k), the standard would apply only to cables acquired after the effective date of the rule.

Paragraph (k) would be a new standard, requiring that metallic shielding be applied in the form of braid, wire serving (wrap) or tape. Metallic braid would have to supply at least 84 percent coverage, and wire serving at least 60 percent coverage. Metallic tape would be required to provide 100 percent coverage. To prevent the use of cables with inadequate shielding, the Agency believes that minimum amounts of coverage should be specified. Those included in the proposal were adopted from the Insulated Cable Engineers Association (ICEA) standards, and would represent acceptable minimum shielding requirements. The differences in the required percentages of coverage are attributable to the design of the acceptable shielding materials. Electric shock, flash burns, electrocutions, and mine fires caused by unshielded or inadequately shielded high-voltage cables would be addressed by the proposed standard.

Section 75.805 Movement of High-Voltage Power Centers and Portable Transformers

This proposed section is derived from § 75.812, which prohibits the movement of high-voltage energized power centers and portable transformers unless permitted by the Secretary. The proposed standard would require power centers and portable transformers to be deenergized before they are moved from one location to another.

Several hazards are involved with the movement of these pieces of equipment while energized. First, high-voltage power centers contain extremely hazardous voltage levels. Movement of them while energized could cause faults at or near the equipment, which could energize their frames. The energized frame of a power center could cause fatal injuries to a miner contacting it during moving operations. Second, power centers and transformers are typically very large and heavy pieces of equipment which are difficult to move. Rough treatment during movement could cause energized cables to be pulled out of their connections to the equipment. Contact with the exposed components of the cable could injure or electrocute mine personnel. Two fatalities have occurred in these circumstances within the past 15 years.

Existing § 75.812 requires operators to request permission from the Secretary prior to movement of energized power centers and portable transformers. For a permit to be granted, operators must meet the burden of showing that it is safer to move an energized power center than a deenergized power center. The intent of the standard was to allow the use of energized electric mine equipment, such as a continuous miner, to move the power center. Less than five permits have been granted on this basis since 1970.

In the past, if the power center was deenergized before movement, all of the equipment capable of moving the heavy structure was also deenergized. Large battery-powered equipment was not available in many mines when the existing standard was promulgated, so power centers often had to remain energized to supply electric power to the equipment required to move it. Today, however, the widespread use of battery-powered equipment capable of moving large and bulky loads would negate the need for allowing power centers or portable transformers to remain energized during movement. The proposed standard would eliminate hazards associated with the practice of moving energized power centers or portable transformers. In light of the danger and associated difficulty in meeting the burden of proof for the grant of a permit, the present standard would be modified as proposed.

Section 75.806 Connection Boxes

This standard would be new, and would set requirements for connection boxes used in high-voltage circuits. Connection boxes would be required to be constructed of metal or its equivalent, be watertight, have the incoming and outgoing equipment safety grounding conductors separately connected to the metallic enclosures, and be located in dry areas. Metal or an equivalent material would provide adequate physical strength to protect the connection. Moisture at the connection could cause arcing and short circuits, presenting shock hazards to miners. The proposed standard would address electric shock and electrocution hazards, as well as the risk of underground fire. Its requirements are intended to provide physical and electrical protection of the connection to minimize the risk of injury to miners at the connection site.

There has been considerable confusion in the mining industry over the acceptability of using high-voltage cable connection boxes in underground coal mines. Part 77 of MSHA's rules addresses connection boxes, but no regulation for the use of connection boxes presently appears in part 75. This has led to the filing of a large number of petitions for modification to use the structures underground. The proposal would clarify that the use of connection boxes would be an acceptable method for connecting two lengths of high-voltage cable in underground coal mines, and would establish safety requirements for their construction and use.

Sections 75.807 through 75.815 Underground Electric Face Equipment

Sections 75.807 through 75.815 would apply specifically to high-voltage power systems supplying underground electric face equipment. Presently, § 75.1002 precludes the use of high-voltage cables within 150 feet of pillared areas. Therefore, it has been a common practice for mine operators to file petitions for modification of that standard so that they may utilize equipment such as high-voltage longwall mining equipment or high-voltage continuous miners in face areas. However, proposed § 75.502 would permit the use of shielded high-voltage cables in face areas.

Electric face equipment, which is used in the working areas of a mine, in by the last open crosscut, is presently required to be permissible in accordance with approval regulations in 30 CFR part 18. The equipment addressed would still be required to comply with the requirements of part 18, but the following sections of subpart I would set additional safety requirements for the use of high-voltage equipment, trailing cables, and power cables in face areas.

The standards in the following sections would be used in lieu of petitions for modification, and are derived from the special terms and conditions included in petitions which have been granted by the Agency, as well as existing standards. In some instances, policies incorporated into existing standards for high-voltage equipment that is not required to be permissible were used as a basis for the proposed standards which would address permissible equipment.

Section 75.807 Voltage Requirements of Electric Face Equipment

This section would limit the amount of voltage which could be used by electric face equipment. Paragraph (a) would set the nominal voltage of the power circuits of electric face equipment at 4,160 volts or less. This voltage is consistent with the requirements of part 18 for permissible equipment. The hazards associated with voltages up to 4,160 volts could be minimized by compliance with the proposed requirements for circuit protective devices, conductor sizes, and grounding in this subpart and elsewhere in the proposal.

Under paragraph (b), the nominal voltage of the control circuits of electric face equipment would not be permitted to exceed 150 volts-to-ground. The effect of this provision would be to keep control circuit voltages low enough to minimize shock hazards. The 150-volt maximum is consistent with the voltage levels presently used for control circuits.

Section 75.808 Electrical Protection of Electric Face Equipment

This section is derived in part from existing §§ 75.518–1, 75.800, and 75.800–2, and would address methods of providing electrical protection for face equipment supplied by high-voltage systems. This type of equipment is used in areas where explosive concentrations of methane, coal dust and combustible materials are most likely to exist in a mine. The effects of ground faults, electrical arcing and short circuits, therefore, could have extreme consequences on the safety of miners. Effective electrical protection for face equipment would reduce the possibility of ignitions and miner contact with energized equipment frames.

Paragraph (a) would require high-voltage systems that supply electric face equipment to be protected by circuit breakers of adequate interrupting capacity, equipped with devices that provide overcurrent, ground-fault and undervoltage protection. The proposed standard, then, would require a circuit breaker for high-voltage systems serving face equipment that will function without damage to itself despite the level of current to which it is exposed. This would assure that the circuit breaker will remain undamaged by overcurrents and thus be able to clear faults in the system.

As discussed in connection with proposed § 75.802(a), overcurrent devices would assure that the high-voltage system is protected against short circuits and overloads. Ground-fault protection would also minimize the risk of shock injuries to miners. Undervoltage protective devices would be required to deenergize the circuit upon detection of a sudden loss of, or failure of voltage. The circuit would then have to be manually reset to prevent unexpected start-up of equipment, which could cause crushing injuries to miners.

Paragraph (b) would require high-voltage motor circuits to be provided with instantaneous short-circuit protection set at the lesser of no greater than 175 percent of the locked-rotor current of the motor, or no greater than 75 percent of the minimum phase-to-phase short-circuit current available at the motor terminals. This provision would set the maximum trip levels of circuit breakers serving high-voltage motor circuits to assure that adequate short-circuit current is available to trip the circuit breaker. Further, it would ensure that current high enough to allow start-up of high-voltage motors could be used without tripping the circuit.

At the specified levels, the protective devices would have to function with no intentional time delay. They would have to immediately deenergize the circuit at these levels, which experience indicates would offer adequate circuit protection. Immediate deenergization would assure that overcurrent, ground-fault or undervoltage conditions would not exist in the circuit for any prolonged periods.

Paragraph (c) is new, and would require high-voltage motor circuits to be provided with backup short-circuit protection in addition to that required in paragraph (b), and would list required trip settings for the devices. When the high-voltage circuit has a nominal voltage of more than 2,400 volts, backup short-circuit protection would have to be set at no more than 1,200 amperes. If the circuit's nominal voltage is 2,400 volts or less, the devices would be required to be set at 2,000 amperes. These settings would assure that circuit breakers used for the protection of high-voltage circuits

are tripped when exposed to fault currents from short circuits.

Paragraph (d), a new provision, would require time delays used for coordination with downstream short-circuit protective devices to be no more than 0.4 seconds. The effect of this provision would be to limit the time delay between tripping of sequential protective devices when selective tripping is used. Therefore, the circuit would be rapidly deenergized in overcurrent situations, but selective tripping would allow for deenergization of only the affected portions of the circuit, if desired.

Paragraph (e) would be new, requiring ground-fault currents to be limited by a neutral grounding resistor to not more than 6.5 amperes when the nominal voltage of the power circuit is 2,400 volts or less, and 3.75 amperes when the power circuit voltage is greater than 2,400 volts. Grounding resistors are employed in resistance-grounded systems to limit the level of fault current in a circuit. The levels specified in the proposed standard would reduce shock hazards and prevent the grounding resister from overheating and becoming an ignition source. These would be appropriately low levels for use in high-voltage systems used in face areas, where the presence of methane can pose ignition hazards. However, these levels should not cause operational problems within the system.

Paragraph (f), also new, would require high-voltage motor circuits to be provided with ground-fault protection having no intentional time delay and set at 0.1 amperes. This would provide for a highly sensitive and responsive ground-fault detection system for high-voltage circuits supplying face equipment. The protective devices would have to operate instantaneously when exposed to 0.1 amperes, under the standard. Therefore, compliance with the standard could greatly reduce the likelihood of a ground fault energizing the frames of face equipment and resulting in fire and shock hazards.

Under a new provision in paragraph (g), high-voltage circuits extending from the section power center would be required to have backup ground-fault protection set at no more than 40 percent of the current rating of the neutral grounding resistor. Backup protective devices would assure that faults occurring in a circuit extending from the section power source will not energize the frames of the face equipment served by it. The proposed standard would use the current ratings for grounding resistors, specified in paragraph (e) of the section, as a deenergization bench mark.

For example, if a 6.5 ampere grounding resistor is used, the backup device would have to operate to deenergize the circuit at 2.6 amperes or less. A 40 percent trip level would provide adequate backup protection which would assure that faults in circuits extending from the power center would not expose miners to the risks of fire or electrocution.

The standard would also require the total time delay used for coordination with downstream short-circuit protective devices to be 0.4 seconds or less. This provision would limit the time which lapses between tripping of the most upstream protective device and those positioned downstream from it when selective tripping is used. Consecutive tripping should occur with no more than 0.4 second total time delay. This would allow the use of selective tripping in order to isolate an affected circuit, but would also assure that the entire circuit is deenergized in rapid fashion to prevent prolonged exposure to dangerous fault currents.

Paragraph (h) would require the high-voltage neutral grounding resistor to be provided with overtemperature protection that will open the ground-check circuit for the high-voltage circuit supplying the section power center if the grounding resistor is subjected to a sustained ground fault. The overtemperature rating or setting of the device would have to be 50 percent or less of the maximum temperature rise of the grounding resistor. These are new provisions.

Grounding resistors typically generate heat when subjected to sustained ground faults. An overtemperature device would cause interruption of the high-voltage circuit supplying the section power center by opening the ground-wire monitor circuit before extreme heat could cause damage to the grounding resistor. Therefore, the resistor would not become disabled, leaving the circuit unprotected, and the possibility of fire would be reduced. The 50 percent overtemperature setting would assure that the affected circuit is quickly deenergized under a sustained fault, but the setting would be high enough to prevent operational problems. It would not cause deenergization of the circuit when exposed to the non-hazardous amounts of heat generated by equipment during normal use in the system.

Paragraph (i) is new, and states that equipment safety grounding conductors would be prohibited from being passed through or connected in series with ground-fault current transformers. Such a configuration, in MSHA's view, could lead to multiple faults occurring in the high-voltage circuit, because it may not allow a fault current to be conducted through the grounding conductor. Therefore, the current transformer would not detect the fault and open the circuit. Particularly in face areas of the mine, installing equipment safety grounding conductors within or in series with the current transformer could lead to ignitions and shock hazards.

Under a new provision in paragraph (j), ground-fault current devices would be required to have a test circuit that injects a current of 50 percent or less of the maximum ground-fault current of the system, and that causes the circuit breakers to open. This testing procedure would help to determine whether ground-fault current devices are functioning properly to monitor the circuit they protect. It would also test the sensitivity of the device to fault currents.

Paragraph (k) addresses types of undervoltage devices which would be acceptable for protection of high-voltage circuits supplying face equipment. The proposal would require that these devices be undervoltage trip coils or shunt trip coils energized by undervoltage relays or ground-monitor relays. Experience indicates that these devices provide the most reliable form of undervoltage protection for underground high-voltage a-c circuits, to assure that devices designed to deenergize the circuits under fault conditions will remain operational.

Undervoltage devices are used to detect the loss or failure of voltage in a circuit, so that it will be deenergized if insufficient voltage exists to energize circuit protective devices. Shunt trip coils without undervoltage or ground-monitor relays would not allow the circuit breaker to trip the circuit until the circuit is reenergized after a loss or failure of voltage. The proposed standard would therefore prevent momentary reenergization of equipment served by the circuit and reduce miners' exposure to shock hazards, as well as the risk of being pinned or crushed by face equipment which suddenly starts up. Shunt trip coils would be required to be energized by stored energy devices, such as a battery or capacitor, to assure that the coils would receive power even if the circuit has suffered a voltage failure.

Paragraph (l) would also be new, and would prohibit the use of circuit breakers which automatically reclose after operation. Automatic reclosure of the circuit breaker would allow immediate reenergization of a circuit which has sustained a fault. Faults occurring in underground electrical

systems do not normally clear themselves, as surface utility lines often do. For instance, a fault could be caused by a miner or some object contacting the power conductors in a damaged high-voltage cable. Unless the object is removed, the fault will be sustained and recurrent tripping will continue if the circuit breaker is designed to automatically reclose. This could cause damage to the circuit protective system and expose miners to serious shock hazards.

Section 75.809 Disconnecting Devices for Electric Face Equipment

This standard is derived from existing § 75.808, and would also contain a new requirement for disconnecting devices for high-voltage electric face equipment. Paragraph (a) would require the main circuit breaker at the section power center to be equipped with a disconnecting device designed and installed so that it can be determined by visual observation that the contacts are open, without removing any of the section power center covers. Visual evidence of whether the contacts are open would be required, to allow miners to readily assess that circuits being worked on are deenergized before work is begun. Visual evidence which negates the need for opening the power center covers would prevent unnecessary exposure of miners to the high-voltage components of the equipment.

Paragraph (b) is new, and would require the main controller of longwall mining equipment to be equipped with a disconnecting device that automatically grounds all load power conductors when the device is in the open position. This provision would protect persons working on a circuit that is accidentally reenergized. Automatic grounding of the load power conductors would introduce an intentional fault in the circuit if inadvertent reenergization occurs, which would immediately deenergize the circuit. The persons performing the work would thus be protected from exposure to energized components of the circuit.

Section 75.810 Testing, Examination, and Maintenance of High-Voltage Electric Face Equipment

This standard is derived in part from existing §§ 75.512, 75.512–2, 75.800–3, 75.800–4. It would be used in conjunction with proposed § 75.502, which would allow the use of high-voltage cables in face areas to supply high-voltage equipment. Proper testing, examination and maintenance of high-voltage electric face equipment, such as longwall systems, operated in the presence of methane and combustible materials, would assure that it would not pose increased hazards to miners.

Paragraph (a) would require an electrician qualified for high-voltage work in accordance with proposed § 75.153 to test, examine, and maintain high-voltage face equipment and circuits to determine that the electrical protection, equipment grounding, permissibility, cable insulation, and control devices are properly maintained to prevent fire, electric shock, ignition or operational hazards from existing on the equipment. Keeping face equipment free from these hazards would be assured by the training and expertise of a high-voltage qualified electrician. Testing and examination of high-voltage equipment used in face areas on a regular basis would assure that hazardous conditions are discovered and addressed before they can cause injuries to miners.

Paragraph (b) is new, and would require each high-voltage grounding resistor and electrical protective device for face equipment to be subjected to specific tests when installed. Testing would be required to include passing an amount of current through each current transformer necessary to cause the circuit breaker to open, and impressing an amount of voltage across each potential ground-fault device necessary to cause the circuit breaker to open. The qualified electrician would be responsible for determining whether the grounding resistor is open or shorted and assuring that the overtemperature protective device is capable of opening the incoming ground-wire monitor circuit. The proposed testing procedures would represent a thorough evaluation upon installation of the equipment of whether the devices designed to eliminate hazards to miners would operate effectively when required to do so.

Paragraph (c) would require additional post-installation inspections and examinations of high-voltage face equipment on a periodic basis. At least once every seven days, such equipment would be required to be inspected and examined, including actuation of the ground-fault test circuit which would be required by proposed § 75.808(j). A seven-day interval would be a reasonable period in light of the use and location of the equipment. The standard would assure that problems which arise during normal use of mining equipment would be identified and dealt with appropriately, so that miners would not be exposed to fire or electrocution hazards. Actuation of the ground-fault test circuit would help to identify any damage or defects in the grounding systems which protect face equipment.

Paragraph (d) would require that each high-voltage circuit breaker be opened at least every 30 days by opening the corresponding ground-check conductor at the extreme end of the ground-wire monitoring circuit, where a ground-check conductor is used. This procedure would assure that the circuit breaker will operate effectively to deenergize the entirety of the circuit it protects. Testing every 30 days would be, in MSHA's view, an appropriate interval for evaluating the effectiveness of these devices.

Under paragraph (e), when examinations or tests of face equipment reveal a fire, electric shock, ignition or operational hazard, the equipment would be required to be removed from service or repaired. This provision would assure that equipment which poses any danger to miners would not be used before the hazardous condition is repaired.

Paragraphs (f) and (g) contain requirements for documentation of testing and repairs. At the completion of examinations and tests, the person who made them would be required to certify by signature and date that they have been conducted. A record of any unsafe condition found and corrective action taken would also have to be made. Certifications and records would be required to be kept for at least one year and made available at the mine for inspection by authorized representatives of the Secretary and representatives of miners at the mine. Records and certifications of testing and repairs would be valuable tools in the investigation of mine accidents and to point out patterns of equipment defects for improvements in equipment design.

Section 75.811 Cables for High-Voltage Electric Face Equipment

This section is derived in part from existing §§ 75.600–1 and 75.804, and would set requirements for the physical and electrical protection of high-voltage power cables and trailing cables used in conjunction with electric face equipment. Paragraph (a) would require each high-voltage cable to have a voltage rating of at least the nominal phase-to-phase voltage of the circuit in which it is used. This would assure that cables serving high-voltage face equipment will possess current-carrying capability which is compatible with the current carried by the circuit. This would reduce the likelihood of fire and shock hazards caused by damage to cables having inappropriate voltage ratings.

Under paragraph (b), high-voltage cables would be required to have a

grounded metallic shield around each power conductor. The shielding component of the cable would prevent voltage stresses in the conductors from damaging the other components of the cable and causing faults in the circuit.

Paragraph (c) is new, and would require metallic shielding applied in the form of braid to provide at least 84 percent coverage. Under paragraph (d), also new, metallic shielding in the form of a serving (wrap) would have to provide at least 60 percent coverage for the power conductors. The designs of these types of shielding are determinative of the percentages of coverage which would offer effective protection for power conductors. Shielding in the form of metallic tape would not be permitted under the standard. The potential for repeated flexing of the cable could cause separation of the tape, resulting in exposure of energized power conductors. Tape shielding is unable to withstand the continuous flexing required of this type of cable. Particularly in face areas, where methane concentrations can present a greater hazard, exposure of energized conductors would pose an ignition source. Tape, therefore, would not be appropriate for shielding of high-voltage power cables supplying face equipment.

Under paragraph (e), high-voltage trailing cables would be required to be flame-resistant, in accordance with the requirements of existing § 18.64. That standard details tests for the flame-resistant characteristics of cables used in underground face areas for permissibility purposes. Flame-resistant cables would reduce the spread of fire, should a prolonged short circuit ignite the cable jacket.

Paragraph (f), a new provision, would require power conductors to be at least No. 4 AWG, therefore ensuring sufficient physical strength to lessen the likelihood of the conductors being broken. Under paragraph (g), high-voltage cables would be required to contain one or more bare equipment safety grounding conductors. The purpose of a bare equipment safety grounding conductor is to assure detection of faults in a circuit. If all conductors within a cable were insulated, it would be difficult for protective devices to detect the occurrence of a fault. Therefore, fault currents could go unchecked by the protective devices of the circuit, presenting a shock hazard by energizing the frames of equipment.

Paragraph (h) would require ground-check and interlock circuit conductors to be contained within high-voltage cables, and be at least No. 10 AWG. Containment of these conductors within the cable would protect them from physical damage. No. 10 AWG conductors would possess physical and electrical strength that is appropriate for their uses.

Section 75.812 Cable Support Systems; High-Voltage Longwall Electric Face Equipment

This section of the proposal is new, and would address the handling and support of high-voltage cables serving longwall electric face equipment. Paragraph (a) would require longwall mining systems to be equipped with cable handling systems and support systems that are designed, installed, and maintained to protect high-voltage cables from damage, and to minimize the possibility of miners inadvertently contacting the cables. Although longwall mining systems are considered to be a useful and productive mining method, the high-voltage cables used to supply them with power could present shock and fire hazards if they are damaged or defective. The handling and support systems included in the proposal would guard cables to achieve minimum exposure to physical damage or stress.

Under paragraph (b), high-voltage cables used on longwall mining systems would be required to be deenergized before removing entry conveyor belt structures. Movement of energized cables while removing entry conveyor belt structures could lead to the occurrence of faults in the circuit, which would pose risks of fire and electrocution to miners. The standard would address these dangers by requiring deenergization of the cables prior to movement of belt structures.

Section 75.813 Guarding of Cables for High-Voltage Electric Face Equipment

This proposed standard is partially new, and partially derived from existing § 75.807. It would set new guarding requirements for high-voltage cables supplying electric face equipment. Paragraph (a) would require the cables to be guarded where persons regularly work or travel over or under the cables to prevent physical damage to the cables and miner contact with them. A new provision would also require guarding where the cables leave cable handling systems or support systems to extend to electric components. The effect of this provision would be to reduce flexing and stress on cables to prevent physical damage which might pose shock and fire hazards.

Paragraph (b) would set performance requirements for guarding. It would have to protect high-voltage cables from physical damage and prevent miner contact. Guarding would also be required to be constructed of grounded metal or nonconductive, flame-resistant material. These standards would assure that guarding possesses adequate physical and electrical protective characteristics to perform its function. Use of the specified materials would assure that miners would not be exposed to the voltage of the cable.

Section 75.814 Safety Devices for High-Voltage Systems Supplying Electric Face Equipment

This is a new standard, which would set requirements for devices designed to prevent miner contact with energized internal components of high-voltage electric equipment. Paragraph (a) would require each unit of high-voltage equipment to be equipped with a barrier between the main disconnecting device and motor starter compartments and between each motor starter compartment. Compliance with the standard would assure that in gaining access to the disconnecting device, persons would not make contact with energized components of adjacent motor starter compartments.

Under paragraph (b), high-voltage equipment would be required to have covers arranged so that persons could perform work on the motor starter compartment without being exposed to energized high-voltage conductors or parts when the disconnecting device at the main controller is in the open position. This provision would minimize shock hazards to persons performing work on the equipment. Cover interlock switches would be required to automatically deenergize the high-voltage circuit supplying the unit when any cover that provides access to energized high-voltage conductors or parts is removed. Implementation of this provision would provide automatic protection for miners performing work on the internal components of the equipment.

Under paragraph (c), barriers would be required to be constructed of grounded metal or non-conductive insulating board. These materials would provide the necessary physical strength and protective electrical characteristics for an effective barrier. The proposed standard would prevent the use of materials such as belting, which would not be sturdy enough to prevent contact with the energized components of adjacent compartments.

Paragraph (d) would require control circuits of electric face equipment to have a two-winding transformer that electrically isolates it from the high-voltage circuits. Additionally, control circuits would be required to have an

electrostatic, or "Faraday," shield between the secondary and primary windings. The shields would have to be made of aluminum or copper and connected to the equipment frame, with a cross-sectional area consistent with proposed § 75.714(c). The shields would prevent inadvertent contact with energized equipment components. The use of aluminum or copper materials connected to the equipment frame would assure physical strength, good conductivity, and an efficient connection to the grounding system.

Section 75.815 Procedures for Working on High-Voltage Systems Supplying Electric Face Equipment

This section is derived from existing §§ 75.509, 75.511 and 75.705. It would set requirements for performing work on high-voltage systems supplying electric face equipment. The requirements would be similar to the general requirements in proposed § 75.506 for work on electric circuits and equipment, with additional standards specifically applicable to work with high-voltage systems supplying face equipment.

Paragraph (a) would require safety precautions to be taken by the qualified electrician required to perform electrical work on high-voltage face equipment before any work, including testing, troubleshooting, and fault finding, is performed in the motor starter compartment. The qualified electrician would be responsible for assuring that the contacts of the main circuit disconnecting device at the main controller are open and grounded, locking out the disconnecting device with a padlock, and tagging the disconnecting device. These precautions would assure that the affected circuit has been properly deenergized and disconnected so that persons performing work on it would not be exposed to shock or electrocution hazards.

Paragraph (b) would detail procedures to be followed by the qualified electrician before any electrical work is performed on a high-voltage cable or motor. The electrician would be responsible for assuring that the cable is disconnected, connecting the phase conductors in the cable to the grounding conductors, locking out the cable with a padlock, and tagging the cable coupler for the cable. Work with high-voltage equipment and circuits can be extremely hazardous. Without taking precautions such as properly locking-out and tagging the affected circuit, qualified electricians would be exposed to the risk of electrocution from someone inadvertently reenergizing the circuit being working on.

Paragraph (c) is new, and would require disconnecting devices and couplers to be locked with an individual padlock for each person performing work. Therefore, the opportunity for accidental reenergization of the equipment or circuit before all persons have completed work would be reduced. For similar reasons, a new provision in paragraph (d) would require tags used on deenergized high-voltage electric circuits and equipment to identify each person performing work, and the circuit or equipment being worked on. Under paragraph (e), only the person who installed a padlock or tag would be permitted to remove it. These steps would assure that electricians working on high-voltage circuits or equipment are well-identified and protected from accidental exposure to possibly lethal electric shock.

Individual padlocks, removable only by the persons who installed them, would place responsibility on the persons performing work to assure their personal safety. If work on the circuit has not been completed by the end of a shift, the circuit should remain tagged. A mine official, such as a foreman, could attach his or her own padlock or tag the circuit until work is resumed by another qualified electrician, who would be responsible for installing an individual lock. The danger and accident history of reenergization of circuits before work has been completed make such measures necessary for the protection of miners against electrocution or electric shock.

Subpart K—Trolley Wires and Trolley Feeder Wires

Section 75.1001 Installation

This proposed standard is derived in part from existing §§ 75.516, 75.1003 and 75.1003–1. It would specify the location of trolley wires and trolley feeder wires, and specify when guarding of these wires is necessary. Paragraph (a) would require trolley wires and trolley feeder wires to be at least six inches outside of the track rail, except where the wires cross over the rails at track switches. The six-inch clearance would be measured from the trolley or trolley feeder wire to a vertical line extending from the outside of the track rail.

In MSHA's view, a 6-inch clearance would provide an appropriate margin of error to minimize possible contact between the trolley circuit and the frames of track equipment operating in the trolley entry. This provision would help protect miners from flash burns and mine fires that can occur when contact with trolley wires and trolley feeder wires takes place. Additionally, this provision would minimize trolley wire contact by personnel using or operating track-mounted equipment. Two fatalities have occurred since 1970 when track equipment operators contacted the trolley wire while attempting to reset trolley poles.

Paragraph (b) is derived from existing § 75.516, which prohibits power wires from contacting combustible materials, roof, or ribs. The proposal would modify the present standard by prohibiting trolley wires and trolley feeder wires from contacting combustible materials, metallic water lines, metallic structures, roof or ribs. Metallic water lines and metallic structures would be included in the proposal to minimize the hazards associated with trolley circuit conductors contacting metallic structures or metal waterlines. Such contact could cause electrical arcing or cause the structures to act as unintentional electrical conductors.

Paragraph (c) is derived from existing § 75.1003 which requires that trolley wires, bare trolley feeder wires and bare signal wires be insulated where they pass through doors and stoppings. This rule would be retained in the proposal with a more definitive requirement that insulation be provided for trolley wires and trolley feeder wires where they cross within six inches of power wires and cables. MSHA has identified these locations as areas where miners are frequently exposed to shock hazards.

Paragraph (d) of the proposal would require that trolley and trolley feeder wires installed after the effective date of the rule have at least six inches of radial clearance from the metallic parts of track-mounted equipment. This would establish a minimum safe distance (radial) from any metallic part of track-mounted equipment to the trolley or trolley feeder wires to minimize potential shock and fire hazards through inadvertent contact as equipment travels through trolley entries.

Paragraphs (e), (f), (g), and (h) are new, and would require the installation of deadblocks in radial stub-feed and parallel connected rectifier trolley systems. Radial stub-feed systems would be required to have deadblocks installed between adjacent rectifiers to isolate or separate the systems. Deadblocks would also be required to be installed in parallel with each stub-feed circuit breaker. Figure K–1 would illustrate the provision. Parallel-connected rectifier trolley systems would be required to have deadblocks installed in parallel with each tie-feeder breaker and each stub-feed breaker. Figure K–2 would illustrate this standard.

Deadblocks would ensure that each radial stub-feed trolley system would be electrically independent, in order to prevent the over-extension of circuit protection. When such an over-extension occurs, the system, due to increased circuit resistance, may be unable to provide the amount of short-circuit current necessary to actuate circuit protection devices. The proposal would require deadblocks to be installed at each stub-feed or tie-feeder circuit breaker for precisely the same reasons.

Paragraph (g) would require that at least two insulating gaps be provided in the deadblocks that will extinguish arcs. Requiring at least two insulating gaps would assure circuit isolation of adjacent portions of the trolley circuit and prevent fire and shock hazards when one gap is inadvertently shorted.

Under paragraph (h), each deadblock would be required to be distinctly marked at its location so it can be quickly located in the event of an emergency. This would assist emergency workers in determining where power can be accessed for emergency operations.

Section 75.1002 Insulated Hangers

Portions of this proposed standard are derived from existing § 75.516, which requires that power wires be supported on insulators. Paragraph (a) of the proposal would retain the insulator requirement. With uninsulated hangers, the voltage on the supported trolley wire or trolley feeder wire could energize the uninsulated supporting hanger, causing fire and shock hazards. Additionally, it could energize other adjacent metallic structures. The proposal would reduce the chances of such accidents by assuring that voltages and currents are confined to the trolley wires or trolley feeder wires.

The proposal would require hangers to have a dielectric strength of at least 15 times the nominal voltage of the trolley system in which they are used, under paragraph (b). MSHA arrived at this figure by evaluating the "American Standard Safety Rules for Installing and Using Electrical Equipment," 1964, sponsored by the American Mining Congress and the U.S. Bureau of Mines. After an evaluation was made, it was determined that the minimum dielectric strength would be ten times the maximum no load voltage of a typical trolley circuit, plus an additional safety factor of 1000 volts. The proposed insulation allows for a safety margin that would minimize the possibility of a hanger failing electrically and causing a mine fire or creating a shock hazard.

Paragraph (c) would require that hangers have two insulators stacked together when uninsulated wires are supported from metallic arches, square sets, overcasts, and other similar metallic structures. This new requirement would address the increased potential fire, shock, and ignition hazards associated with having the hanger attached to a metallic structure, instead of the coal mine roof. Under such circumstances, the potential hazard is greater because of the increased electrical conductivity associated with metallic structures. Moreover, insulators are susceptible to failure. A requirement for two insulators would provide an additional measure of protection.

Section 75.1003 Guarding

This section is partially derived from existing §§ 75.509, 75.510, 75.1003 and 75.1003–1, and is partially new. The requirements in the proposal emphasize that guarding is required not only where miners work, but at other locations where they are exposed on a frequent or regular basis to the shock hazards of exposed energized trolley circuits. Since 1970, there have been at least nine fatalities involving miners who came into contact with unguarded trolley wires.

Paragraph (a) of the proposal retains and clarifies the requirements of existing § 75.1003. It would require guarding of trolley wires and trolley feeder wires where supplies are loaded, unloaded or stored, at mantrip stations, on each side of all doors and stoppings through which wires pass, where persons work within 3 feet of the trolley circuit wires, except for persons operating rail-mounted haulage equipment at track switches, and where persons regularly pass under the wires. Agency experience has been that guarding is necessary on trolley circuit wires, not only where persons perform their normal work tasks and are therefore exposed to energized trolley circuits, but also where they load or unload supplies or generally work with supplies.

Paragraph (b) would require that trolley wires and trolley feeder wires be deenergized when guarding is installed or removed. An exception to this provision would allow the installation and removal of certain types of special temporary guarding while the trolley system is energized. Such temporary guarding, designed for installation or removal while the trolley system is energized, would provide adequate protection for the person during installation and removal. This temporary guarding would allow trolley systems to continue operating safely during installation or removal of guarding since it is designed to protect the installer from exposure to bare energized trolley circuit wires.

Section 75.1004 Cutout Switches

The section is derived in part from existing § 75.1000. The provisions of that standard have been retained with minor word changes for clarification. Paragraph (a) would require a cutout switch which opens both the trolley wire and trolley feeder wire at each rectifier or d-c generator, each tie feeder circuit breaker, each branch line within 100 feet of the trolley turnout, and at intervals of not more than 2,000 feet in the trolley circuit. The proposal would clarify the existing requirement that cutout switches be provided near the beginning of branch lines by requiring that cutout switches be provided at each branch line within 100 feet of the trolley turnout.

Under the existing standard, inability to locate the cutout switches in trolley systems has made it difficult for miners to quickly deenergize trolley circuits in emergency situations. If a fire were to occur on a trolley system, the ability to quickly deenergize the circuit could prevent further spread and reduce the chances of serious injury to miners. Requiring cutout switches at the specified locations would assure that effective and expeditious means for deenergizing trolley circuits are available throughout the mine.

One commenter to the preproposal draft suggested that plugs and receptacles be accepted as an alternative to a cutout switch for disconnecting power in a trolley circuit. Although plugs and receptacles can serve this purpose, they can be easily damaged, especially when located near a trolley track system. A plug and receptacle arrangement could also give rise to the possibility that a short circuit could occur inside the coupler, resulting in a hazardous situation.

Paragraph (b) is new, and would require that each cutout be distinctly marked at its location so it can be quickly found in the event of an emergency. Distinctly marked cutout switches would assure that they can be readily identified in the event of a fire or other electrical accident. The Agency believes that the poor lighting conditions in underground coal mines would justify the need for this requirement.

Section 75.1005 Circuit Protection

This section is derived from existing § 75.518–1, which incorporates by reference the 1968 edition of NEC. It is also derived from existing §§ 75.1001

and 75.1001–1 which require that trolley wires and trolley feeder wires be provided with overcurrent protection by automatic circuit interrupting devices that protect against short circuits. Short-circuit protection is accepted throughout the industry as overcurrent protection for trolley circuits. The proposal would include performance-oriented requirements for circuit breakers used to protect trolley wires and trolley feeder wires, and would specify under what conditions the breakers would be required to deenergize the system.

Paragraph (a) would require that trolley wires and trolley-feeder wires be protected against short circuits by circuit breakers. The use of fuses to provide protection for trolley circuits would not constitute compliance with the proposed rule. The proposal would, however, allow fuses to protect equipment and circuits supplied from a trolley system, but not the trolley systems themselves. Trolley circuits may be subjected to extreme overload conditions, typically up to 150 percent for 2 hours, and the circuit protective device must be capable of operating under these conditions without damaging itself or its components.

Several problems are associated with the use of fuses for protection of trolley circuits. Fuses, sized to provide short-circuit protection, could not effectively withstand the extreme overload conditions and would tend to open prematurely. Additionally, fuses sized to withstand the extreme overcurrents of trolley systems may not provide proper short-circuit protection due to their melting times. Due to the electrical characteristics of trolley systems, it is not clear whether fuses would be capable of safely interrupting overcurrents that are 200–300 percent of the current rating of the fuses.

Another problem is that fuses must be replaced after one interruption. This may expose mine personnel to unnecessary hazards because the power circuit cannot be used until the blown fuse has been replaced, thus creating the hazard of unnecessary delay in the transportation of persons and material during mine emergencies which can accompany power outages.

The proposal would require that d-c breakers not be set at more than 50 percent of the minimum available bolted short-circuit current when that current is less than 800 amperes, or 75 percent when that current is 800 amperes or more. Alternating-current breakers protecting stub-feed trolley systems could not be set at more than 40 percent of the minimum available bolted short-circuit d-c when that current is less than 800 amperes, or 60 percent when that current is 800 amperes or more, under the proposal. These settings are based on general industry standards for circuit breakers and MSHA studies. The studies included an evaluation of the relationship between currents and the voltages of arcing faults on the trolley systems. Arcing faults on trolley systems have been documented as the cause of numerous mine fires.

Paragraph (b) is derived from the NEC, which prohibits circuit breakers from being arranged or installed in parallel. That standard is currently incorporated by reference in existing § 75.518–1, and would be retained in the proposal. When two circuit breakers are installed in parallel, the amount of current required to deenergize the faulted circuit is dependent upon the opening of both circuit breakers. Should a short circuit occur, neither circuit breaker would open, and a hazardous fault would be left on the circuit. By requiring that breakers not be installed in parallel, adequate protection would be assured for trolley circuits.

Paragraph (c) is derived from an NEC standard which requires that an overcurrent device be placed in each ungrounded conductor, incorporated by reference in existing § 75.518–1. The proposal would retain the requirement and modify it for application to trolley systems in underground coal mines. It would require that a d-c circuit breaker be connected in series with the ungrounded power conductor at each rectifier supplying a radial stub-feed trolley system, unless an a-c circuit breaker is connected in series with each ungrounded conductor supplying power to the rectifier bridge. This would ensure that each conductor is provided with adequate short-circuit protection, in order to prevent the fire hazards associated with arcing ground faults on the trolley circuit. Figure K–3 would accompany the proposed standard for illustration.

Paragraph (d) is also derived from an NEC standard, and would require that one year from the effective date of the rule, at least two d-c tie-feeder circuit breakers be connected in the ungrounded power conductor of each rectifier used to supply power to a parallel-connected rectifier trolley system. This would prevent the overextension of protection for parallel-connected rectifier circuits. Such an overextension could lead to arcing fauits on the trolley wires, which would act as an ideal ignition source underground. MSHA's experience with one-breaker systems indicates that short-circuit protection could be overextended when one or more of the rectifiers becomes deenergized. Figure K–4 would illustrate the proposed standard.

Paragraph (e) would require each tie-feeder breaker located at a parallel-connected rectifier to automatically open when either the rectifier bridge loses its source of power or when any main circuit breaker that is located between the tie-feeder breaker and the rectifier opens. This proposed rule addresses another circumstance under which the overextension of protection could lead to an arcing fault current that could cause a mine fire. It is derived from existing standards, as well as the NEC.

Section 75.1006 Circuit Breakers

This section is derived in part from existing §§ 75.518–1, and 75.1001–1. Paragraphs (a) through (f) are derived from the NEC, 1968, but the existing incorporation by reference in existing § 75.518–1 would be deleted under the proposal. The NEC requires that overcurrent protection devices be selected and coordinated with the total impedance and other characteristics of the circuit being protected to prevent external damage to the electric components of the circuit during fault conditions. In MSHA's view, d-c trolley systems can present extreme fire hazards upon failure of electric components, more so than other types of electrical systems. Because of this, MSHA has evaluated the NEC standards and used the results of the evaluation to develop proposed requirements that would ensure that trolley circuit breakers are properly installed with safe and effective settings.

Paragraph (a) would require that d-c circuit breakers used on trolley systems having a nominal circuit voltage of between 250 to 300 volts have a minimum voltage rating of 330 volts. Paragraph (b) would require that d-c circuit breakers used on trolley systems having a nominal circuit voltage of between 500 and 600 volts have a minimum voltage rating of 660 volts. The voltage ratings of d-c circuit breakers in paragraphs (a) and (b) would be specified to assure the proper circuit interruption based on no-load voltages of trolley systems in use at coal mines. They are based on the no-load voltages of typical trolley systems in underground coal mines.

Paragraph (c) would require that d-c circuit breakers have interrupting-current ratings with a time constant of 30 milliseconds of not less than 15,000 amperes for frame sizes less than 1,000 amperes; not less than 25,000 amperes for frame sizes 1,000 amperes to 2,000

amperes; and not less than 50,000 amperes for frame sizes over 2,000 amperes. The 30 milliseconds time constant is obtained by dividing the system inductance by the system resistance. A 1980 study by the Agency on time constants and a 1984 study by the U.S. Bureau of Mines in the same technical area indicate that time constants of trolley systems can approach 30 milliseconds. The interrupting current ratings are based on the frame size and have been derived from nationally recognized standards for trolley circuits.

Paragraph (d) would require that a-c circuit breakers installed at radial stub-feed rectifiers have an interrupting current rating not less than 20 times the continuous full load d-c ratings of the rectifiers. The factor of 20 is based on rectifiers having short-circuit current capacity levels less than 25 times the full-load current of the rectifiers. Since the conversion factor between a-c and the d-c is a value of 0.8, an adequate safety factor would be provided in the proposal by requiring the factor of 20 (25 times 0.8=20). This safety factor would provide trolley circuits with adequate protection against short circuits that have been related to numerous mine fires.

Paragraph (e) would require that d-c circuit breakers installed at the rectifiers have continuous current ratings not less than 120 percent of the continuous full-load current ratings of the rectifiers. Paragraph (f) would require that a-c breakers installed in radial stub-feed rectifiers have continuous current ratings of not less than the continuous full load d-c ratings of the rectifiers. These continuous full-load current values take into account the extreme overload conditions (up to 150 percent for 2 hours) that can occur on trolley systems. It is necessary that circuit breakers be able to withstand overloads over time without damage to components of the system. The specified values would provide a minimum factor of safety to prevent this damage.

Paragraph (g) would require that each d-c circuit breaker be equipped with an instantaneous overcurrent relay that causes the circuit breaker to deenergize the circuit with no intentional time delay. This would prevent overcurrents from extending beyond the first circuit breaker from the load while still allowing time delays on other breakers to prevent nuisance tripping. Thus, the shock and fire hazard would be minimized without tripping the entire circuit.

Paragraph (h) is new, and would require that d-c electronic overcurrent relays installed one year after the effective date of this proposed rule be fail-safe and bi-directional. Trolley systems are continuously subjected to overvoltage conditions from the operation of haulage equipment, and these overvoltage conditions are a major factor in the failure of solid-state circuit protection devices used on circuit breakers. The proposed standard would minimize the risk of fire under these circumstances.

Paragraphs (i) and (j) are new, and would require that automatically reclosing circuit breakers be equipped with load measuring devices. Paragraph (i) would require that the devices prevent the circuit breakers from reclosing whenever the prospective load current exceeds 300 amperes. Paragraph (j) would require that automatically reclosing circuit breakers installed in parallel-connected rectifier trolley systems be equipped with voltage differential devices that prevent the circuit breakers from reclosing whenever the voltage across the circuit breakers is between 15 and 85 percent of the nominal system voltage. These proposed requirements are based on MSHA's experience regarding automatic reclosing devices. When these devices are not used, effective short-circuit protection cannot be ensured, due to the possibility of the circuit breaker reclosing when short circuits or extreme overloads are present on trolley circuits.

Section 75.1007 Handling

This section of the proposal is derived in part from existing §§ 75.509 and 75.510. Existing § 75.509 requires that all power circuits and electric equipment be deenergized before work is performed, except when necessary for trouble shooting or testing. Section 75.510 requires that energized trolley wires be repaired only by a person trained to perform electrical work and to maintain electric equipment and such person be required to wear approved and tested insulated shoes and wireman's gloves. The proposal would clarify the existing exception, and would allow miners to perform certain tasks on energized trolley circuits provided safety precautions are taken.

Paragraph (a) would require the deenergization of trolley circuits before any work is done, except in specified circumstances. Deenergization would not be required when reinstalling wires in hangers or installing or removing temporary guarding designed to minimize shock hazards. Persons doing this work would be required to wear rubber boots and rubber insulating gloves with protective coverings designed to prevent physical damage to the insulating material.

Trolley wires contain dangerous amounts of voltage and also present special hazards because they are bare. Insulated boots would protect the miners from shock caused by contact with the trolley circuit and a conducting medium such as the track or a puddle of water. Because of the damp nature of some coal mines, rubber boots would be an important safety measure for protection against shock and electrocution from trolley circuits. Similarly, rated gloves would protect a miner from potential shock and flash burn hazards while working on energized trolley circuits.

Paragraph (b) is new, and would require that rubber insulating gloves used for handling trolley wires be rated for at least 1000 volts. Such gloves are rated in accordance with the American Society for Testing and Materials (ASTM). This is the lowest rated glove available under ASTM standards, and would provide the necessary protection against electric shock hazards.

Paragraphs (c) and (d) are also new, and would require the examination of rubber boots, rubber insulating gloves and protective coverings before each use for visible signs of damage or defects and their removal from use should damage or defects be found. Gloves can be easily examined before each use. An examination commonly used is to fill the gloves with air and observe if there is any leakage. If any leakage is found, the gloves would be required to be removed from service. A small hole in either the gloves or the boots is enough of an insulation failure to allow electrical current to flow through and cause injury to the wearer.

Section 75.1008 Track Bonding

This section is derived from existing § 75.514, which requires that all electrical connections be mechanically and electrically efficient. Since mine track is used as an electrical conductor in conjunction with trolley wires and trolley feeder wires, the proposal would require that the track be mechanically and electrically efficient by setting specific bonding requirements at various locations on the track. This would ensure adequate electrical conductivity of return circuits. These proposed requirements are based on accepted industry practices and MSHA's experience with trolley systems.

Paragraph (a) would require that track used to transport coal from a junction of tracks of two or more coal-producing sections have both rails welded or bonded at every joint and have the rails cross-bonded at intervals of 200 feet or less. Additionally, it would require that

track used to transport coal from a single coal-producing section or used only to transport miners and supplies have one rail welded or bonded at every joint and have the rails cross-bonded at intervals of 200 feet or less. Under the standard, an authorized representative of the Secretary may require both rails to be welded or bonded at every joint when necessary to provide adequate electrical conductivity in the trolley system.

Track switches would be required to have each switch approach cross-bonded within 20 feet of the switch and the straight and curved track sections bonded together within five feet of the switch frog. Compliance with these proposed requirements would ensure miner safety by preventing loose or bad connections of track that could cause the connections to overheat during use.

Paragraph (b) would require that metal ties, when used as cross bonds, be welded to both rails. Agency experience indicates that both rails need to be welded to the metal ties to assure an electrically efficient connection. Paragraph (c) would require that track not be used before it is bonded except by equipment necessary to install the bonds. Track that is used before it is bonded can cause arcing, which can result in a fire hazard or shock hazard to persons contacting rail-mounted equipment.

Paragraph (d) would require that return-feeder wires connected in parallel with track rails be bonded to the track rails at intervals not to exceed 1,000 feet. This requirement would ensure electrically efficient connections between the track and the return-feeder wire to prevent arcing faults on the return-feeder wires.

Section 75.1009 Examinations, Tests and Maintenance of Trolley Systems

This section of the proposal is derived in part from existing §§ 75.512, and 75.1001–1, which would be modified under the proposal. The recordkeeping requirements in the existing standards would be replaced with a combination of certification and recordkeeping requirements.

Paragraph (a) would incorporate essentially the same requirements as existing § 75.5l2. It would require that trolley systems be tested, examined and maintained by a qualified electrician. This would ensure that work on trolley system is performed by persons who are knowledgeable of electrical hazards and skilled in preventing them.

Paragraph (b) is new, and would require that trolley circuits be tested at least once every 180 days to determine the available short circuit currents by passing measured amounts of currents through the circuits at the extreme ends of the circuits protected by each circuit breaker and measuring voltage drops at each of these locations. The test procedures are designed to ensure that protection is available against the extreme fire hazards caused by short circuits on trolley systems. Short-circuit protective devices are passive, and do not operate to deenergize the circuit until an extreme overload is present on the circuit. With this test procedure, it can be determined if the device will operate as required before a short circuit occurs on the system.

Paragraph (c) is new, and would require that the available short-circuit currents be calculated from voltage-drop tests and used to determine maximum allowable circuit breaker settings. This standard would conform to industry standards and the Agency's experience in evaluating trolley systems, and would assure that available short-circuit currents are properly determined.

Paragraph (d) would require that circuit breakers and their components be examined for physical damage once every 180 days. Electric equipment used in underground coal mines is subjected to heavy, continual use, which often results in wear and breakdown. The mine atmosphere is also particularly harsh for electric equipment. Unless it is regularly examined, potential safety problems could go undetected and could present hazards to persons working with or around the equipment.

The proposal would also require that short-circuit devices be tested and calibrated to values no more than the indicated values, and no less than 85 percent of the indicated values. The proposed values would assure that short-circuit devices detect all short circuits. Therefore, trolley systems would not become over-extended and the potential of fire hazards due to arcing faults would be reduced.

Current-actuated short-circuit devices would have to be tested and calibrated under the proposal by passing the amounts of current indicated by the settings through the devices to cause actuation. A new aspect of this proposal would allow current-actuated short-circuit devices to be tested and calibrated with external calibration sources when the devices are equipped with calibration coils. This option would allow for testing while the circuit is energized. However, compliance with the standard would assure that devices are fully operable before a hazardous fault has occurred on the system.

Electronic short-circuit devices would be required to be tested and calibrated by passing the amounts of current indicated by the settings through the devices to cause actuation. A new provision of the proposal would allow calibration voltages to be applied to sensor leads to cause actuation with the sensor leads disconnected from the shunts. Test and calibration values would be determined by the indicated settings. MSHA's experience indicates that this option would constitute an effective and reliable method for testing and calibrating electronic short-circuit devices for trolley systems.

A new provision in the proposed standard would require that load-measuring devices and load-indicating circuits be tested and calibrated by simulating load currents of 350 amperes or less through the circuit breaker. This provision reflects Agency experience and represents accepted industry practice regarding what reclosing load currents would be tolerable for underground coal mine trolley systems.

Voltage-differential devices would now be required to be tested and calibrated to prevent reclosure by applying voltages not less than 15 percent of the nominal system voltages across the circuit breaker terminals. This provision is based on evaluation of trolley systems and the safety practices needed to ensure that voltage-differential devices function properly to prevent premature breaker reclosure. Arcing faults on the circuit and the resulting fire hazard would be prevented by compliance with the standard.

Additionally, a new provision would require that loadmeasuring devices, voltage-differential relays, and reclosing selective relays, be tested and calibrated at least every 180 days to values within plus or minus (±)15 percent of the indicated values. This provision would conform to accepted industry practice and the Agency's experience in evaluating circuit breakers for trolley systems.

Paragraph (e) is new, and would require that when examinations, tests, or calibrations of trolley systems reveal a potential fire or shock hazard, the affected part of the trolley system either be removed from service or repaired. Requiring the removal or repair of potentially hazardous electric equipment or circuits would ensure that persons are not exposed to potentially hazardous conditions.

Paragraph (f) is new, and would require that trolley systems be aligned and maintained to provide for smooth tracking of trolley connectors on trolley wires. This would prohibit the presence of kinks, oversize splices, irregular surfaces, and other physical defects that cause trolley poles to dislodge. At least

two fatalities can be attributed to instances where poles were dislodged and hit a person riding in a track-mounted vehicle. Compliance with the proposed standard would reduce the likelihood of such occurrences by requiring a uniform trolley installation that should perform as designed and prevent the trolley pole from becoming dislodged.

Paragraph (g) of the proposal would require that upon the completion of examinations and tests required by this section, the person who makes the examinations and tests certify by signature and date that they have been conducted. The proposal would differ from the existing rule in that it would require a record to be made of unsafe conditions found and corrective actions taken. Where such conditions are not found, the proposal would require only the certification that the examination or test was conducted. This proposed requirement would eliminate a recordkeeping requirement in the existing rules.

Paragraph (h) would require that certifications and records be kept for at least one year and be made available at the mine for inspection by authorized representatives of the Secretary and representatives of the miners. The proposal provides essentially the same access to documents as the existing requirements. However, the proposal would also allow document access to representatives of miners. This provision is consistent with other MSHA standards that address certification and recordkeeping requirements.

Section 75.1010 Movement and Transportation of Metallic Mining Supplies and Off-Track Mining Equipment in Entries Containing Trolley Wires or Trolley Feeder Wires

This section is derived in part from existing §§ 75.1003–1 and 75.1003–2, which require that adequate precautions be taken to ensure that equipment being moved along haulageways will not come into contact with trolley wires and trolley feeder wires. The procedures necessary to meet these requirements are also specified in the present rules. The proposal would retain and reorganize the standards to clarify several alternative approaches.

Paragraph (a) would contain new requirements that would call for deenergization of trolley wires and trolley feeder wires for at least 200 feet on each side of metallic mining supplies or off-track mining equipment when they are either moved or transported under their own power or by other non-trolley powered equipment. This would assure that such supplies or equipment will come into contact with energized wires. Metallic supplies or equipment contacting energized wires could become energized, presenting a shock hazard for persons handling them. Arcing faults could also occur, leading to the possibility of a mine fire.

Paragraph (b) would address safety procedures to be taken when metallic mining supplies or off-track mining equipment are moved or transported by trolley-powered equipment. It would require that the supplies or equipment being transported not extend beyond the specified confines of the transporting car or the car directly ahead or behind the transporting car.

As an alternative, the cargo could be cleaned to remove combustible materials, grounded by means of a 4/0 AWG or larger copper conductor that is connected to the mine track or to the metallic frame of the track-haulage conveyance, placed and secured to prevent accidental movement while being transported, covered on the top and on the trolley wire side with conveyor belting or other equivalent material that is flame-resistant in accordance with § 18.65, examined by a qualified electrician beforehand, and moved or transported under the direct and immediate supervision of a certified person. Requiring these precautions would recognize that it is not always possible to transport supplies or equipment within the confines of the track haulage car. It would take the circumstances of the mine into account while ensuring the safety of the move.

Paragraph (c) of the proposal would require that when supplies or off-track equipment are moved in accordance with paragraph (b)(3) of the rule, and the maximum height of the supplies or equipment while being transported is within 12 inches of the minimum height of the trolley wire at any location along the move, additional precautions would be required. A qualified electrician would be required to be stationed at the supply rectifier, prepared to deenergize the circuit in case of an emergency.

The qualified electrician would be required to be in direct two-way communications with the certified person supervising the move and a responsible person on the surface. Trolley phones used for two-way communications would have to be battery powered unless a backup communication system is available. Finally, persons who are not directly involved in the move would be required to clear a specified area. This provision recognizes that in situations where the cargo will be coming into very close proximity to the trolley wires, extraordinary measures must be taken to assure that the move is conducted in a safe manner.

Derivation Table

The following derivation table lists the number of each proposed standard and the number of the existing standard from which it is derived.

Proposed section	Existing section
75.153(a)	75.153(a).
75.153(a)(1)	75.153(a) (1) and (3).
75.153(a)(2)	75.153(a)(3).
75.153(b)	75.153(g).
75.153(c)	75.153 (f) and (f).
75.153(d)	New.
75.154(a)	75.153(c).
75.154(b)	75.153(b).
75.154(b)(1)	75.153(b) (1) and (2).
75.154(b)(2)	75.153(b)(3).
75.154(b)(3)	75.153(b)(4).
75.154(b)(4)	75.153(b)(5).
75.154(c)	New.
75.154(c)(1)	75.153(b)(3).
75.154(c)(2)	75.153(b)(5).
75.154(d)	New.
75.154(e)	75.153(d).
75.154(f)	75.153(e).
75.155(a)(1)	75.153(a)(1).
75.155(a) (2) and (3)	New.
75.155 (b) and (c)	New.
75.156(a) (1) and (2)	New.
75.156(b)	75.160.
75.156 (c) and (d)	75.153(g).
75.156(d)	New.
75.156(f)	75.160.
75.157	New.
75.158	75.155.
75.159	75.153(g) and 75.159.
75.500	New.
75.501(a)(1)	75.500 (a) through (d), 75.500–1, 75.501, 75.501–2, 75.501–2(a), 75.501–2(b), 75.504, and 75.505.
75.501(a)(2)	75.1002–1(a).
75.501(a)(3)	75.507 and 75.507–1(a).
75.501 (b) and (c)	New.
75.502	75.1002.
75.503(a)	75.503, 75.504, 75.505, 75.506(a), 75.506(b), 75.506(c), 75.506(d), 75.506–1(a), and 75.506–1(b).
75.503(b)	75.504, 75.505, 75.506–1(a), and 75.506–1(b).
75.503 (c) and (d)	New.
75.504	75.524.
75.505(a)	75.511 and 75.512.
75.505(b)	75.511.
75.505(c)	New.
75.505(d)	75.511.
75.506(a)	New.
75.506(b)	75.509 and 75.705.
75.506(b) (1) and (2)	75.511.
75.506(b)(3)	New.
75.506(b)(4)	75.509.
75.506(c)	75.705–1 and 75.705–1 (a) and (b).
75.506(d)	75.511.
75.506(e)	75.511 and 75.1725(c).
75.506(f)	New.
75.507(a)	75.509 and 75.705–1(a).
75.507(b)	75.511 and 75.1720(c).
75.507(c)	75.511 and 75.705–1(a).
75.507(d)	New.
75.508(a)	New.
75.508(b)	75.512, 75.703–3(d)(11), 75.800–3(a), and 75.900–3.

Proposed section	Existing section
75.508(c)	75.512-2, 75.703-3(d)(11), and 75.900-3.
75.508(d)	75.800-3 (a) and (b).
75.508(d)(1)	75.803.
75.508(d)(2)	New.
75.508(e)	75.512, 75.800-3(a).
75.508(f)	New.
75.508(g)	75.512, 75.800-3(c).
75.508(h)	75.512, 75.800-4, and 75.900-4.
75.508(i)	75.512, 75.800-4, and 75.900.
75.508(j)	New.
75.509 (a) and (b)	75.520.
75.509(c)	New.
75.509 (d) and (e)	75.520.
75.509(f)	75.1403-10(m).
75.509(g)	New.
75.510(a)	75.519, 75.519-1, and 75.802(c).
75.510(b)	New.
75.510(c)	75.601, 75.808, and 75.903.
75.510(d)	75.601, 75.808, and 75.903.
75.510(e)	75.511.
75.510(f)	75.601 and 75.809.
75.510(g)	75.520.
75.510 (h) and (i)	New.
75.510(j)	75.705-9.
75.510(k)	75.511 and 75.705-6.
75.510(l)	New.
75.510 (m) and (n)	75.705-7.
75.510(o)	75.705-8.
75.511(a)(1)	75.805.
75.511(a)(2)	75.805 and 75.902.
75.511(a)(3)	75.805 and 75.902.
75.511(a)(4)	New.
75.511(a)(5)	75.805 and 75.902.
75.511(a)(6)	75.803-1 and 75.902-1.
75.511(a)(7)	75.607.
75.511(b) (1) and (2)	New.
75.512(a)	75.514.
75.512(b)	75.607.
75.513 (a) through (e)	75.521.
75.514(a)	75.522-1(a).
75.514(b)	75.522-1 (a) and (b).
75.514 (c) and (d)	75.522-1(a).
75.514(e)	New.
75.514(f)	75.522.
75.515(a)	75.517, 75.517-1, 75.804(a), 75.812, 75.906, and 75.907.
75.515(b)	New.
75.516	75.516-2 (a) and (b), 75.517, and 75.606.
75.517(a)	75.516 and 75.516-1.
75.517(b)	New.
75.517(c)	75.516-2(c) and 75.807.
75.517(d)	75.516-2(c).
75.518	75.516-1.
75.519(a)	75.511.
75.519(b)	New.
75.519(c)	75.604(c).
75.519(d)	75.604(b), 75.604(c), 75.810, and 75.906.
75.519(e)	75.604(b).
75.519 (f) through (h)	New.
75.519(i) (1) and (2)	75.514, 75.604(a), and 75.810.
75.519(i)(3)	75.514, 75.604(b), 75.804(b), and 75.810.
75.519(i)(4)	75.514, 75.810, and 75.906.
75.519(i)(5)	75.804(b).
75.519(i)(6)	75.804(b), 75.810, and 75.906.
75.519(i)(7)	75.517, 75.604(c), 75.804(b), and 75.810.
75.520 (a) and (b)	75.515.
75.520(c)	New.
75.520(d)	75.515 and 75.605.
75.520(e)	75.605.
75.521	75.517 and 75.603.
75.522(a)	75.513 and 75.513-1.
75.522 (b) through (d)	75.513-1.
75.523 (a) through (c)	75.518 and 75.518-1.
75.523 (d) through (h)	75.518-1.
75.523(i)	75.518-2.
75.523 (j) and (k)	75.518-1.
75.524(a)	75.518-1.
75.524(b)	75.518 and 75.518-1.
75.524(c)	75.518 and 75.518-1.
75.524(d)	75.518 and 75.518-1.
75.524(e)	75.518-1.
75.524(f)	New.
75.524(g)	75.518-1.
75.524(h)	75.518 and 75.518-1.
75.524 (i) and (j)	75.518-1.
75.525	75.601, 75.809, and 75.904.
75.526	New.
75.527(a)	75.508 and 75.508-1.
75.527(b)	75.508-2.
75.528	New.
75.529	75.523, 75.523-1, and 75.523-2.
75.529(a)	75.523 and 75.523-1.
75.529(a) (1) through (3)	75.523-2(b).
75.529(a)(4)	75.523-2(c).
75.529(a)(5)	New.
75.529(b)	75.523-1(b).
75.529(c)	75.523-1(c).
75.530 (a) through (c)	New.
75.531	75.706.
75.600	New.
75.601(a)	75.600 and 75.600-1.
75.601(b)	New.
75.601(c) (1) and (2)	New.
75.601(d)	75.701-1, 75.703-3(a), 75.906, and 75.907.
75.601(d)(1)	New.
75.601(d)(2)	75.703-3(d).
75.601 (e) through (g)	New.
75.601 (h) and (i)	75.907.
75.601 (j) and (k)	New.
75.602(a)	75.601 and 75.900.
75.602(b)	75.601.
75.602(c)(1)	New.
75.602(c)(2)	75.601-1 and 75.900-2 (d).
75.602(c)(3)	75.601-1.
75.602(d)	75.601-1 and 75.900-2 (d).
75.602(e)(1)	75.900.
75.602(e)(2)	New.
75.602(e)(3)	75.900.
75.602(f)	75.900-2(c).
75.602(g)	75.518 and 75.518-1.
75.602 (h) through (k)	New.
75.602(l)	75.512.
75.602(m) (1) and (2)	75.900-2(a).
75.602(n)	New.
75.603(a)(1)	New.
75.603(a)(2)	75.601, 75.601-3, and 75.703-3(d)(4).
75.603(a)(3)	75.601-1 and 75.703-3(d)(5).
75.603(b)	75.601-1.
75.603(c)	75.601-2.
75.603(d)	75.601.
75.603(e)	75.601 and 75.900.
75.603 (f) through (h)	New.
75.603(g)	New.
75.603(h)	New.
75.604	75.602.
75.700	New.
75.701	75.901(a).
75.701(a)	75.701-2.
75.701(b)	75.901(a).
75.701 (c) through (e)	New.
75.702	75.901(a).
75.703	75.802(a).
75.703 (a) through (d)	75.802(b).
75.704(a)(1)	75.802(a).
75.704(a)(2)	New.
75.704(b)	75.701-1(a), 75.701-1(b), 75.701-1(c), and 75.701-1(d).
75.705(a)	75.701-3(a).
75.705(b)	75.701-3(b) and 75.701-3(d).
75.705 (c) and (d)	75.703-2(b).
75.705 (e) and (f)	New.
75.705(f)	New.
75.705(g)	75.703-2(b).
75.706(a)	75.701-3(a).
75.706(b)	75.703-2(b).
75.706(c)	75.701-1(d) and 75.703-2(a).
75.707(a)(1)	75.901(a) (New for direct-current).
75.707(a)(2)	75.801.
75.707(b)	75.801 and 75.901(a) (New for direct-current).
75.707(c)	75.801 and 75.901(a) (New for direct-current).
75.707(d)	75.802(a) and 75.901(a) (New for direct-current).
75.708	75.806 and 75.905.
75.709(a)	New.
75.709(b)	75.700-1 (a) through (c) and 75.701-1 (a) through (d).
75.709 (c) and (d)	New.
75.710(a)(1)	75.700-1, 75.701, 75.802(a), and 75.901(a).
75.710(a)(2)	75.701 and 75.802(a).
75.710(a)(3)	75.901(a).
75.710(a)(4)	New.
75.710(a)(5)	75.811.
75.710(b)	New.
75.710(c)	75.701-1 and 75.901(a).
75.711(a)	75.902 and 75.902-2.
75.711(a)(1)	New.
75.711(a)(2)	75.902.
75.711(b)	75.803.
75.711(c)(1)	75.704.
75.711(c)(1)	75.704-1 and 75.803.
75.711(c) (2) and (3)	75.803.
75.711(d)(1)	75.803, 75.902, and 75.902-2.
75.711(d)(2)	75.803 and 75.902.
75.711(e) (1) and (2)	75.803 and 75.902.
75.711(f)(1)	75.902-1 and part 18.
75.711(f)(2)	75.902-1.
75.711(g)	75.902-4.
75.712(a)(1)	75.701-3 (a) through (c) and 75.703-3 (a) through (c).
75.712(a) (2) through (4)	New.
75.712(b)	75.701-3(c) and 75.703-3(d).
75.712(c)	75.703 and 75.703-1.
75.713(a)	75.703-3(d)(1) and 75.703-3(d)(3).
75.713(b)	75.703-3(d)(7).
75.713(c)	75.703-3(d)(6).
75.713(d)	75.703-3(d)(8).
75.713(e)	75.703-3(d)(2), 75.703-3(d)(3), and 75.703-3(d)(10).
75.713(f)	75.703-3(d)(3).
75.714 (a) and (b)	New.
75.714(b) (1) and (2)	New.
75.714(c) (1) and (2)	75.701-4(a).
75.714 (d) through (g)	New.
75.714(h)	75.701-5.
75.714 (i) through (k)	New.
75.800	New.
75.801	New.

Proposed section	Existing section
75.802 (a) (1) through (3)	75.800.
75.802(b)	75.800–1.
75.802(c)	75.518–1.
75.802(d)	75.800–2(c).
75.802(e)(1)	75.518–1.
75.802(e)(2)	New.
75.802 (f) through (h)	New.
75.802(i) (1) and (2)	75.800–2(a).
75.802(j)	New.
75.803 (a) and (b)	New.
75.803(c)	75.803–1.
75.803 (d) and (e)	New.
75.804 (a) through (c)	75.807.
75.804(d)	75.812.
75.804 (e) and (f)	New.
75.804 (g) and (h)	75.804(a).
75.804(i)	75.705–11.
75.804(j)	75.804(a).
75.804(k) (1) through (3)	New.
75.805	75.812.
75.806	New.
75.807 (a) and (b)	New.
75.808(a)	75.518–1 and 75.800.
75.808(b)	75.518–1.
75.808(c) (1) and (2)	New.
75.808(d)	New.
75.808(e) (1) and (2)	New.
75.808 (f) through (j)	New.
75.808(k) (1) and (2)	75.800–2(a).
75.808(l)	New.
75.809(a)	75.808.
75.809(b)	New.
75.810(a)	75.512, 75.800–3(a), and 75.800–3(c).
75.810(b) (1) through (4)	New.
75.810(c)	75.512 and 75.512–2.
75.810 (d)	75.800–3 (a) and (b).
75.810(e)	75.512.
75.810 (f) and (g)	75.512 and 75.800–4.
75.811(a)	75.804(b).
75.811(b)	75.804(a).
75.811 (c) and (d)	New.
75.811(e)	75.600–1.
75.811(f)	New.
75.811 (g) and (h)	75.804(a).
75.812	New.
75.813(a)(1)	75.807.
75.813(a)(2)	New.
75.813(b)	75.807.
75.814(a)	New.
75.814(b) (1) and (2)	New.
75.814 (c) and (d)	New.
75.815(a)(1)	75.509 and 75.705.
75.815(a) (2) and (3)	75.511.
75.815(b)(1)	75.509 and 75.705.
75.815(b)(2)	75.705.
75.815(b) (3) and (4)	75.511.
75.815 (c) and (d)	New.
75.815(e)	75.511.
75.1000	New.
75.1001(a)	75.1003–1.
75.1001(b)	75.516.
75.1001(c)	75.1003.
75.1001(d)	75.1003–1.
75.1001 (e) through (h)	New.
75.1002(a)	75.516.
75.1002 (b) and (c)	New.
75.1003(a)(1)	75.1003(a).
75.1003(a)(2)	75.1003(c).
75.1003(a)(3)	75.1003(b).
75.1003(a) (4) through (6).	75.1003(a).
75.1003(b)	75.509 and 75.510.
75.1004(a) (1) and (2)	New.
75.1004(a) (3) and (4)	75.1000.
75.1004(b)	New.
75.1005 (a) through (c)	75.518–1, 75.1001, and 75.1001–1(a).
75.1005 (d) and (e)	New.
75.1006 (a) through (f)	75.518–1.
75.1006(g)	75.1001–1(a).
75.1006 (h) through (j)	New.
75.1007(a)	75.509 and 75.510.
75.1007(a)(1)	75.509 and 75.510.
75.1007(a)(2)	New.
75.1007(b)	75.510
75.1007 (c) and (d)	New.
75.1008(a) (1) and (2)	75.514.
75.1008 (b) and (c)	New.
75.1008(d)	75.514.
75.1009(a)	75.512.
75.1009(b)	New.
75.1009(c)	New.
75.1009(d)	75.512 and 75.1001–1(b).
75.1009 (e) and (f)	New.
75.1009 (g) and (h)	75.1001–1(c).
75.1010(a)	75.1003–1 and 2.
75.1010(b)(1)	75.1003–1 and 75.1003–2 (a) and (g).
75.1010(b)(2)	New.
75.1010(b)(3)	75.1003–2 (a)(1), (c), (d), and (e).
75.1010(c)(1)	75.1003–2 (f).
75.1010(c)(2)	75.1003–2(f) (3) and (4).
75.1010(c)(3)	75.1003–2(f)(5).

Distribution Table

The following distribution table lists the section numbers of the existing standards and the section numbers of the proposed standards which contain revised provisions derived from the corresponding existing sections.

Existing section	Proposed section
75.153(a)	75.153(a).
75.153(a)(1)	75.153(a)(1) and 75.155(a)(1).
75.153(a)(2)	Remove.
75.153(a)(3)	75.153(a)(1) and 75.153(a)(2).
75.153(b)	75.154(b).
75.153(b) (1) and (2)	75.154(b)(1).
75.153(b)(3)	75.154(b)(2) and 75.154(c)(1).
75.153(b)(4)	75.154(b)(3).
75.153(b)(5)	75.154(b)(4) and 75.154(c)(2).
75.153(c)	75.154(a), 75.154(a)(1), and 75.154(a)(2).
75.153(d)	75.154(e).
75.153(e)	75.154(f).
75.153(f)	75.153(c).
75.153(g)	75.153(c), 75.156(c), and 75.159.
75.154	Remove.
75.155	75.158.
75.159	75.159.
75.160	75.156(b) and 75.156(e).
75.500 (a) through (d)	75.501(a)(1).
75.500–1	75.501(a)(1).
75.501	75.501(a)(1).
75.501–1	Remove.
75.501–2 and 75.501–2 (a) and (b).	75.501(a)(1).
75.501–3(a) and 75.501–3(a)(1)–(6).	Remove.
75.501–3(b) and 75.501–3(b)(1)–(3).	Remove.
75.501–3 (c) and (d)	Remove.
75.502	Remove.
75.503	75.503(a).
75.503–1	Remove.
75.504	75.501(a)(1), 75.503(a), and 75.503(b).
75.505	75.501(a)(1), 75.503(a), and 75.503(b).
75.506 (a) through (d)	75.503(a).
75.506–1 (a) and (b)	75.503(a) and 75.503(b).
75.506–1(c)	Remove.
75.507 and 75.507–1(a)	75.501(a)(3).
75.507–1(b) and (c)	Remove.
75.508	75.527(75.516.
75.516–2(c)	75.517 (c) and (d).
75.516–2(d)	Remove.
75.517	75.515(a), 75.516, 75.519(i)(7), and 75.521.
75.517–1	75.515(a).
75.517–2 (a) through (d)	Remove.
75.518	75.523(a), 75.523(b), 75.523(c), 75.524(b), 75.524(c), 75.524(d), 75.523((h), and 75.602(g).
75.518–1	75.523(a), 75.523 (b) through (h), 75.523 (j) and (k), 75.524 (a). through (e), 75.524 (g) through (j), 75.602(g), 75.802(c), 75.802(e)(1), 75.808(a), 75.808(b), 75.1005 (a) through (c), and 75.1006 (a) through (f).
75.518–2	75.523(i).
75.519 and 75.519–1	75.510 (a).
75.520	75.509 (a), (b), (d), 75.509(e), and 75.510(g).
75.521	75.513 (a) through (f).
75.522	Remove.
75.522–1(a)	75.514(a) through (d).
75.522–1(b)	75.514(b).
75.523	75.529 and 75.529(a).
75.523–1	75.529 and 75.529(a).
75.523–1(b)	75.529(b).
75.523–1(c)	75.529(c).
75.523–2	75.529.
75.523–2(b)	75.529(a) (1) through (3).
75.523–2(c)	75.529(a)(4).
75.523–3	Remove.
75.524	75.504.
Appendix A	Remove.
75.600	75.601(a).
75.600–1	75.601(a) and 75.811(e).
75.601	75.510(c), 75.510(d), 75.510(f), 75.525, 75.602(a), 75.602(b), 75.603(a)(2), 75.603(d), and 75.603(e).
75.601–1	75.602(c)(2), 75.602(c)(3), 75.602(d), 75.603(a)(3), and 75.603(b).
75.601–2	75.603(c).
75.601–3	75.603(a)(2).
75.602	75.604.
75.603	75.521.
75.604(a)	75.519(i) (1) and (2).
75.604(b)	75.519(d), 75.519(e), and 75.519(i)(3).
75.604(c)	75.519(c), 75.519(d), and 75.519(i)(7).
75.605	75.520 (d) and (e).
75.606	75.516.
75.607	75.511(a)(7) and 75.512(b).
75.700	75.710(a)(1), 75.710(b) and 75.712(a)(1).
75.700–1	75.710(a)(1).
75.700–1 (a) through (c)	75.709(b).
75.700–1(d)	Remove.
75.701	75.710(a) (1) and (2).
75.701–1	75.601(d) and 75.710(c)

Existing section	Proposed section
75.701-1 (a) and (b)	75.506(c), 75.704(b), and 75.709(b).
75.701-1(c)	75.704(b) and 75.709(b).
75.701-1(d)	75.704(b), 75.706(c), and 75.709(b).
75.701-1(e)	Remove.
75.701-2	75.701(a).
75.701-3(a)	75.705(a), 75.706(a), and 75.712(a)(1).
75.701-3(b)	75.705(b) and 75.712(a)(1).
75.701-3(c)	75.712(a)(1) and 75.712(b).
75.701-3(d)	75.705(b).
75.701-4(a)	75.714(c)(1).
75.701-4(b)	75.714(c)(2).
75.701-5	75.714(h).
75.702 and 75.702-1	Remove.
75.703 and 75.703-1	75.712(c).
75.703-2(a)	75.706(c)
75.703-2(b)	75.705(c), 75.705(d), 75.705(g), and 75.706(b).
75.703-3(a)	75.601(d) and 75.712(a)(1).
75.703-3 (b) and (c)	75.712(a)(1).
75.703-3(d) (1)	75.713(a).
75.703-3(d)	75.601(d)(2) and 75.712(b).
75.703-3(d)(1)	75.713(a).
75.703-3(d)(2)	75.713(e).
75.703-3(d)(3)	75.713(a), 75.713(e), and 75.713(f).
75.703-3(d)(4)	75.603(a)(2).
75.703-3(d)(5)	75.603(a)(3).
75.703-3(d)(6)	75.713(c).
75.703-3(d)(7)	75.713(b).
75.703-3(d)(8)	75.713(d).
75.703-3(d)(9)	Remove.
75.703-3(d)(10)	75.713(e).
75.703-3(d)(11)	75.508 (b) and (c).
75.703-4	Remove.
75.704 and 75.704-1	75.711(c)(1).
75.705	75.506(b), 75.815(a)(1), 75.815(b)(1), and 75.815(b)(2).
75.705-1	75.506(c).
75.705-1(a)	75.507 (a) and (c).
75.705-1 (b)	75.506(c).
75.705-1 (c) and (d)	Remove.
75.705-2 (a) and (b)	Remove.
75.705-3 through -5	Remove.
75.705-6	75.510 (k).
75.705-7	75.510 (m) and (n).
75.705-8	75.510(o).
75.705-9	75.510(j).
75.705-10	Remove.
75.705-11	75.804(i).
75.706	75.531.
75.800	75.802(a)(1), 75.802(a)(2), 75.802(a)(3), and 75.808(a).
75.800-1	75.802(b).
75.800-2(a)	75.802(i) (1) and (2), and 75.808(k) (1) and (2).
75.800-2(b)	Remove.
75.800-2(c)	75.802(d).
75.800-3(a)	75.508(b), 75.508(d), 75.508(e), 75.810(a), and 75.810(d).
75.800-3(b)	75.508(d) and 75.810(d).
75.800-3(c)	75.508(g) and 75.810(a).
75.800-4	75.508 (h) and (i) and 75.810 (f) and (g).
75.801	75.707(a)(2), 75.707(b), and 75.707(c).
75.802(a)	75.703, 75.704(a)(1), 75.707(d), 75.710 (a)(1) and 75.710 (a)(2).
75.802(b)	75.703(a), 75.703(b), and 75.703 (c) and (d).
75.802(c)	75.510(a).
75.803	75.508(d)(1), 75.711(b), 75.711(c) (1) through (3), 75.711(d) (1) and (2), and 75.711(e) (1) and (2).
75.803-1	75.511(a)(6) and 75.803(c).
75.803-2	Remove.
75.804(a)	75.515(a), 75.804(g) through (j), 75.811(b), and 75.811 (g) and (h).
75.804(b)	75.519(i) (3), (5), (6), and (7), and 75.811(a).
75.805	75.511(a)(1), 75.511(a)(2), 75.511(a)(3), and 75.511(a)(5).
75.806	75.708.
75.807	75.517(c), 75.804(a), 75.804(b), 75.804(c), 75.813(a)(1), and 75.813(b).
75.808	75.510 (c) and (d), and 75.809(a).
75.809	75.510(f) and 75.525.
75.810	75.519(d), 75.519(i) (1), (2), (3), (4), (6), and (7).
75.811	75.710(a)(5).
75.812	75.515(a), 75.804(d), and 75.805.
75.812-1 and -2	Remove.
75.900	75.508(i), 75.602(a), 75.602(e)(1), 75.602(e)(3), and 75.603(e).
75.900-1	Remove.
75.900-2(a)	75.602(m)(1) and (2).
75.900-2(b)	Remove.
75.900-2(c)	75.602(f).
75.900-2(d)	75.602(c)(2), 75.602(d).
75.900-3	75.508 (b) and (c).
75.900-4	75.508(h).
75.901(a)	75.701, 75.701(b), 75.702, 75.707(a)(1), 75.707(b), 75.707(c), 75.707(d), 75.710 (a)(1), 75.710(a)(3), and 75.710(c).
75.902	75.511(a) (2), (3), and (5), 75.711(a), 75.711(a)(2), 75.711(d)(1), 75.711(d)(2), and 75.711(e) (1) and (2).
75.902-1	75.511(a)(6) and 75.711(f) (1) and (2).
75.902-2	75.711(a) and 75.711(d)(1).
75.902-4	75.711(g).
75.903	75.510 (c) and (d).
75.904	75.525.
75.905	75.708.
75.906	75.515(a), 75.519(d), 75.519 (i)(4), 75.519(i)(6), and 75.601(d).
75.907	75.515(a), 75.601(d), 75.601(h), and 75.601(i).
75.1000	75.1004(a)(3) and 75.1004(a)(4).
75.1001	75.1005(a), 75.1005(b), and 75.1005(c).
75.1001-1(a)	75.1005(a), 75.1005(b), 75.1005(c) and 75.1006(g).
75.1001-1(b)	75.1009(d)(1-7).
75.1001-1(c)	75.1009(g) and 75.1009(h).
75.1002	75.502.
75.1002-1(a)	75.501(a)(2).
75.1002-1 (b) and (c)	Remove.
75.1003	75.1001(c).
75.1003(a)	75.1003(a)(1), 75.1003(a)(4), 75.1003(a)(5), and 75.1003 (a)(6).
75.1003(b)	75.1003(a)(3).
75.1003(c)	75.1003(a)(2).
75.1003-1	75.1001(a), 75.1001(d), 75.1010(a) and 75.1010(b)(1).
75.1003-2(a)	75.1010(a) and 75.1010(b)(1).
75.1003-2(a)(1)	75.1010(b)(3).
75.1003 2(a)(2)	Remove.
75.1003-2(b)	Remove.
75.1003-2(c) through (e)	75.1010(b)(3).
75.1003-2(f)	75.1010(c)(1).
75.1003-2(f) (1) and (2)	Remove.
75.1003-2(f)(2)	Remove.
75.1003-2(f)(3) and (4)	75.1010(c)(2).
75.1003-2(f)(5)	75.1010(c)(3).
75.1003-2(g)	75.1010(b)(1).

IV. Executive Order 12291 and Regulatory Flexibility Act

In accordance with Executive Order 12291, MSHA has prepared an initial analysis to identify potential costs and benefits associated with the proposed changes to its electrical standards for underground coal mines. In this analysis summarized below, MSHA had determined that the proposed rule will not result in major cost increases, nor have an incremental effect of $100 million or more on the economy. Hence, the rule is not a major rule. MSHA estimates that, after all cost savings are accounted for, annual and annualized costs will increase by $8.3 million. Initial or one-time costs are expected to increase by $2.7 million. Because many provisions in the existing rule were retained, but moved to new subparts, it would not be meaningful to compare cost increases or decreases by subpart.

The requirement for grounded metallic shields around power conductors on trailing cables will result in the greatest cost increase in the proposed rule. Approximately 92 percent of the cost of the rule, or $7.6 million in annual and annualized costs, can be attributed to this requirement, found in proposed § 75.601. During the 3-year phase-in of this requirement, insulated personal protective equipment (e.g., gloves) shall be used when energized high-voltage and unshielded low-voltage trailing cables are moved manually, as required in proposed § 75.530. The costs of § 75.530 are estimated to be $510,000 annualized, including approximately

$133,000 for gloves to be worn while handling high-voltage trailing cables.

The standard that would result in the greatest initial cost would be proposed § 75.803(d), which would require barriers for high-voltage power centers, load breakers, and rectifiers. MSHA estimates that these barriers will cost $1.6 million. The proposed standard that would result in the second greatest increase in initial costs is proposed § 75.157, qualification for low-voltage cable splicing and repair. This is a new requirement and the first-year costs of qualifying persons to splice and repair low-voltage trailing cables is $859,000. However, 76 percent ($650,000) of this cost will be borne by MSHA in developing and administering a test the first year.

Substantial cost savings will also result from changes made to existing rules. The largest savings is related to proposed § 75.508(c), which calls for less frequent examination and testing of certain electrical equipment. This change will save $4.6 million per year.

MSHA estimates that between five and six fatalities and approximately 180 nonfatal injuries would be avoided each year as a result of compliance with the proposed rule. Of these nonfatal injuries, approximately 85 percent would be lost workday injuries. Approximately 2 fatalities and 60 nonfatal injuries could be prevented each year by the new standards in the proposed rule.

Two of the standards that are expected to reduce accidents are proposed §§ 75.803 and 75.601. The first of these standards would require interlocks and emergency stop switches on high-voltage distribution equipment. These switches would automatically deenergize the conductors entering the equipment when a cover or lid over energized components is removed or when the emergency stop switch is activated. Six fatalities in the last ten years were identified where this proposed requirement alone, or in conjunction with another proposed requirement, could have prevented the accident.

Proposed § 75.601, which would require grounded metallic shielding around power conductors on trailing cables, is also expected to save lives. In the last 10 years, MSHA estimates that approximately eight lives could have been saved through the use of shielding. Proposed § 75.506, which would require each person who works on a circuit to be responsible for installing and removing his or her own padlock or other locking device to deenergize the circuit prior to working on it. Approximately two lives could have been saved in the last 10 years with this requirement. Proposed § 75.519 would prohibit temporary splices, a requirement that also could have saved two lives over the 10-year period.

Rubber insulating gloves would be required while troubleshooting and testing energized circuits under proposed § 75.507. Troubleshooting and testing of low-voltage energized circuits would be limited to qualified electricians. It is estimated that these proposed requirements could have prevented two fatalities during the last ten years.

The Agency has not proposed exemption of small mines from any provision of the proposal. MSHA's proposal would clarify compliance responsibilities for all mine operators, adopt performance-oriented standards where possible, and keep recordkeeping burdens to the minimum necessary. Of the approximately 1,700 underground mining operations affected by the proposed regulations, MSHA estimates that 907 are small businesses. The total annualized and annual costs for small mines will increase by an estimated $2.4 million, or about $2,600 per mine. Initial costs will increase by approximately $0.6 million, or roughly $700 per mine. For purposes of the Regulatory Flexibility Act, MSHA has defined small business entities as mines with fewer than 20 employees. The annual and annualized capital costs for small mines represents less than 1.0 percent of the revenues for those mines.

The Agency specifically solicits comments and data on how the proposed regulations would impact the mining industry.

List of Subjects in 30 CFR Part 75

Mine safety and health mandatory safety standards, underground coal mine electrical safety standards.

Dated: November 22, 1989.

William J. Tattersall,

Assistant Secretary for Mine Safety and Health.

It is proposed to amend Subparts A, B, F, G, H, I, J and K, of part 75, subchapter I of title 30, Code of Federal Regulations, as follows:

PART 75—MANDATORY SAFETY STANDARDS—UNDERGROUND COAL MINES

1. The authority citation for part 75 continues to read as follows:

Authority: 30 U.S.C. 811, 957 and 961.

2. The table of contents to part 75 is amended by revising subparts F through K as set forth below.

3. Section 75.2(j) is revised as set forth below.

4. The heading for Subpart B and §§ 75.153, 75.154, and 75.159 are revised; § 75.155 is redesignated as § 75.158; and new §§ 75.155 through 75.157 are added as set forth below.

5. Subparts F through K are revised as set forth below.

Subpart F—Electric Equipment—General

Sec.

Subpart G—Low-Voltage Circuits

Subpart A—General

§ 75.2 Definitions.

* * * * *

(j) The following definitions apply to electrical safety standards in subparts B and F through K:

(1) *"Adequate interrupting capacity for circuit breakers and fuses"* means the ability of a circuit breaker or fuse to safely interrupt all values of current which can occur at its location in excess of its trip setting or melting point.

(2) *"Ampacity"* means the current-carrying capacity of electric conductors expressed in amperes.

(3) *"Branch circuit"* means the circuit conductors extending beyond the final short-circuit device protecting the circuit.

(4) *"Branch line"* means a circuit which extends from an ongoing circuit.

(5) *"Cable"* means an assembly of one or more insulated conductors enclosed by an additional abrasion resistant covering or jacket. A cable may also contain one or more uninsulated equipment safety grounding conductors. A power cable is any cable except communication, instrumentation and control cables.

(6) *"Circuit breaker"* means a device designed to open and close a circuit by non-automatic means and to open the circuit automatically at a predetermined overcurrent value without damage to the device when operated within its rating.

(7) *"Circuit breaker adjustable-trip unit"* means a trip unit of a circuit breaker which can be set to trip at various current values and/or times within a predetermined range.

(8) *"Circuit breaker setting"* means the value of current or time at which an adjustable circuit breaker is set to trip.

(9) *"Conductor"* means a bare or insulated wire or combination of wires not insulated from one another, suitable for carrying an electric current.

(10) *"Dielectric strength (withstand voltage)"* means the ability of insulating materials and spacings to withstand specified overvoltages for a specified time without flashover or puncture.

(11) *"Equipment safety grounding conductor"* means a conductor used to connect the non-current-carrying metallic parts of electric equipment, raceways, and other metallic enclosures to the system grounding medium.

(12) *"Extended-time rated grounding resistor"* means a resistor capable of carrying a rated current for a period of time that exceeds the period of time necessary for its temperature to reach a constant value, and which is capable of operating at its maximum operating temperature for at least 90 days per year without opening.

(13) *"Fail-safe"* is a term related to ground-wire monitors and solid-state direct-current overcurrent relays meaning that failure of any component other than relay contacts will not prevent a device from performing its intended function, unless the device is designed to activate a circuit-interrupting device when such failure occurs.

(14) *"Feeder circuit"* means the conductors between the power source and the final branch circuit short-circuit protective device.

(15) *"Fuse"* means an overcurrent protective device with a circuit opening fusible part that is heated and severed by the passage of overcurrent through it.

(16) *"Ground-fault"* means an unintentional connection between an electric circuit and the grounding system.

(17) *"Ground-wire monitor"* means a device having the primary function of monitoring the equipment safety grounding conductor of a circuit and causing the affected circuit breaker to trip when a change in the impedance of the grounding circuit presents a potential electrical shock hazard.

(18) *"High-voltage distribution equipment"* means a unit of high-voltage equipment which switches, controls, or transforms an incoming high-voltage circuit to one or more high-voltage or low-voltage circuits.

(19) *"High-voltage system or circuit"* means a system or circuit with a nominal voltage greater than 1,040 volts.

(20) *"Instantaneous-trip circuit breaker"* means a circuit breaker with no intentional time delay designed in its tripping action.

(21) *"Inverse-time circuit breaker"* means a circuit breaker with an intentional time delay in its tripping action, which delay decreases as the magnitude of the current increases.

(22) *"Low-voltage system or circuit"* means a system or circuit with a nominal voltage of 1,040 volts or less.

(23) *"Maximum voltage"* means the highest root-mean-square voltage which occurs in a system or circuit under normal operating conditions.

(24) *"Mobile electric equipment"* means electric equipment capable of movement from one location to another by power supplied from a source located on the machine or transmitted to the machine by means of a trailing cable.

(25) *"Nominal voltage"* means the phase-to-phase or line-to-line root-mean-square value assigned to a circuit or system for designation of its voltage class, such as 480 or 4,160 volts. Actual voltage at which the circuit or system operates may vary from the nominal voltage within a range that permits satisfactory operation of equipment.

(26) *"Non-adjustable circuit breaker"* means a circuit breaker which has no adjustment to alter the value of current at which it will trip or the time required for its operation.

(27) *"Off-track equipment"* means machines and devices which are not track-mounted in normal operation, such as main frames of mining machines, mobile electric face equipment, pump assemblies, battery chargers, power centers, rectifiers, switchgear, belt conveyor drive units, tailpieces, and compressors.

(28) *"Overcurrent"* means any current in excess of the rated current of equipment or the ampacity of a conductor, which may result from overload, short-circuit, or ground-fault conditions.

(29) *"Overload"* means operation of equipment in excess of normal full-load rating, or loading of a conductor in excess of rated ampacity, which would cause damage or dangerous overheating if allowed to continue.

(30) *"Parallel-connected rectifier trolley system"* means a trolley system which has two or more rectifiers connected together so that their individual output currents are added and flow to common loads.

(31) *"Portable electric equipment"* means electric equipment which is designed and constructed to facilitate frequent movement from one location to another, and which does not normally remain at a fixed location for extended periods of time.

(32) *"Qualified cable splicer"* means an individual who has met the requirements of 30 CFR 75.157.

(33) *"Qualified electrician"* means an individual who has met the requirements of 30 CFR 75.153.

(34) *"Radial stub-feed trolley system"* means a trolley system in which independent feeders branch out radially and connect one or more loads to only one source of power, through which the normal flow of energy is in one direction only.

(35) *"Resistance-grounded system"* means an electrical system in which the neutral point of the transformer or generator winding is intentionally grounded through a current limiting resistor which limits ground-fault current to a value equal to or less than the values specified in subparts H and I, but greater than the system capacitive charging current.

(36) *"Short circuit"* means an abnormal connection of relatively low impedance, whether made accidentally or intentionally, between two points of different potential.

(37) *"Solid-grounded system"* means an electrical system grounded through a connection in which no impedance has been intentionally inserted, where the short-circuit current-carrying capacity of the ground connection is at least equal to the bolted phase-to-neutral fault current.

(38) *"Splice"* means the mechanical and electrical connection of one or more severed conductors in a single length of conductor or cable.

(39) *"Stationary electric equipment"* means electric equipment other than mobile or portable that is fastened, secured or installed such that it cannot be readily moved from one location to another during normal use.

(40) *"Surge arrester"* means a device which is used to provide protection against lightning surges.

(41) *"System"* means a combination of all conductors and associated apparatus connected together without intervening transforming apparatus.

(42) *"Tie-feeder or multiple-feeder circuit breaker"* means a circuit breaker which connects together two or more independent sources of power.

(43) *"Trailing cable"* means a portable cable or flexible cord through which electrical energy is transmitted to any off-track mobile electric equipment, or a portable cable or flexible cord which receives electrical energy from a section power center, section distribution box, section rectifier, or section nipping station.

(44) *"Undervoltage protection"* means the effect of a device which operates on failure of voltage to cause and maintain the interruption of power to a circuit so as to prevent automatic restarting of the equipment.

(45) *"Ungrounded system"* means an electrical system without an intentionally-made connection to ground, except through potential indicating or measuring devices.

(46) *"Voltage-to-ground"* means the root-mean-square voltage between any conductor of the circuit or system and that point of the circuit or system which is grounded.

* * * * *

Subpart B—Qualified Persons

§ 75.153 Qualified electricians.

(a) Upon the effective date of this rule, to become a qualified electrician, an individual shall:

(1) Successfully complete the qualification tests administered by MSHA according to 30 CFR 75.154 or a state according to 30 CFR 75.155; and

(2) Have at least one year of experience in a position requiring the installation and maintenance of electric circuits and equipment in a coal or other mine, in the mine equipment manufacturing industry, or in any other industry using or manufacturing similar equipment. Six months of experience may be credited to persons who have completed a two-year electrical technology program or a four-year electrical engineering program.

(b) In order to retain qualification, all qualified electricians shall complete an annual refresher training program in accordance with the requirements of 30 CFR 75.156. Annual refresher training shall be approved in accordance with 30 CFR 75.160.

(c) Electricians qualified prior to the effective date of this rule shall remain qualified, subject to fulfillment of the annual refresher training requirement.

(d) The District Manager may revoke an electrician's qualification for cause, including intentional violation of the requirements of part 75 or the intentional defeat of any safety device or circuit. Before any revocation becomes effective, the District Manager shall send written reasons for revocation to the electrician, who shall be given ten days to respond. Unless otherwise determined by the District Manager, revocation shall become effective ten days from notification to the electrician. A decision by the District Manager to revoke an electrician's qualification may be appealed by the electrician to the Administrator for Coal Mine Safety and Health, MSHA, 4015 Wilson Boulevard, Arlington, Virginia 22203. Such an appeal shall be submitted to the Administrator within 30 days from the effective date of the revocation. Upon revocation of an electrician's qualified status, the District Manager shall immediately notify the appropriate mine operator.

§ 75.154 MSHA qualification of mine electricians.

(a) Application to take electrical qualification tests shall be made to the District Manager of the appropriate Coal Mine Safety and Health District, and shall include:

(1) A written request to be tested for qualification in low-voltage, high-voltage or both voltage categories; and

(2) Written evidence that the applicant meets the electrical

experience requirement in 30 CFR 75.153(a)(2).

(b) Tests for low-voltage qualification shall include:

(1) Written examination of direct-current and alternating-current theory and application;

(2) Written examination or practical demonstration of knowledge in low-voltage coal mine electric equipment and circuits;

(3) Written examination or practical demonstration of knowledge of permissibility requirements for coal mine electric equipment; and

(4) Written examination of the requirements of subparts F through H and subpart K of this part.

(c) Tests for high-voltage qualification shall include:

(1) Written examination or practical demonstration of knowledge of coal mine electric power distribution circuits and equipment; and

(2) Written examination of the requirements of subpart I of this part.

(d) Applicants may take tests for qualification in both the low-voltage and high-voltage categories on the same occasion, but shall not be qualified in the high-voltage category without successfully passing the low-voltage tests.

(e) A score of at least 80 percent on each of the tests in the relevant voltage category is required for qualification. One percentage point, up to five percentage points, shall be added to the score of each test for each year of the applicant's experience in excess of the required one year.

(f) Applicants for electrical qualification may retake the tests for which a score of less than 80 percent was received within 30 days following notification to the applicant of the test results. Applicants failing to achieve a score of at least 80 percent on the tests retaken are not eligible for further retesting until 30 days after the applicant is notified of the retest results.

§ 75.155 State qualification of mine electricians.

(a) State programs for the qualification of mine electricians, which include at least the following, shall be recognized by MSHA:

(1) The experience requirement specified in 30 CFR 75.153(a)(2);

(2) The MSHA-developed tests or demonstrations specified by 30 CFR 75.154 (b) and (c), or comparable tests or demonstrations jointly developed and agreed upon by MSHA and a state; and

(3) Procedures necessary to ensure the integrity and fairness of testing and grading.

(b) Tests given by the states shall be administered by a qualified electrician.

(c) The District Manager for the Coal Mine Safety and Health District in which testing and grading is to be conducted shall be notified of the time and place of testing at least 20 days in advance. The District Manager shall have the option of monitoring all testing and grading.

§ 75.156 Electrical annual refresher training programs.

(a) An electrical annual refresher training program consisting of at least eight hours of safety instruction shall be presented by a qualified electrician, and programs shall include:

(1) A review of electrical accidents occurring in the industry and their causes; and

(2) A review of electrical safety procedures including lockout and tagging methods.

(b) Operators' programs shall consist of conducting their own refresher training, or participation in refresher training programs conducted by MSHA, a state, other Federal agencies, associations of mine operators, miners' representatives, other mine operators, private associations, or educational institutions.

(c) Only electricians who have completed an annual refresher training program shall perform work required to be performed by a qualified electrician.

(d) Electricians who have not completed refresher training for a period of three consecutive years are no longer considered qualified. They may only regain their qualified status by reapplication for qualification in accordance with 30 CFR 75.153.

(e) The District Manager shall be notified of the time and place of annual refresher training at least 20 days in advance, and shall have the option of monitoring retraining sessions.

(f) Approval of an operator's electrical annual refresher training program required by 30 CFR 75.160 may be revoked by the District Manager for cause.

§ 75.157 Qualification for low-voltage cable splicing and repair.

(a) Individuals shall be considered qualified to splice or repair low-voltage trailing cables if they—

(1) Have at least one year of experience as a miner in a working section of an underground coal mine;

(2) Successfully complete a written test administered by MSHA or a state; and

(3) Successfully perform a practical demonstration of ability to splice and repair low-voltage trailing cables.

(b) Tests for qualification in low-voltage cable splicing and repair shall be developed by MSHA, and shall include written examination of—

(1) Lockout and tagging procedures, and other safety precautions relevant to the repair and splicing of trailing cables;

(2) The applicable requirements of this part; and

(3) The purpose and use of cable splicing components.

(c) Written tests shall be administered and practical demonstrations shall be monitored by an authorized representative of MSHA, or an authorized representative of the State who is a qualified electrician or qualified for low-voltage cable splicing and repair.

(d) The practical demonstration of an applicant's ability shall include:

(1) Performance of all safety precautions required by this part for splicing trailing cables;

(2) Proper splicing of a round No. 2 AWG, three-conductor, type GGC trailing cable;

(3) Proper repair of a damaged outer jacket; and

(4) Demonstration of proper methods of splicing metallic cable shielding.

(e) The District Manager of the Coal Mine Safety and Health District in which tests and demonstrations are to be conducted shall be notified of the time and place of testing at least 20 days in advance and shall have the option of monitoring the testing and demonstrations.

(f) The District Manager may revoke a miner's qualification to splice and repair low-voltage trailing cable for cause, including intentional violation of the requirements of this part or the intentional defeat of any safety device or circuit. Before any revocation becomes effective, the District Manager shall send written reasons for revocation to the miner, who shall be given ten days to respond. Unless otherwise determined by the District Manager, revocation shall become effective ten days from notification to the miner. A decision by the District Manager to revoke an individual's qualification to splice and repair cables may be appealed by the miner to the Administrator for Coal Mine Safety and Health, MSHA, 4015 Wilson Boulevard, Arlington, VA 22203. Such an appeal shall be submitted to the Administrator within 30 days from the effective date of the revocation. Upon revocation of an individual's qualified status, the District Manager shall immediately notify the appropriate mine operator.

§ 75.159 Records of certified and qualified persons.

The operator of each coal mine shall maintain available for inspection at the mine and certify by signature and date as correct, a list of all certified and qualified persons required to perform duties under part 75. The list shall include the names of those persons who have been qualified as mine electricians, or to splice and repair low-voltage cables, the applicable voltage category and dates of qualification and retraining.

Subpart F—Electric Equipment—General

§ 75.500 Scope.

(a) This subpart contains general requirements pertaining to the installation, maintenance, testing, examination, electrical protection and performance of electric circuits and equipment. Requirements pertaining to these and other safety aspects of circuits and equipment are specified in more detail in subpart G, Low-Voltage Circuits; subpart H, Grounding; subpart I, High-Voltage Alternating-Current Circuits; and subpart K, Trolley Wires and Trolley Feeder Wires, of this part.

(b) This subpart does not contain requirements pertaining to the design and construction of permissible equipment and intrinsically safe circuits, except as provided in 30 CFR 75.503, 75.509, 75.511, and 75.529.

§ 75.501 Permissible electric equipment.

(a) Electric equipment in the following areas shall be permissible, except as specified in paragraphs (b) and (c) of this section and 30 CFR 75.514:

(1) In or inby the last open crosscut;

(2) Within 150 feet of pillar workings, or longwall and shortwall faces;

(3) Areas that are ventilated by air that has ventilated any working place or any worked-out area, whether pillared or non-pillared; and

(4) Inaccessible areas.

(b) Non-permissible electric welders, hand-held power tools and test instruments may be used to repair permissible equipment that is disabled and cannot be moved from areas where permissible equipment is required, provided:

(1) The area is ventilated with air that has not been used to ventilate coal cutting or loading operations;

(2) Repairs are made in air that contains less than 1.0 percent of methane;

(3) A fire extinguisher complying with 30 CFR 75.1100–1(e), or 240 pounds of rock dust is made available within 50 feet of the equipment being repaired; and

(4) Repairs are made under the supervision of a certified person, who shall immediately before and during such repairs, test with means approved by the Secretary to assure the presence of less than 1.0 percent methane, and shall make a diligent search for fire during and after such repairs.

(c) The following equipment which is certified by MSHA as explosion-proof may be used in areas requiring permissible equipment, provided such installations are approved by the District Manager:

(1) Distribution boxes, controller boxes, and motors used as part of water pump assemblies; and

(2) Cable couplers.

§ 75.502 Installation of electric conductors and cables.

Electric conductors and cables shall not be installed in areas where permissible equipment is required, other than the following:

(a) Trailing cables supplying power to permissible equipment.

(b) Conductors of permissible equipment.

(c) Conductors of intrinsically safe circuits.

(d) Shielded cables.

(e) Conductors of electric equipment required for making repairs as described in 30 CFR 75.501(b).

(f) Conductors of electric equipment as described in 30 CFR 75.50l(c).

§ 75.503 Construction, maintenance, modification, and identification of permissible electric equipment.

(a) Electric equipment required to be permissible shall be constructed in accordance with the MSHA approval regulations in effect at the time the equipment is manufactured, and be maintained in accordance with the regulations under which the equipment was approved.

(b) Field modifications of permissible electric equipment shall be made and maintained in accordance with the MSHA approval regulations in effect at the time the equipment is modified.

(c) Written applications for modification of permissible equipment and plans for modifications shall be filed with the MSHA Approval and Certification Center, Box 251 Industrial Park Road, Triadelphia, West Virginia 26059.

(d) Approval and certification plates shall be attached to permissible electric equipment and shall be maintained so that model numbers, approval numbers, and certification numbers are legible.

§ 75.504 Current between frames of permissible electric equipment.

In areas where permissible equipment is required, the current that flows between the frames of any two units of equipment that contact each other shall not exceed 1.0 ampere as determined from the voltage that is measured across a 0.1 ohm resistor connected between the frames of the equipment.

§ 75.505 Installation and maintenance of electric circuits and equipment.

(a) Except as provided in paragraphs (b) and (c) of this section, electric circuits and equipment shall be installed and maintained by a low-voltage or high-voltage qualified electrician, as applicable.

(b) Persons trained to perform electrical work who are supervised by a qualified electrician as required in paragraph (d) of this section shall be permitted to install and maintain low-voltage circuits.

(c) Persons qualified under 30 CFR 75.157 shall be permitted to repair and splice low-voltage trailing cables on those parts of the trailing cable which are external to couplers or compartments.

(d) The qualified electrician who supervises trained persons performing electrical work shall—

(1) Provide direct and immediate supervision and be present during the work;

(2) Assure that the circuit or equipment is properly deenergized, disconnected, locked out, and tagged before work is started; and

(3) Examine the completed work before the circuit or equipment is energized.

§ 75.506 Work on electric circuits and equipment.

(a) Doors and cover plates on electric equipment which allow access to electric connections, shall be closed at all times, except during installation, testing, and repair.

(b) Except when necessary for troubleshooting and testing, as specified in 30 CFR 75.507, electric circuits and equipment shall be deenergized before electrical work is started in accordance with the following:

(1) The appropriate disconnecting device shall be opened, locked out with a padlock and tagged by persons performing the work;

(2) The disconnecting device shall be locked out with an individual padlock for each person performing work;

(3) The tag shall identify each person performing the work and identify the circuit or equipment being worked on;

(4) When two or more electric circuits are located within a single compartment, each circuit shall be deenergized and locked out before electrical work is started on any circuit.

(c) When high-voltage power conductors are required to be deenergized, they shall be connected to the system grounding conductor by a high-voltage qualified electrician, and the high-voltage circuit shall remain grounded until the work is completed.

(d) Padlocks and tags shall only be removed by the person who installed them.

(e) When mechanical repairs or maintenance being performed on electric equipment requires the power to be removed in accordance with 30 CFR 75.1725(c), the disconnecting devices shall be opened, locked out with a padlock, and tagged by the persons performing the work.

(f) Conductors that are not supplying power to electric equipment shall be deenergized and shall—

(1) Be removed from their supply source; or

(2) Have their supply source locked out and any exposed ends insulated.

§ 75.507 Electrical troubleshooting and testing.

(a) Troubleshooting and testing of energized circuits shall be performed only—

(1) On low-voltage circuits; and

(2) When the purpose of troubleshooting and testing is to determine voltages and currents.

(b) Electrical troubleshooting and testing of energized circuits shall only be performed by a qualified electrician wearing rubber insulating gloves with protective coverings designed to prevent physical damage to the insulation material.

(c) Before troubleshooting and testing a low-voltage circuit contained in a compartment with a high-voltage circuit, the high-voltage circuit shall either be deenergized, grounded, locked out and tagged, or physically separated by a permanent barrier or partition from the low-voltage circuit.

(d) Rubber insulating gloves used when troubleshooting and testing shall be—

(1) Rated at least for the nominal voltage of the circuit;

(2) Examined before each use for visible signs of damage or defects; and

(3) Removed from the underground area of the mine when damaged or defective.

§ 75.508 Examination and testing of electric equipment and circuits.

(a) Electric equipment and circuits shall be installed, maintained, and used to prevent fire, electrical shock, ignition, or operational hazards. Electric equipment or circuits that present a hazard to persons due to improper installation or maintenance, misuse, or damage, shall be deenergized and tagged as a hazard.

(b) A low- or high-voltage qualified electrician, as applicable, shall make examinations of all electric equipment and circuits to determine that the electrical protection, equipment grounding, permissibility, cable insulation, and control devices, are being properly maintained to prevent fire, electric shock, ignition or operational hazards from existing on the equipment. Examinations shall include testing when necessary to make such determinations.

(c) The examinations of low-voltage equipment and circuits required by paragraph (b) of this section shall be made:

(1) When installed, and at least every 7 days on mobile and portable electric equipment and circuits; and

(2) When installed and at least every 30 calendar days on stationary equipment and circuits and hand-held power equipment.

(d) Surface and underground high-voltage switchgear used in conjunction with circuits which extend underground shall be tested at least once each 90 calendar days as follows:

(1) The circuit breaker shall be opened by breaking the continuity of the ground-check conductor at the extreme end of the monitoring circuit when a ground-check conductor is used.

(2) The circuit breaker shall be opened by activating at least one interlock switch for each power center.

(e) The equipment specified in paragraph (d) of this section shall be visually examined at least once every 30 calendar days for hazardous conditions resulting from exposed energized parts or equipment defects.

(f) Each high-voltage grounding resistor and high-voltage circuit protective device located on the surface to protect underground circuits shall be tested when installed and at least every 12 months thereafter as follows:

(1) Pass current through each current transformer necessary to cause the circuit breaker to open.

(2) Impress voltage across each potential ground-fault device necessary to cause the circuit breaker to open.

(3) Determine whether the grounding resistor is open or shorted.

(g) When examinations or tests of equipment or circuits reveal a fire, electrical shock, ignition or operational hazard, the equipment shall either be removed from service or repaired.

(h) At the completion of examinations and tests required by this section, the person who makes the examinations and tests shall certify by signature and date that they have been conducted. A record shall be made of any unsafe condition found, and corrective action taken.

(i) Certifications and records shall be kept for at least one year, and shall be made available at the mine for inspection by authorized representatives of the Secretary and representatives of miners at the mine.

(j) When equipment is idle for more than the number of days required for examination by this section, examinations need not be conducted, except that examinations shall be conducted prior to the equipment being returned to service.

§ 75.509 Switches, control devices, and control circuits.

(a) Switches and control devices shall be properly installed and maintained on electric equipment so that it can be safely operated.

(b) Switches and control devices on electric equipment shall have voltage and current ratings of at least the voltage and current of the circuit in which they are used.

(c) Alternating-current remote control circuits shall have a maximum voltage of 150 volts.

(d) Control circuits having a neutral or one conductor solidly connected to the grounding medium shall be wired so that ground faults in the circuits will not—

(1) Start equipment;

(2) Prevent equipment from being stopped; or

(3) Prevent operation of protective devices connected in the circuit.

(e) Control circuits shall be wired so that stop switches will deenergize the affected circuit if a start switch remains in the "start" position.

(f) Tram controls on mobile electric equipment shall return automatically to the neutral position when released.

(g) Automatic over-temperature switches shall be provided and maintained on air compressors other than those compressors which are component parts of locomotives and rock dusting machines. Such switches shall automatically deenergize the compressor at predetermined settings specified by the manufacturer of the compressor, not to exceed 240 degrees fahrenheit.

§ 75.510 Disconnecting devices.

(a) A disconnecting device shall be installed in each power circuit that extends underground and shall be located—

(1) On the surface within 500 feet of where the circuits enter the underground area of the mine; and

(2) Underground, within 500 feet from the bottom of shafts and boreholes when the circuit enters the mine through a shaft or borehole.

(b) Disconnecting devices which are not designed for load interruption, and are located as specified in paragraph (a)(2) of this section shall be—

(1) Installed so that the incoming power circuit can be deenergized by a circuit breaker which can be operated at the disconnect device location, before such devices are opened; and

(2) Provided with a visual or audible means, at the disconnect location, to determine that the incoming power has been removed from such device.

(c) Disconnecting devices shall be installed in conjunction with each circuit breaker and at the beginning of each branch circuit and trailing cable used underground.

(d) Disconnecting devices shall be designed to provide visual evidence that all ungrounded power conductors of the circuit are disconnected when the devices are open.

(e) Disconnecting devices shall be equipped with a means for installing a padlock.

(f) Each disconnecting device shall be distinctly marked to indicate the specific unit of equipment that it serves. The marking shall be identical to the marking of the corresponding circuit breaker or fuse holder, and shall be of sufficient durability to withstand the mining environment. Where a plug and receptacle are used as a disconnecting device, both the plug and receptacle shall be marked identically.

(g) Disconnecting devices shall have voltage and current ratings compatible with the circuits in which they are used.

(h) Except for trolley taps, low-voltage disconnecting devices shall not have exposed energized parts.

(i) High-voltage disconnecting devices installed underground after [insert the effective date of the rule] shall be enclosed in a grounded metallic enclosure and shall have no exposed energized parts.

(j) High-voltage disconnecting devices having exposed energized parts shall be—

(1) Guarded to prevent inadvertent contact with energized parts; and

(2) Operated only be a high-voltage qualified electrician.

(k) Qualified electricians who operate high-voltage disconnecting devices with exposed energized parts shall wear rubber insulating gloves rated at least 20,000 volts which have protective coverings designed to prevent physical damage to the insulating material, and shall use insulated sticks, fuse tongs, or pullers when operating the disconnecting devices.

(l) Insulated sticks, fuse tongs, and pullers shall be insulated and maintained to protect the qualified electrician from exposure to voltage.

(m) Gloves, insulated sticks, insulated fuse tongs, and insulated pullers shall be examined before each use for visible signs of physical damage and defects.

(n) Damaged or defective gloves, sticks, fuse tongs, and pullers shall be removed from the underground areas of the mine.

(o) Rubber insulating gloves shall be electrically tested at least every 6 months.

§ 75.511 Cable couplers.

(a) Cable couplers shall—

(1) Enclose all power conductors of the circuit in which the coupler is used;

(2) Be equipped with a metallic outer shell when the nominal voltage of the circuit exceeds 600 volts;

(3) Have voltage ratings of at least the nominal voltage of the circuit in which the couplers are used;

(4) Have current ratings of at least the maximum continuous current rating of the circuit in which the couplers are used;

(5) Be constructed so that ground-check conductors or interlock circuit conductors will separate first and equipment safety grounding conductors will separate last when the couplers are disconnected;

(6) Be equipped with an electrical or mechanical interlock on all three phase circuits and direct-current trailing cable circuits which prevents the coupler from being disconnected while energized. The voltage of interlock circuits shall not exceed 40 volts on low-voltage circuits or 96 volts on high-voltage circuits; and

(7) Not be connected or disconnected under load.

(b) Cable couplers on mobile battery-powered electric face equipment shall:

(1) Meet the requirements of 30 CFR 18.41; or

(2) Be held in place by a threaded ring or equivalent mechanical fastening equipped with a captive device removable only by a special tool to separate the connection.

§ 75.512 Trolley taps.

(a) Trolley taps shall be connected to trolley wires and feeder wires only by pressure-type connectors when the load of the circuit exceeds 4 amperes.

(b) Trolley taps shall not be connected or disconnected under load.

§ 75.513 Lightning protection.

(a) Surge arresters shall be provided for exposed ungrounded power conductors and telephone wires that extend underground.

(b) Power conductors and telephone wires that are buried, installed beneath a protective metallic covering, or enclosed within grounded metallic shields, coverings, or enclosures, throughout their entire length need not be equipped with surge arresters.

(c) Surge arresters shall be located on the surface within 100 feet of the point where the conductors—

(1) Enter the mine;

(2) Are buried;

(3) Are installed beneath a protective metallic covering;

(4) Are enclosed within grounded metallic shields, coverings, or enclosures; or

(5) Are supported by grounded metallic messenger wires.

(d) Surge arresters shall be rated for the voltage and current of the circuit they protect.

(e) Surge arresters providing lightning protection for conductors that extend underground shall be connected to a low-resistance ground field that is separated from neutral ground fields by a distance of not less than 25 feet.

§ 75.514 Lighting fixtures and photographic lighting equipment.

(a) Lamps used to illuminate slopes and enclosed underground structures shall be installed within glass, plastic or equivalent enclosures.

(b) Incandescent lamps used to illuminate walkways and work areas shall be installed—

(1) Within glass, plastic or equivalent enclosures; or

(2) In weatherproof sockets, provided they are located at least eight feet above travelways and work areas.

(c) In locations other than those specified by paragraphs (a) and (b) of this section, incandescent lamps shall be installed in weatherproof sockets, or within glass, plastic or equivalent enclosures.

(d) Lamps shall not contact combustible materials, and except as provided in paragraphs (b)(2) and (c) of this section, shall be enclosed within glass, plastic or equivalent enclosures.

(e) Low-pressure sodium lamps shall not be used underground.

(f) Non-permissible electronic photographic equipment may be used in

underground mines in areas where permissible equipment is required provided that—

(1) Such areas are ventilated with air that has not been used to ventilate coal cutting or loading operations;

(2) The air in such areas contain less than 1.0 percent methane; and

(3) The equipment is used under the supervision of a certified person who shall immediately before and during its use, test with means approved by the Secretary to assure the presence of less than 1.0 percent methane.

§ 75.515 Insulation of electric conductors and cables.

(a) Electric power, control, ground-check, interlock and communication conductors and cables shall have insulation with a voltage rating of at least the nominal voltage of the circuit in which they are used, except for—

(1) Trolley wires and trolley feeder wires installed with mine track;

(2) Grounded power conductors of direct-current feeder systems;

(3) Equipment and system grounding conductors; and

(4) Bare signal wires of 40 volts or less.

(b) Exposed electric connections and resistor grids shall be insulated. When insulation would be impractical, they shall be guarded to prevent inadvertent contact by persons or equipment.

§ 75.516 Mechanical protection of conductors and cables.

Electric conductors and cables, and communication wires and cables shall be protected to prevent functional damage to the outer jacket and insulation. Trailing cables shall be protected against damage from mobile electric equipment by bridges, trenches, suspension from the mine roof or rib, or by location.

§ 75.517 Support of insulated conductors and cables.

(a) Insulated electric conductors and cables shall be supported by insulators or insulated J-hooks and shall not contact combustible materials, roof, or ribs, except for the following:

(1) Trailing cables;

(2) Metallic shielded cables;

(3) Conductors installed in conduits;

(4) Equipment and system grounding conductors; and

(5) Grounded power conductors on direct-current feeder circuits.

(b) Materials other than insulators may be used to support cables meeting the requirements of 30 CFR 75.601, provided such cables are supported from non-combustible materials. Materials used to support the cables shall be flame resistant, insulated for at least the maximum voltage of the circuit, and have a tensile strength of at least three times the weight supported.

(c) Communication circuits shall not contact light or power circuits.

(d) Communication wires or cables installed in track entries shall be installed in the entry on the opposite side of the trolley wire or trolley feeder wire.

§ 75.518 Insulators and insulated J-hooks.

Insulators and insulated J-hooks shall have—

(a) Flame-resistant insulating material;

(b) Insulating material with a dielectric strength of at least eight times the maximum voltage of the circuit; and

(c) A tensile strength of at least three times the supported weight.

§ 75.519 Splices, repairs and terminations of conductors and cables.

(a) High-voltage cables shall be spliced, terminated, or repaired by high-voltage qualified electricians.

(b) Low-voltage trailing cables shall be spliced, repaired, or terminated by a qualified electrician or a qualified cable splicer.

(c) Splices and repairs in low-voltage trailing cables shall be made with splice and repair kits that meet the flame-resistance tests in 30 CFR 18.64.

(d) The outer jacket of each splice and repair in a high-voltage trailing cable shall be vulcanized or molded with materials that are flame resistant in accordance with 30 CFR 18.64.

(e) Splices and repairs in cables shall be sealed to exclude moisture.

(f) A splice in a trailing cable shall contain only one connection point in each conductor.

(g) Terminations of shielded high-voltage cables shall include stress-relief on each power conductor.

(h) Metallic shielding of single-conductor cables shall be connected to messenger wires and equipment safety grounding conductors at each splice and termination.

(i) Each splice and repair shall have—

(1) Conductivity and current-carrying capacity that prevents insulation damage due to heating of conductors;

(2) The severed conductors joined by welding or compression-type conductors;

(3) Each power, control, and ground check conductor individually reinsulated with insulation having a thickness temperature rating, and dielectric strength of at least that of the original insulation;

(4) Semiconducting tape replaced over the insulation of each power conductor within shielded cables;

(5) Metallic shielding in the form of metallic braid or serving (wrap) replaced over each power conductor and applied in half-lapped layers, on shielded trailing cables;

(6) Metallic shielding in the form of metallic braid or serving (wrap), or metallic tape replaced over each power conductor and applied in half-lapped layers, on shielded cables other than trailing cables; and

(7) The outer jacket replaced to provide at least the same thickness and protection as that of the original jacket.

§ 75.520 Conductor and cable fittings and strain relief devices.

(a) Except as provided in paragraph (c), cables shall enter metallic frames of electric enclosures through fittings sized for the cable which prevent damage to cable jackets and the insulation of the internal conductors.

(b) Except as provided in paragraph (c), conductors shall enter metallic frames of electric enclosures through fittings with insulated bushings sized for the conductors.

(c) Cables and conductors in conduit that enter metallic frames of electric enclosures need not be equipped with fittings or bushings when protection against damage by sharp edges is provided.

(d) Cables and conductors shall be secured to prevent mechanical strain on electrical connections.

(e) Trailing cables shall be attached to the equipment supplied by an insulated strain clamp or cable grip.

§ 75.521 Damaged conductors and cables.

Conductors and cables shall be deenergized, disconnected in accordance with 30 CFR 75.506, and either removed from service or repaired when they have—

(a) A damaged outer jacket;

(b) Damaged conductor insulation;

(c) A damaged conductor;

(d) A damaged splice or repair; or

(e) A splice that heats or sparks.

§ 75.522 Ampacities of low-voltage conductors.

(a) Electric conductors shall be of a size and current-carrying capacity to assure that a rise in temperature resulting from normal operating conditions does not damage the insulation and conductors.

(b) Branch circuit conductors supplying electric equipment shall have ampacities of at least 125 percent of the maximum full-load current rating of the equipment.

(c) Feeder circuit conductors supplying one or more loads shall have ampacities of at least the sum of the full-

load current rating of each load, plus 25 percent of the highest full-load current rating of the largest load.

(d) The ampacity of conductors for the equipment specified in paragraphs (b) and (c) of this section shall be at least that specified in Tables F–1 through F–4 below:

(1) Table F–1 for flexible cords rated 300 and 600 volts.

TABLE F–1.—ALLOWABLE AMPACITIES OF 300- AND 600-VOLT FLEXIBLE CORDS; COPPER CONDUCTORS

Conductor size AWG	Types S, SO, SJO, ST, STO, SJT, SJTO, SOO, SJOO, STOO, SJTOO		Types AFS, AFSJ, HSJ, HSJO, HS, HSO
	Current-carrying conductors		Current-carrying conductors
	2	3	3
14	18	15	20
12	25	20	30
10	30	25	35
8	.....	35	.....

(2) Table F–2 for portable power cables rated 2,000 volts or less.

TABLE F–2.—ALLOWABLE AMPACITIES OF SHIELDED AND UNSHIELDED 0- TO 2000-VOLT PORTABLE POWER CABLES; COPPER CONDUCTORS

[Based on Ambient Air Temperature of 20 °C (68 °F)]

Conductor size AWG or MCM	Ampacities—Number of current-carrying conductors in cable or raceway						
	1		2		3		
	75 °C [1]	90 °C [1]	75 °C [1]	90 °C [1]	75 °C [1]	90 °C [1]	90 °C [2]
8	75	98	63	85	63	70	.....
6	106	128	81	112	81	93	110
4	138	171	113	150	106	123	144
3	163	197	131	171	125	142	165
2	188	227	150	197	144	163	188
1	213	263	175	225	163	190	217
1/0	250	304	213	256	181	219	249
2/0	294	352	244	295	213	254	287
3/0	344	407	281	337	244	294	329
4/0	394	472	325	387	275	339	379
250	438	525	356	428	306	378	419
300	494	590	388	472	344	421	470
350	556	651	419	514	381	465	513
400	600	708	450	555	406	507	555
500	681	820	519	618	469	575	632

[1] 0–2000 Volt Insulation, Unshielded Portable Power Cable
[2] 0–2000 Volt Insulation, Shielded Portable Power Cable

(3) Tables F–3 and F–4 for conductors other than flexible cords, or portable cables rated 2,000 volts or less.

TABLE F–3.—ALLOWABLE AMPACITIES OF INSULATED CONDUCTORS RATED 0 TO 2000 VOLTS, 60 °C TO 90 °C, NOT MORE THAN THREE CURRENT-CARRYING CONDUCTORS IN RACEWAY OR CABLE (BASED ON AMBIENT AIR TEMPERATURE OF 20 °C (68 °F))

Conductor size AWG or MCM	Copper				Aluminum or copper-clad aluminum				Conductor size AWG or MCM
	Insulation temperature rating				Insulation temperature rating				
	60°	75°	85°	90°	60°	75°	85°	90°	
18	.....	.....	.....	15	.....	.....	.....	.....	.....
16	.....	.....	20	19	.....	.....	.....	.....	.....
14	20	20	27	25	.....	.....	.....	.....	.....
12	25	25	33	30	20	20	27	25	12
10	35	35	43	40	29	30	33	35	10
8	46	55	60	59	35	44	43	49	8
6	64	72	76	81	46	55	60	65	6
4	81	94	103	103	64	72	82	81	4
3	98	111	120	119	75	83	92	92	3
2	110	127	136	140	87	99	109	108	2
1	127	144	158	162	98	111	120	124	1

TABLE F-3.—ALLOWABLE AMPACITIES OF INSULATED CONDUCTORS RATED 0 TO 2000 VOLTS, 60 °C TO 90 °C, NOT MORE THAN THREE CURRENT-CARRYING CONDUCTORS IN RACEWAY OR CABLE (BASED ON AMBIENT AIR TEMPERATURE OF 20 °C (68 °F))—Continued

Conductor size AWG or MCM	Copper				Aluminum or copper-clad aluminum				Conductor size AWG or MCM
	Insulation temperature rating				Insulation temperature rating				
	60°	75°	85°	90°	60°	75°	85°	90°	
0	144	166	179	184	116	133	141	146	0
00	167	193	207	211	133	149	158	162	00
000	191	221	234	243	150	171	185	189	000
0000	225	254	272	281	173	199	212	221	0000
250	248	282	299	313	196	227	239	248	250
300	277	315	337	346	219	254	272	275	300
350	299	343	370	378	243	276	294	302	350
400	323	370	397	410	260	298	321	329	400
500	370	420	451	464	300	343	364	378	500
600	410	464	500	513	329	376	402	416	600
700	445	508	544	562	358	414	440	454	700
750	462	525	560	578	370	425	457	470	750
800	474	541	582	599	381	436	467	486	800
900	502	575	614	632	410	470	506	518	900
1000	526	602	641	664	433	492	527	540	1000
1250	572	652	696	718	468	536	571	589	1250
1500	601	691	739	761	502	575	614	632	1500
1750	629	718	766	794	526	602	647	664	1750
2000	647	735	788	810	543	619	663	680	2000

TABLE F-4.—ALLOWABLE AMPACITIES OF SINGLE CONDUCTORS RATED 0 TO 2,000 VOLTS (BASED ON AMBIENT AIR TEMPERATURE OF 20 °C (68 °F))

Conductor size AWG or MCM	Copper				Aluminum or copper-clad aluminum				Conductor size awg or MCM
	Insulation temperature rating				Insulation temperature rating				
	60°	75°	85°	90°	60°	75°	85°	90°	
18				19					
16			25	26					
14	25	30	33	35					
12	30	35	43	40	25	30	33	35	12
10	40	50	60	55	35	40	43	40	10
8	69	77	82	86	52	61	65	65	8
6	92	105	109	113	69	83	87	86	6
4	121	138	147	151	92	111	114	119	4
3	139	160	174	178	110	127	138	140	3
2	162	188	201	205	127	149	158	162	2
1	191	215	234	238	150	171	179	189	1
0	225	254	272	281	173	199	212	221	0
00	260	293	315	324	202	232	245	254	00
000	300	343	364	378	231	265	288	297	000
0000	347	398	424	437	271	309	332	340	0000
250	393	448	478	491	306	348	375	383	250
300	433	492	527	545	335	387	413	427	300
350	485	558	598	616	381	436	467	481	350
400	526	602	647	664	410	470	505	518	400
500	595	685	734	756	468	536	571	589	500
600	664	762	815	842	526	597	647	664	600
700	728	834	897	923	578	657	707	729	700
750	757	867	929	956	595	685	734	756	750
800	785	901	962	994	618	713	761	783	800
900	843	961	1033	1064	670	774	826	848	900
1000	901	1033	1109	1139	722	829	886	913	1000
1250	1028	1177	1261	1296	820	945	1011	1037	1250
1500	1132	1298	1386	1431	918	1050	1125	1161	1500
1750	1236	1414	1516	1561	1010	1160	1245	1280	1750
2000	1334	1531	1636	1685	1109	1271	1359	1442	2000

§ 75.523 Overcurrent protection.

(a) All electric circuits and equipment shall be protected against overcurrents by circuit breakers, fuses, or other automatic circuit interrupting devices in accordance with this section, except as otherwise provided in MSHA's regulations.

(b) Overload devices shall be installed in each ungrounded power conductor supplying motors and shall—

(1) Be rated or set as specified in Table F–5; and

(2) Cause deenergization of all ungrounded power conductors when any conductor is overloaded.

TABLE F–5.—MAXIMUM RATING OR SETTING OF MOTOR OVERLOAD PROTECTIVE DEVICES

Motor markings	Percent of full load current
Service Factor Greater than 1.15	125
Temperature Rise not Over 40 degrees C	125
All Others	115

(c) Circuit breakers shall be installed to provide short-circuit protection for branch circuits supplying three-phase motors and shall be rated or set as specified in Table F–6.

TABLE F–6.—MAXIMUM RATING OR SETTING OF MOTOR BRANCH-CIRCUIT SHORT-CIRCUIT PROTECTIVE DEVICES FOR THREE-PHASE MOTORS

Type of motor	Percent of full-load current	
	Instantaneous trip breaker	Inverse time breaker
All Polyphase Squirrel-Cage and Synchronous Motors with Full-Voltage, Resistor or Reactor Starting:		
No Code Letter	700	250
Code Letter F to V	700	250
Code Letter B to E	700	200
Code Letter A	700	150
All AC Squirrel-Cage and Synchronous Motors with Autotransformer Starting:		
Not More than 30 Amps No Code Letter	700	200
More than 30 Amps:		
No Code Letter	700	200
Code Letter F to V	700	200
Code Letter B to E	700	200
Code Letter A	700	150
High-Reactance Squirrel-Cage:		
Not More than 30 Amps No Code Letter	700	250
More than 30 Amps No Code Letter	700	200
Wound-Rotor—No Code Letter	700	150

(d) Circuit breakers or fuses shall be installed to provide short-circuit protection for branch circuits supplying single-phase and direct-current motors and shall be rated or set as specified in Table F–7.

TABLE F–7.—MAXIMUM RATING OR SETTING OF MOTOR BRANCH-CIRCUIT SHORT-CIRCUIT PROTECTIVE DEVICES FOR SINGLE-PHASE MOTORS AND DIRECT-CURRENT MOTORS

Type of motor	Percent of full-load current			
	Nontime delay fuse	Dual element (time-delay) fuse	Instantaneous trip breaker	Inverse time breaker
Single-Phase, All Types No Code Letter	300	175	700	250
All AC Single-Phase with Full-Voltage, Resistor or Reactor Starting:				
No Code Letter	300	175	700	250
Code Letter F to V	300	175	700	250
Code Letter B to E	250	175	700	200
Code Letter A	150	150	700	150
Direct-Current (Constant Voltage)				
No More than 50 HP No Code Letter	150	150	250	150
More than 50 HP No Code Letter	150	150	175	150

(e) Where the setting specified in Table F–6 above is not sufficient for the starting current of alternating-current motors, the setting of a circuit breaker shall be permitted to be increased, but shall in no case exceed 1,300 percent of the motor's full-load current on instantaneous trip circuit breakers and 400 percent of the motor's full-load current for inverse-time circuit breakers.

(f) Circuit overcurrent protection for motor feeder circuits, transformers, and welders shall be provided by either circuit breakers or fuses in accordance with Table F–8 below:

TABLE F–8.—MAXIMUM OVERCURRENT PROTECTION SETTINGS FOR TRANSFORMERS, WELDERS, WELDER BRANCH CIRCUITS, AND MOTOR FEEDER CIRCUITS

Circuits and equipment	Ratings	Location
Transformers	250% of rated full load primary current	Each ungrounded power conductor supplying power to the transformer.
Welders	200% of rated primary current	Each ungrounded power conductor supplying power to equipment.
Welder Branch Circuit	200% of cable ampacity	Each ungrounded power conductor.
Motor Feeder Circuits	100% of the fuse or circuit breaker rating protecting the largest motor plus the sum of the full load currents of all the other motors supplied from the system or 100% of the ampacity of the feeder conductors.	Each ungrounded power conductor at the beginning of the feeder circuit.

(g) All electric equipment not addressed in paragraphs (b) through (f) of this section shall be protected by circuit breakers or fuses with ratings or settings not to exceed the full load current ratings of the equipment.

(h) All supply, control, lighting, and other conductors not addressed in paragraphs (b) through (f) of this section shall be protected at their ampacity.

(i) Overcurrent protection shall not be required on incandescent lamps supplied from direct-current systems, provided the length of ungrounded conductors does not exceed eight feet.

(j) When the required rating of a fuse or circuit breaker without an adjustable trip unit does not correspond to a standard rating for fuses or circuit breakers, the protective device used shall not exceed the next higher standard device rating.

(k) Circuit breakers or fuses providing short-circuit protection shall be installed where the circuit conductors are connected to the supply, except for feeder tap conductors that—

(1) Do not exceed 25 feet in length;

(2) Have ampacities of at least one-third of the ampacity of the feeder conductors; and

(3) Terminate at a circuit breaker or fuse with a current rating that does not exceed the ampacity of the feeder tap conductors.

§ 75.524 General requirements for overcurrent devices.

(a) Fuses, circuit breakers, or a combination of both shall not be connected in parallel.

(b) Fuses and circuit breakers shall have voltage ratings of at least the maximum voltage of the circuit being protected.

(c) Fuses and circuit breakers shall have a continuous current rating of at least the maximum full-load current of the circuit.

(d) Fuses and circuit breakers shall have interrupting current ratings of at least the maximum fault current available at the fuse or breaker.

(e) Circuit breakers shall be installed so that the "up" position of the handle indicates the "on" position.

(f) Circuit breakers shall not automatically reclose after tripping operations, except as provided in 30 CFR 75.1006.

(g) Thermal cutouts, thermal relays and other devices used for overload protection of motor circuits shall not be used for protection against short circuits, unless the devices are designed for short-circuit protection.

(h) A fuse or an overcurrent trip device of a circuit breaker shall be connected in series with each ungrounded power conductor, except that a combination of a current transformer and relay used as an overcurrent trip device does not have to be installed in series.

(i) Overcurrent devices shall be readily accessible and protected against physical damage.

(j) Renewable link-type fuses shall not be used for protection of low-voltage circuits and equipment.

§ 75.525 Identification of circuit breakers and fuse holders.

Circuit breakers, trolley taps, fuse switchboxes, and other fuse holders shall be legibly, durably, and distinctively marked to identify the unit of equipment or circuit protected.

§ 75.526 Nameplates and markings.

Motors, transformers, and circuit breakers shall have a nameplate or other durable markings indicating the manufacturer's name and the rated voltage and current.

§ 75.527 Map of the mine electrical system.

(a) A map of the mine electrical system shall be maintained and made available for inspection by authorized representatives of the Secretary and representatives of the miners, and shall indicate—

(1) The size and location of circuit breakers, fuses, transformers, cables, rectifiers, switchgear, and disconnecting devices of high-voltage systems;

(2) The size and location of stationary equipment operated by 10 horsepower or larger motors;

(3) The size and location of trolley wires, trolley feeder wires and return feeder wires;

(4) The size and location of track rails used as power conductors with a notation as to whether one or both rails are bonded or welded at every joint;

(5) The size, location and settings of direct-current circuit breakers protecting trolley circuits;

(6) The location of cutout switches and deadblocks installed in trolley circuits; and

(7) The size and location of compressor stations.

(b) Changes in the mine electrical system shall be reflected on the map within 5 working days after the circuit or equipment is reenergized and returned to service.

§ 75.528 Alternating-current battery chargers for mining vehicles.

Alternating-current battery chargers for mining vehicles installed on or after [insert the effective date of the rule] shall have—

(a) A two-winding transformer that electrically isolates the battery charging circuit from the alternating-current supply circuit;

(b) A control circuit with a maximum voltage which does not exceed 150 volts; and

(c) An electrostatic (Faraday) shield between the secondary and primary windings when the charger is supplied from a circuit having a voltage that exceeds 150 volts. Such shields shall be aluminum or copper, connected to the battery charger frame, and have a cross-sectional area consistent with 30 CFR 75.714(c).

§ 75.529 Emergency deenergization devices for mobile electric equipment.

(a) Except as provided in paragraph (b) of this section, mobile electric face equipment shall have devices capable of quickly deenergizing the tramming motors of the equipment as follows:

(1) An emergency deenergization device consisting of an electro-mechanical stop switch and an actuating bar extending a sufficient distance in each direction from the stop switch to permit quick actuation of the device shall be installed at each location from which the equipment can be operated;

(2) Actuating bars shall be installed on both sides of the operator's compartment on battery-powered articulated equipment that has the seating arranged so that the equipment operator normally faces a position 90 degrees from the direction of travel;

(3) When the equipment can be trammed from a location other than the operator compartment, the actuating bar shall be installed so that the bar is located between the operator and the machine at all times the machine is being trammed;

(4) The actuating bar shall be capable of causing the electro-mechanical stop switch to operate when it is moved a distance not to exceed two inches, and by a force of fifteen pounds or less; and

(5) Actuating bars shall not interfere with the normal operation of the equipment.

(b) Mobile electric face equipment that is equipped with a substantially constructed cab which meets the requirements of part 75 shall not be required to be provided with devices that will quickly deenergize the tramming motors of the equipment in the event of an emergency.

(c) The Director of Technical Support may approve other emergency deenergization devices if it is determined that equivalent protection would be provided. Operators shall apply to the Chief of the Approval and

Certification Center, Mine Safety and Health Administration, Industrial Park Boulevard, Rural Route 1, Box 251, Triadelphia, West Virginia 26059, for acceptance of the installation of other devices used in lieu of devices that will deenergize the tramming motors.

§ 75.530 Use of insulated trailing cable handling equipment.

(a) When energized high-voltage and unshielded low-voltage trailing cables are moved manually, insulated hooks, tongs, slings, gloves, mitts, aprons or other insulated personal protective equipment capable of protecting against shock shall be used.

(b) Insulated personal protective equipment shall be—

(1) Rated for at least the nominal voltage of the circuit for low-voltage trailing cables;

(2) Rated for at least 20,000 volts for high-voltage trailing cables;

(3) Examined before each use for visible signs of damage or defects; and

(4) Removed from the underground area of the mine when damaged or defective.

(c) Insulated handling equipment for use with high-voltage trailing cables shall be electrically tested every 6 months.

§ 75.531 Deenergized underground power circuits; idle days—idle shifts.

When not in use, power circuits underground shall be deenergized on idle days and idle shifts, except that rectifiers and transformers may remain energized.

Subpart G—Low-Voltage Circuits

§ 75.600 Scope.

(a) The standards in this subpart contain requirements pertaining to low-voltage circuits, and include:

(1) Section 75.601, which addresses design and construction of trailing cables;

(2) Sections 75.602 and 75.603, which address electrical protection (short circuit, ground-fault, and undervoltage) of trailing cables. Section 75.602 also addresses electrical protection (overcurrent, ground-fault, and undervoltage) of low-voltage alternating-current systems which supply power to electric equipment located out by the working section, except for requirements pertaining to single-phase systems energized at 150 volts or less to ground, which are specified in subpart F. Specific requirements for overcurrent protection are specified in subpart F; and

(3) Section 75.604 addresses cable coupler physical restraint requirements for all low-voltage circuits.

(b) This subpart does not contain requirements pertaining to:

(1) Mechanical protection, splicing and repair, disconnecting devices, ground-wire monitors, and insulated handling equipment for low-voltage circuits, which are specified in subpart F of this part;

(2) System and equipment grounding, which are specified in subpart H;

(3) Electrical protection of alternating-current systems supplying power to stationary lighting fixtures for illumination of working places, which are specified in subparts F and R;

(4) Splicing and repairing of low-voltage cables and conductors, which are addressed in subpart F.

(5) The design and construction of on-board circuits and components of permissible equipment and intrinsically safe circuits.

§ 75.601 General requirements for trailing cables.

(a) Each trailing cable shall be flame resistant in accordance with 30 CFR 18.64.

(b) Each grounding conductor in a shielded trailing cable shall be bare.

(c) Ground-check and interlock conductors shall be contained in the cable and shall have a cross-sectional area equal to or greater than:

(1) No. 10 AWG when the circuit power conductors are No. 10 AWG or larger; or

(2) The cross-sectional area of one circuit power conductor when the circuit power conductors are smaller than No. 10 AWG.

(d) Each trailing cable shall contain at least one equipment safety grounding conductor unless the cable supplies—

(1) A tool that is double insulated; or

(2) A unit of equipment that is silicon diode grounded in accordance with subpart H.

(e) The power conductors in trailing cables for mobile haulage equipment shall be at least—

(1) No. 6 AWG for cables supplying alternating-current equipment; and

(2) No. 4 AWG for cables supplying direct-current equipment.

(f) Each power conductor in trailing cables for non-haulage equipment employing cable reels shall be at least No. 8 AWG.

(g) Trailing cables for mobile electric equipment energized with a nominal alternating-current voltage from 150 volts phase-to-ground to 660 volts phase-to-phase (381 volts phase-to-ground) shall be provided with a grounded metallic shield around each power conductor in accordance with the following schedule:

(1) Mobile electric equipment not employing cable reels after [insert date one year from the effective date of the final rule]; and

(2) Cable reel equipment after [insert date three years from the effective date of the final rule].

(h) Trailing cables energized with a nominal alternating-current voltage greater than 660 volts (381 volts phase-to-ground) shall be provided with a grounded metallic shield around each power conductor in accordance with the following schedule:

(1) Equipment not employing cable reels on and after [insert the effective date of the final rule]; and

(2) Cable reel equipment after [insert date three years from the effective date of the final rule].

(i) Prior to [insert date three years after the effective date of the final rule], trailing cables for low-voltage cable reel equipment energized with a nominal alternating-current voltage greater than 660 volts (381 volts phase-to-ground) shall be provided with a grounded metallic shield around each power conductor unless provided with insulation with a voltage rating of at least 2,000 volts.

(j) Metallic shielding on shielded cables acquired after [Insert the effective date] shall be applied in the form of braid or serving (wrap) to meet the following applicable requirements.

(1) Metallic braid shall provide at least 84 percent coverage.

(2) Metallic wire serving (wrap) shall provide at least 60 percent coverage.

(k) The length of a trailing cable shall not exceed the length specified in Table G–1 of this section.

TABLE G–1—MAXIMUM LENGTH OF TRAILING CABLE

	Conductor size		Maximum cable length in feet	
	AWG [1]	MCM [2]	Direct current	Alternating current
Less than.	6	.....	500	750
	6	.....	550	750
	4	.....	600	750
	3	.....	650	750
	2	.....	700	750
	1	.....	750	750
	1/0	.....	800	800
	2/0	.....	850	850
	3/0	.....	900	900
	4/0	.....	1000	1000
		250 or greater.	1000	1000

[1] AWG means American wire gage.
[2] MCM means one thousand circular mils.

§ 75.602 Electrical protection for alternating-current circuits.

(a) Except as provided in paragraph (b), each trailing cable shall be protected against short circuits, undervoltages, and ground faults by a circuit breaker of adequate interrupting capacity.

(b) Each single-phase trailing cable energized at 150 volts or less to ground shall be protected against short circuits and ground faults by a circuit breaker of adequate interrupting capacity.

(c) Each ungrounded power conductor of a trailing cable shall be protected by—

(1) An inverse-time circuit breaker with a maximum current rating specified in Table G–2 below;

(2) An instantaneous-trip circuit breaker with a maximum instantaneous setting specified in Table G–3 below; or,

(3) A short-time delay electronic circuit breaker having a time delay not to exceed 0.1 second and a maximum setting as specified in Table G–3.

TABLE G–2—MAXIMUM RATINGS OF FUSES PROTECTING DIRECT-CURRENT TRAILING CABLES AND INVERSE-TIME CIRCUIT BREAKERS

Conductor size (AWG or MCM)	Maximum inverse-time circuit breaker or fuse rating (amperes)		
	1 Ungrounded power conductor	2 Ungrounded power conductors	3 Ungrounded power conductors
14	15	15	15
12	20	20	20
10	30	30	25
8	60	50	50
6	90	70	70
4	110	110	110
3	150	150	150
2	150	175	175
1	175	200	200
1/0	200	225	225
2/0	250	250	250
3/0	300	300	300
4/0	350	350	350
250	350	350	350
300	400	350	350
350	450	350	350
400	500	400	400
500	600	450	400

TABLE G–3.—MAXIMUM SETTINGS OF INSTANTANEOUS AND ELECTRONIC CIRCUIT BREAKERS PROTECTING 480, 600, AND 1040 VOLT ALTERNATING-CURRENT TRAILING CABLES

Conductor size (AWG or MCM)	Cable length (feet)	Maximum circuit breaker setting (amperes)		
		480V	600V	1040V
14	0–500	75	100	
	501–750	50	75	
12	0–500	125	175	
	501–750	100	125	
10	0–500	200	250	
	501–750	150	200	
8	0–500	300	400	
	501–750	200	300	
6	0–550	450	550	850
	501–750	350	450	700
4	0–500	750	900	1250
	501–600	650	800	1100
	601–750	550	650	1000
3	0–500	900	1100	1400
	501–650	700	900	1200
	651–750	650	800	1100
2	0–500	1100	1250	1500
	501–600	950	1100	1400
	601–750	800	950	1250
1	0–500	1300	1450	1650
	501–600	1100	1300	1550
	601–750	950	1100	1400
1/0	0–500	1500	1650	1750
	501–600	1300	1500	1650
	601–750	1100	1300	1500
	751–800	1050	1250	1500
2/0	0–500	1700	1800	1850
	501–600	1500	1650	1750
	601–750	1350	1450	1650
	751–850	1200	1350	1550
3/0	0–500	1900	1950	1900
	501–600	1700	1800	1800
	601–750	1500	1650	1700
	751–900	1300	1450	1650
4/0	0–500	2100	2100	1950
	501–600	1900	1950	1900
	601–750	1700	1800	1800
	751–1000	1400	1550	1650
250	0–500	2150	2150	2000
	501–600	2000	2050	1900
	601–750	1750	1850	1850
	751–1000	1500	1650	1700
300	0–500	2300	2250	2000
	501–600	2100	2100	1950
	600–750	1900	1950	1900
	751–1000	1600	1750	1750
350	0–500	2350	2300	2050
	501–600	2200	2200	2000
	601–750	2000	2000	1900
	751–1000	1700	1800	1800
400	0–500	2450	2350	2100
	501–600	2250	2250	2000
	601–750	2050	2100	1950
	751–1000	1800	1850	1850
500	0–500	2500	2400	2100
	501–600	2350	2300	2050
	601–750	2150	2150	1950
	751–1000	1900	1950	1850

(d) Upon investigation, the District Manager may permit in writing other circuit breaker short-circuit settings if technical data deem it appropriate and it does not pose a hazard to the miners.

(e) Overcurrent, ground-fault and undervoltage protection shall be provided by circuit breakers of adequate interrupting capacity for the following alternating-current circuits, other than trailing cables:

(1) Resistance-grounded three-phase circuits.

(2) Single-phase circuits energized at more than 150 volts-to-ground.

(3) Ungrounded circuits installed in accordance with 30 CFR 75.701(b).

(f) A circuit breaker used to protect two or more branch circuits shall provide overcurrent protection for the smallest conductor.

(g) Overcurrent protection for alternating-current circuits other than trailing cables shall meet the requirements of 30 CFR 75.523.

(h) Ground-fault devices shall deenergize the faulted circuit at 40 percent or less of the maximum ground-fault current of the system.

(i) The ground-fault device nearest the connected load shall be activated with no intentional time delay. When the operating times of upstream ground-fault detection devices within a system are increased to provide selective tripping, the operating time of the most upstream device shall not exceed 1.0 second.

(j) Equipment safety grounding conductors shall not pass through or be connected in series with ground-fault current transformers.

(k) Effective [insert date six months after effective date] resistance-grounded systems for trailing cables shall have a test circuit that injects a current of 50 percent or less of the maximum ground-fault current of the system. The test circuit shall be operated at least once every seven days, causing each circuit breaker to open.

(l) The ground-fault current device and circuit breaker shall be removed from service or repaired when the circuit breaker fails to open upon operation of the test circuit required by paragraph (k) of this section.

(m) Undervoltage devices shall be—

(1) Undervoltage trip coils; or

(2) Shunt trip coils energized by undervoltage relays or ground-monitor relays. Such coils shall be energized by stored energy devices to assure the circuit breaker will trip upon loss of control voltage.

(n) Circuit breakers protecting multiple trailing cables operating in parallel shall be interlocked such that all such trailing cables will be deenergized simultaneously.

§ 75.603 Electrical protection for direct-current trailing cables.

(a) Except as provided in paragraph (f), each ungrounded power conductor of a trailing cable shall be protected against short circuits by one of the following:

(1) An inverse-time circuit breaker of adequate interrupting capacity with a

maximum current rating as specified in Table G–2 above;

(2) An individual fuse with a ximum current rating as specified in Table G–2 when the trailing cable is supplied from a solid-grounded system; or

(3) An instantaneous-trip circuit breaker of adequate interrupting capacity with a maximum instantaneous setting as specified in Table G–4.

TABLE G–4.—MAXIMUM SETTINGS OF INSTANTANEOUS CIRCUIT BREAKERS PROTECTING 300 AND 600 VOLT DIRECT-CURRENT TRAILING CABLES

Conductor size (AWG or MCM)	Cable length (feet)	300 VDC maximum instantaneous circuit breaker setting (amperes)		600 VDC maximum instantaneous circuit breaker setting (amperes)	
		Line-line [1]	Line-ground [2]	Line-line [1]	Line-ground [2]
14	0–500	50	50	50	50
12	0–500	75	75	125	125
10	0–500	75	75	200	200
8	0–500	100	100	300	300
6	0–550	200	100	450	300
4	0–500	450	250	600	500
	501–600	350	200	550	400
3	0–500	450	350	700	550
	501–650	400	250	600	450
2	0–500	600	450	750	600
	501–600	550	400	700	550
	601–700	450	300	650	500
1	0–500	900	600	1400	1050
	501–600	750	500	1250	950
	601–750	600	400	1050	800
1/0	0–500	1100	750	1600	1250
	501–600	950	650	1450	1100
	601–750	750	550	1250	950
	751–800	700	500	1200	900
2/0	0–500	1350	950	1800	1450
	501–600	1150	800	1650	1300
	601–750	950	650	1450	1100
	751–850	850	600	1350	1050
3/0	0–500	1550	1150	2000	1650
	501–600	1400	1000	1850	1500
	601–750	1150	800	1650	1300
	751–900	1000	700	1500	1150
4/0	0–500	1850	1400	2200	1850
	501–600	1600	1200	2050	1700
	601–750	1400	1000	1850	1500
	751–1000	1100	750	1600	1250
250	0–500	2050	1550	2350	2000
	501–600	1800	1350	2200	1850
	601–750	1550	1150	2000	1650
	751–1000	1250	900	1750	1400
300	0–500	2300	1750	2450	2150
	501–600	2050	1550	2350	2000
	601–750	1750	1300	2150	1800
	751–1000	1450	1050	1900	1550
350	0–500	2550	1950	2600	2300
	501–600	2250	1700	2450	2150
	601–750	1950	1500	2300	1950
	751–1000	1600	1200	2050	1700
400	0–500	2750	2150	2650	2400
	501–600	2450	1900	2550	2250
	601–750	2150	1600	2400	2050
	751–1000	1750	1350	2150	1800
500	0–500	3050	2450	2800	2550
	501–600	2800	2200	2700	2400
	601–750	2450	1900	2550	2250
	751–1000	2050	1550	2350	2000

[1] The line-to-line instantaneous circuit breaker settings shall be used for trailing cables supplying power to diode grounded equipment and for trailing cables containing a separate equipment safety grounding conductor if the circuit is provided with separate ground-fault protection.

[2] The line-to-ground instantaneous circuit breaker settings shall be used for trailing cables containing a separate equipment safety grounding conductor when the circuit is not provided with separate ground-fault protection.

(b) Upon investigation, the District Manager may permit in writing higher fuse ratings or circuit breaker settings than those specified in paragraph (a) of this section for short-circuit protection if technical data deem them appropriate and they do not pose a hazard to the miners.

(c) Fuses shall be approved in accordance with part 28 of this Chapter.

(d) Fuses shall have a direct-current voltage rating of at least equal to the maximum system voltage.

(e) Each trailing cable supplied from a resistance-grounded system shall be protected against ground faults by a circuit breaker of adequate interrupting capacity, that deenergizes the circuit when the ground-fault current exceeds 40 percent of the current rating of the grounding resistor.

(f) Each trailing cable supplied power from a system that has the direct neutral of the rectifier bridge supply-transformer solidly grounded shall be protected against ground faults by an

instantaneous trip circuit breaker of adequate interrupting capacity that deenergizes the circuit at a ground-fault current value not to exceed 50 amperes.

(g) The ground-fault device nearest the load shall operate with no intentional time delay.

(h) Equipment safety grounding conductors shall not pass through or be connected in series with ground-fault current transformers.

§ 75.604 Physical restraints for cable couplers.

When two or more circuit breakers with different ratings, trip elements, or instantaneous trip ranges are installed in the same distribution box, power center, or rectifier, each cable coupler (plug) shall be equipped with a physical restraint to prevent the connection of a cable to a circuit breaker that is not properly rated or adjusted for that cable.

Subpart H—Grounding

§ 75.700 Scope.

(a) The standards in this subpart apply to—

(1) Grounding of metallic parts, raceways and enclosures of electric equipment;

(2) Grounding methods of alternating-current and direct-current systems;

(3) Grounding of alternating-current equipment frames and components, including battery cases, connected to alternating-current battery charging systems;

(4) Grounding of direct-current equipment frames and components including messenger wires, metallic racks and structures that support power conductors and metallic overcasts;

(5) Diode grounding systems; and

(6) System and supplemental low-resistance ground fields.

(b) Additional requirements for grounding high-voltage electric face equipment are also specified in subpart I.

(c) Additional requirements for grounding alternating-current systems supplying power to stationary lighting fixtures for illumination of working places are specified in more detail in subpart R.

§ 75.701 Low-voltage alternating-current system grounding.

Each low-voltage alternating-current system that extends or originates underground, shall be grounded by having either a direct or a derived neutral connected to the grounding medium through a grounding resistor, except for the following systems:

(a) A solidly-grounded single-phase system that—

(1) Supplies only stationary or portable electric equipment; and

(2) Has either a direct neutral or phase conductor solidly connected to the system grounding medium so that the phase-to-ground voltage is 150 volts or less.

(b) An ungrounded system that—

(1) Supplies only stationary equipment;

(2) Has ground-fault protection which automatically deenergizes all phase conductors when any phase conductor is grounded; and

(3) Has all phase conductors totally enclosed in either rigid metallic conduit, metallic armored cable, metal-clad cable or shielded cable when the phase-to-phase voltage exceeds 150 volts. See Figure H–1 in Appendix A.

(c) An ungrounded single-phase system that—

(1) Has a phase-to-phase voltage of 150 volts or less; and

(2) Originates on the secondary side of a two-winding transformer equipped with a metallic (Faraday) shield connected to the grounding medium to isolate the low-voltage secondary winding from the primary winding. See Figure H–2 in Appendix A.

(d) An ungrounded system that—

(1) Supplies only a rectifier which is mounted with the source transformer or generator on a common metallic frame; and

(2) Has the conductors totally enclosed in either rigid metallic conduit, metallic armored cable, metal clad cable, or shielded cable when the phase-to-ground voltage exceeds 150 volts.

(e) An ungrounded system that has the supply transformers and all other components contained in a single metallic enclosure or installed on the common metallic frame of electric face equipment.

§ 75.702 Low-voltage alternating-current system grounding mediums.

The system grounding medium for a low-voltage alternating-current system shall be the metallic frame or metallic enclosure of the generator, transformer, or transformer bank that is connected to a low-resistance ground field. See Figure H–3 in Appendix A.

§ 75.703 High-voltage alternating-current system grounding.

High-voltage alternating-current systems that extend underground shall be grounded by having either a direct or a derived neutral connected to the grounding medium through a grounding resistor, except for ungrounded systems that—

(a) Supply only stationary equipment;

(b) Have a nominal phase-to-phase voltage which does not exceed 2,400 volts;

(c) Have ground-fault protection which automatically deenergizes all phase conductors when any phase conductor is grounded; and

(d) Have all phase conductors totally enclosed in rigid metallic conduit, metallic armored cable, metal-clad cable, or shielded cable. See Figure H–4 in Appendix A.

§ 75.704 High-voltage alternating-current system grounding mediums.

(a) The system grounding medium for a resistance-grounded system shall be—

(1) A low-resistance ground field for a transformer-derived system; or

(2) The metallic frame of the supply transformer or generator that is connected to a low-resistance ground field.

(b) The system grounding medium for an ungrounded system shall be the metallic frame or metallic enclosure of the supply transformer, transformer bank, or generator which is connected to a low-resistance ground field. See Figure H–5 in Appendix A.

§ 75.705 Direct-current system grounding.

Each direct-current system that extends or originates underground shall be one of the following systems:

(a) A solid-grounded trolley system that has one conductor solidly connected to the track.

(b) A solid-grounded system, other than a trolley system, that has one conductor solidly connected to the system grounding medium.

(c) A solid-grounded system that has the direct neutral of the alternating-current system supplying only a rectifier bridge solidly connected to the system grounding medium. See Figure H–7 in Appendix A.

(d) A resistance-grounded system that has either a direct or a derived neutral of the alternating-current system supplying only a rectifier bridge connected to the grounding medium through a grounding resistor. See Figure H–8 in Appendix A.

(e) An ungrounded system that has—

(1) Ground-fault protection which automatically deenergizes all power conductors when any phase conductor is grounded; and

(2) A line-to-line system voltage of 330 volts or less. See Figure H–9 in Appendix A.

(f) A battery-powered system that is ungrounded.

(g) An ungrounded system derived on-board mobile electric equipment.

§ 75.706 Direct-current system grounding mediums.

(a) The system grounding medium for each direct-current trolley system shall be the mine track.

(b) The system grounding medium for direct-current systems derived on-board mobile electric equipment, including battery-powered equipment, shall be the metallic frame of the equipment.

(c) The system grounding mediums for all other direct-current systems shall be the metallic frame or metallic enclosure of the power source that is connected to a low-resistance ground field. See Figure H–10 in Appendix A.

§ 75.707 Grounding resistors.

Each grounding resistor shall—

(a) Have a resistance value that—

(1) Limits ground-fault currents to 25 amperes or less on low-voltage systems; and

(2) Limits the voltage drop in the grounding circuit external to the resistor to not more than 100 volts during a ground-fault on high-voltage systems. See Figure H–6 in Appendix A;

(b) Be extended-time rated at a current value at least equal to the maximum ground-fault current that can flow through the resistor;

(c) Be supported by insulators which have voltage ratings that are at least equal to the phase-to-phase alternating-current voltage of the system; and

(d) Be located in the same substation or enclosure or installed on a common metallic frame with the alternating-current source supplying the system.

§ 75.708 Loads connected on resistance-grounded systems.

Loads shall be connected phase-to-phase on alternating-current systems and line-to-line on direct-current systems that are resistance-grounded.

§ 75.709 Low-resistance ground fields.

(a) Low-resistance ground fields used in the safety grounding system shall be designed and installed in a manner to assure that the maximum exposure voltage under fault conditions will not create hazardous step and touch potentials. The following parameters shall be considered in evaluating ground field safety—

(1) Soil resistivity;

(2) Available fault current;

(3) Grounding field construction; and

(4) Operating times of protective devices.

(b) Low-resistance ground fields used in the safety grounding system shall be maintained at 25 ohms or less, unless an evaluation of the system in accordance with paragraph (a) of this section indicates that—

(1) A lower value of resistance is necessary; or

(2) A higher value of resistance may be used.

(c) Resistance to earth shall be tested by a low-voltage or high-voltage qualified electrician, as applicable, when installed and at least annually thereafter. Records of such tests shall be made in accordance with 30 CFR 75.508.

(d) Materials used for ground fields shall have at least four square feet of surface area in contact with soil.

§ 75.710 Alternating-current equipment frame grounding.

(a) The following equipment shall be connected to the system grounding mediums required by 30 CFR 75.702 and 75.704 by equipment safety grounding conductors:

(1) Metallic frames, enclosures, and other exposed non-current-carrying metallic parts of conductors and equipment, unless double insulated.

(2) Metallic fences and barriers around high-voltage equipment and installations.

(3) Metallic battery trays.

(4) Metallic messenger wires.

(5) Metallic structures or racks that support electric equipment or conductors.

(b) Metallic cable shielding shall be connected to the equipment safety grounding conductor at each termination.

(c) Before batteries are connected to a battery charger, the metallic battery trays shall be connected to the grounded metallic frame of the battery charger and shall remain connected until the batteries have been disconnected from the charger.

§ 75.711 Ground-wire monitors for alternating-current equipment.

(a) Low-voltage resistance-grounded systems shall have ground-wire monitors to continuously monitor the continuity of the grounding circuits to the equipment affected except for—

(1) Low-voltage circuits supplying power to longwall illumination systems; and

(2) Low-voltage stationary equipment installed in accordance with all of the following:

(i) The equipment is permanently installed at a fixed location.

(ii) All load components of the equipment are securely attached to a common metallic frame or structure.

(iii) Each component of the equipment is grounded by two independent equipment safety grounding conductors each sized in accordance with 30 CFR 75.714.

(iv) At least one of the equipment safety grounding conductors to each component is visible for its entire length.

(b) High-voltage resistance-grounded systems shall have ground-wire monitors to continuously monitor the continuity of the grounding circuits, except for the portions of the circuits extending from resistance-grounded systems that supply power to either surface stationary equipment or stationary circuit breakers located downstream and used to protect circuits extending underground.

(c) Circuits supplying surface stationary equipment that are not equipped with ground-wire monitors shall meet the following:

(1) Metallic frames or enclosures of the equipment shall be separately connected to supplemental ground fields at the equipment, and to the system ground field by equipment safety grounding conductors. See Figure H–11 in Appendix A.

(2) Circuit breakers shall be separately connected to supplemental ground fields at the circuit breaker, and to the system ground fields by equipment safety grounding conductors. See Figure H–11 in Appendix A.

(3) Supplemental system ground fields shall have resistance-to-earth values which do not exceed the value obtained by dividing 100 volts by the maximum ground-fault current of the system.

(d) Ground-wire monitors for cables extending to electric face equipment shall—

(1) Be designed and constructed to be fail safe; and

(2) Provide continuous monitoring of the grounding circuit to the equipment.

(e) Ground-wire monitors shall cause the affected circuit breaker to open when:

(1) The ground-check conductor is broken at any point; and

(2) Either the equipment safety grounding conductor is broken at any point, or the impedance of the grounding circuit increases beyond the amount necessary to cause a drop in the voltage of the grounding circuit external to the grounding resistor equal to—

(i) 40 volts under ground-fault conditions for all low-voltage circuits and high-voltage trailing cables; or

(ii) 100 volts under ground-fault conditions for high-voltage circuits other than trailing cables.

(f) The open circuit voltage for ground-wire monitors shall not exceed—

(1) 40 volts for low-voltage circuits and circuits to electric face equipment; and

(2) 96 volts for high-voltage circuits other than circuits to electric face equipment.

(g) Ground-check and equipment safety grounding conductors shall be separately connected to the metallic frames or enclosures of electric equipment.

§ 75.712 Direct-current equipment frame grounding.

(a) The following shall be connected to the appropriate grounding medium required by 30 CFR 75.706 by equipment safety grounding conductors—

(1) Metallic frames, enclosures, and other exposed noncurrent-carrying metallic parts of conductors and equipment.

(2) Metallic messenger wires used to support direct-current conductors.

(3) Metallic racks and structures used to support trolley wires and trolley feeder wires.

(4) Metallic overcasts in trolley entries.

(b) Silicon diode grounding systems shall be installed in accordance with 30 CFR 75.713.

(c) Component parts of complete units of equipment shall be solidly connected to the frames of the equipment.

§ 75.713 Silicon diode grounding.

When the metallic frames of mobile equipment are grounded by silicon diodes, the diode grounding system shall meet the following:

(a) The polarity of each grounding diode shall be compatible with the grounded polarity of the direct-current system.

(b) Each grounding diode shall have a threaded base used to solidly connect the diode to the machine frame.

(c) An overcurrent device shall be installed between the grounding diode(s) and the grounded power conductor, and shall cause the main conductor or the circuit interrupting device to deenergize all circuits on the machine when 50 amperes or more flows through the grounding diode, except that methane monitor circuits may remain energized.

(d) A polarizing diode that prevents the unit of equipment from being operated when the polarity of the supply conductors is reversed shall be installed in the control circuit.

(e) The forward current rating of each grounding diode shall be equal to or greater than 750 amperes when used to ground a continuous mining machine or equal to or greater than 400 amperes when used to ground other equipment.

(f) The peak inverse voltage rating of the grounding and polarizing diodes, shall be at least 1,200 volts.

§ 75.714 Equipment safety grounding conductors.

(a) Equipment safety grounding conductors for portable and mobile electric equipment shall be one or more stranded copper conductors contained within the cable or flexible cord supplying the equipment.

(b) Equipment safety grounding conductors for stationary equipment shall be copper or equivalent, and be either—

(1) Contained together with the circuit conductors in the raceways, cables, or cords; or

(2) Wrapped around the raceways, cables, or cords containing the circuit conductors.

(c) The combined cross-sectional area of equipment safety grounding conductors shall be equal to or greater than—

(1) One-half the cross-sectional area of one circuit conductor when the circuit conductor is No. 6 AWG or larger; or

(2) The cross-sectional area of one circuit conductor when the circuit conductor is smaller than No. 6 AWG.

(d) Equipment safety grounding conductors installed outside of raceways, cables, or cords and used to ground stationary equipment shall be No. 6 AWG or larger.

(e) Switches, fuses, circuit breakers, ground-fault devices and overcurrent devices shall not be installed in equipment safety grounding conductors.

(f) Ground-wire devices installed in the equipment safety grounding conductor for the purpose of inter-machine arc suppression or in conjunction with ground-wire monitoring systems shall be designed and constructed to withstand the maximum amount of phase-to-phase fault current to which they may be exposed without creating an electrical shock or fire hazard.

(g) When used, ground-wire devices specified in paragraph (f) of this section shall be connected to the grounding medium with two separate conductors.

(h) On direct-current powered equipment, the equipment safety grounding conductor and the return power conductor shall be separately connected to the mine track, grounded return-feeder conductor, or metallic frame or enclosure used as the grounding medium.

(i) Equipment safety grounding conductors for draw-out equipment or plugs and receptacles shall be the first conductors made when making connections and the last conductors broken when breaking connections.

(j) Equipment safety grounding conductors shall be connected by welds, pressure connectors, or clamps.

(k) Equipment safety grounding conductors shall be bare or shall be properly identified.

Subpart I—High-Voltage Alternating-Current Circuits

§ 75.800 Scope.

(a) This subpart contains requirements pertaining to high-voltage circuits and equipment used underground. Section titles in this subpart specify when the requirements pertain only to high-voltage electric face equipment and associated trailing cables. Several requirements pertaining to all high-voltage circuits and equipment are also specified in subparts F and H.

(b) This subpart does not apply to the ampacities of conductors and overload protection for circuits extending to and on board permissible face equipment, which are specified in the applicable approval regulations.

§ 75.801 High-voltage systems.

High-voltage systems shall originate on the surface, except systems that supply power to underground face equipment may originate underground.

§ 75.802 Protection for circuits, other than trailing cables.

(a) High-voltage systems supplying underground electric equipment shall be protected by circuit breakers of adequate interrupting capacity which are equipped with devices that provide all of the following:

(1) Overcurrent protection.

(2) Ground-fault protection.

(3) Undervoltage protection, except for branch circuits supplying only stationary surface loads. See Figure I–1 in Appendix A.

(b) High-voltage circuits that extend underground shall be protected by at least one circuit breaker located on the surface.

(c) Overcurrent protection for high-voltage circuits shall consist of protective devices that protect at least two power conductors.

(d) A circuit breaker used to provide protection for two or more branch circuits shall provide overcurrent protection for the smallest conductor.

(e) Overcurrent devices shall have—

(1) A pickup value of 125 percent or less of the ampacity for the smallest power conductors in the protected circuit as listed in Tables I–1 and I–2; and

(2) Inverse-time current characteristics that require the device to operate within 2 seconds when a current 10 times the allowable ampacity of the smallest power conductor, as listed in Tables I–1 and I–2, flows in the circuit.

TABLE I-1 ALLOWABLE AMPACITIES OF SHIELDED, THREE CONDUCTOR, 2001-15,000 VOLT, MINE POWER CABLE; COPPER CONDUCTORS

[Based on Ambient Temperature of 20 °C]

Conductor size (AWG or MCM)	Ampacities			
	2001-8000 Volts		8001-15000 Volts	
	75 °C	90 °C	75 °C	90 °C
6	99	110	.....	.....
4	130	144	.....	.....
2	170	188	175	194
1	196	217	200	221
1/0	226	249	230	254
2/0	260	287	263	290
3/0	299	329	301	334
4/0	343	379	346	384
250	379	419	383	424
300	423	470	426	473
350	465	513	468	517
400	500	555	502	558
500	571	632	571	632

TABLE I-2.—ALLOWABLE AMPACITIES OF SHIELDED, THREE CONDUCTOR, 2001-15,000 VOLT MINE POWER CABLES; ALUMINUM CONDUCTORS

[Based on Ambient Temperature of 20° C]

Conductor size (AWG or MCM)	Ampacities			
	2001-8000 Volts		8001-15000 Volts	
	75° C	90° C	75° C	90° C
4	101	112	.....	.....
2	133	146	136	.....
1	153	.....	156	.....
1/0	176	195	179	198
2/0	203	223	205	227
3/0	234	257	236	261
4/0	269	296	271	300
250	298	328	300	332
350	366	404	367	406
400	396	425	397	433
500	458	502	453	500

(f) Ground-fault protective devices shall be adjusted to deenergize the faulted circuit at 40 percent or less of the maximum ground-fault current of the system.

(g) The ground-fault protective device nearest to the load shall activate with no intentional time delay. When the operating times of upstream ground-fault detection devices within a system are increased to provide selective tripping, the operating time of the most upstream ground-fault detection device shall not exceed 3.0 seconds.

(h) Equipment safety grounding conductors shall not pass through or be connected in series with ground-fault current transformers.

(i) Undervoltage devices shall be—

(1) Undervoltage trip coils; or

(2) Shunt trip coils energized by undervoltage relays or ground-monitor relays. Such coils shall be energized by stored energy devices to assure the circuit breaker will trip upon loss of control voltage.

(j) A circuit breaker which is installed to protect an underground high-voltage circuit shall not automatically reclose after operation.

§ 75.803 High-voltage distribution equipment.

(a) Except for disconnecting devices installed underground on or before [insert effective date of the rule], high-voltage distribution equipment shall be enclosed in a grounded metallic enclosure, and shall have no exposed energized parts.

(b) High-voltage alternating-current distribution equipment shall be equipped with interlock and emergency stop switches which will automatically deenergize the incoming power conductors to the distribution equipment when a cover, lid, or panel that exposes energized high-voltage parts is removed, or when the emergency stop switch is actuated.

(c) The open-circuit voltage for an interlock circuit shall not exceed 96 volts.

(d) Effective [insert date 18 months after the effective date of the rule], all high-voltage distribution equipment, including high-voltage switchgear and power centers shall be equipped with barriers that provide separate compartments for:

(1) The incoming high-voltage disconnecting switch and feed-through circuit;

(2) The power transformer;

(3) The low-voltage distribution circuits; and

(4) The control circuitry, including ground-fault protective devices and ground-wire monitors.

(e) Barriers shall be constructed of grounded metal or nonconductive insulating board.

§ 75.804 High-voltage cables, other than trailing cables.

(a) High-voltage cables shall be located, buried, guarded or insulated to provide protection against physical damage and contact with other wires or

cables. Insulation to prevent contact with other wires or cables shall be in addition to that provided by the conductor insulation or cable jacket.

(b) High-voltage cables suspended above the mine floor shall be securely anchored.

(c) Single-conductor high-voltage cables shall be hung on a well supported grounded messenger wire or on insulated cable hangers.

(d) High-voltage cables shall not be moved or handled while energized.

(e) The power conductors in high-voltage cables shall be at least No. 8 AWG.

(f) Each high-voltage cable, other than a single-conductor cable, shall contain one or more bare equipment safety grounding conductors.

(g) Ground-check conductors and interlock circuit conductors contained in high-voltage cables shall be at least No. 10 AWG.

(h) Ground-check conductors and interlock circuit conductors which are external to high-voltage cables shall be at least No. 8 AWG.

(i) Single-conductor cables shall have equipment safety grounding conductors of either a bare ground-wire or a grounded messenger wire.

(j) High-voltage cables shall have grounded metallic shielding around each power conductor.

(k) Metallic shielding on high-voltage cables acquired after [insert the effective date of the rule] shall be applied in the form of braid, wire serving (wrap) or tape, as follows:

(1) Metallic braid shall provide at least 84 percent coverage.

(2) Metallic wire serving (wrap) shall provide at least 60 percent coverage.

(3) Metallic tape shall provide 100 percent coverage.

§ 75.805 Movement of high-voltage power centers and portable transformers.

Power centers and portable transformers shall be deenergized before they are moved from one location to another.

§ 75.806 Connection boxes.

Connection boxes used in high-voltage circuits shall—

(a) Be constructed of metal or its equivalent;

(b) Be watertight;

(c) Have the incoming and outgoing equipment safety grounding conductors separately connected to the metallic enclosures; and

(d) Be located in dry areas.

§ 75.807 Voltage requirements of electric face equipment.

(a) The nominal voltage of the power circuits of electric face equipment shall not exceed 4160 volts.

(b) The nominal voltage of the control circuits of electric face equipment shall not exceed 150 volts-to-ground.

§ 75.808 Electrical protection of electric face equipment.

(a) High-voltage systems supplying electric face equipment shall be protected by circuit breakers of adequate interrupting capacity which are equipped with devices that provide all of the following:

(1) Overcurrent protection.

(2) Ground-fault protection.

(3) Undervoltage protection.

(b) Each high-voltage motor circuit shall be provided with instantaneous short-circuit protection set at not more than 175 percent of the locked-rotor current of the motor or at not more than 75 percent of the minimum phase-to-phase short-circuit current available at the motor terminals, whichever value is less.

(c) High-voltage motor circuits shall be provided with backup short-circuit protection set at not more than—

(1) 1,200 amperes when the nominal voltage of the circuit exceeds 2,400 volts: or

(2) 2,000 amperes when the nominal voltage of the circuit is 2,400 volts or less.

(d) Time delays used for coordination with downstream short-circuit protective devices shall be not more than 0.4 seconds.

(e) Ground-fault currents shall be limited by a neutral grounding resistor to not more than—

(1) 6.5 amperes when the nominal voltage of the power circuit is 2,400 volts or less; or

(2) 3.75 amperes when the nominal voltage of the power circuit exceeds 2,400 volts.

(f) High-voltage motor circuits shall be provided with ground-fault protection, with no intentional time delay, set at not more than 0.1 amperes.

(g) High-voltage circuits extending from the section power center shall be provided with backup ground-fault protection set at not more than 40 percent of the current rating of the neutral grounding resistor. Time delays used for coordination with downstream ground-fault protection devices shall be not more than 0.4 seconds.

(h) The high-voltage neutral grounding resistor shall be provided with overtemperature protection that will open the ground-wire monitor circuit for the high-voltage circuit supplying the section power center if the grounding resistor is subjected to a sustained ground fault. The overtemperature rating or setting shall not exceed 50 percent of the maximum temperature rise of the grounding resistor.

(i) Equipment safety grounding conductors shall not pass through or be connected in series with ground-fault current transformers.

(j) Ground-fault current devices shall have a test circuit that injects a current of 50 percent or less of the maximum ground-fault current of the system and causes the circuit breakers to open.

(k) Undervoltage devices shall be—

(1) Undervoltage trip coils; or

(2) Shunt trip coils energized by undervoltage relays or ground-monitor relays. Such coils shall be energized by stored energy devices to assure the circuit breaker will trip upon loss of control voltage.

(l) Circuit breakers shall not automatically reclose after operation.

§ 75.809 Disconnecting devices for electric face equipment.

(a) The main circuit breaker at the section power center shall be equipped with a disconnecting device designed and installed so that it can be determined by visual observation that the contacts are open without removing any of the section power center covers.

(b) The main controller of longwall mining equipment shall be equipped with a disconnecting device that automatically grounds all load power conductors when the device is in the open position.

§ 75.810 Testing, examination, and maintenance of high-voltage electric face equipment.

(a) A high-voltage qualified electrician shall test, examine, and maintain high-voltage face equipment and circuits to determine that the electrical protection, equipment grounding, permissibility, cable insulation, and control devices, are being properly maintained to prevent fire, electrical shock, ignition or operational hazards from existing on the equipment.

(b) Each high-voltage grounding resistor and electrical protective device for electric face equipment shall be tested when installed in accordance with the following:

(1) Pass current through each current transformer necessary to cause the circuit breaker to open.

(2) Impress voltage across each potential ground-fault device necessary to cause the circuit breaker to open.

(3) Determine whether the grounding resistor is open or shorted.

(4) Assure that the overtemperature protective device will open the incoming ground-wire monitor circuit.

(c) Each unit of high-voltage electric face equipment shall be inspected and examined at least every seven days. Examination shall include actuation of the ground-fault test circuit required by 30 CFR 75.808(j).

(d) Each high-voltage circuit breaker shall be opened at least every 30 days by opening the corresponding ground-check conductor at the extreme end of the ground-wire monitoring circuit, where a ground-check conductor is used.

(e) When examinations or tests of equipment reveal a fire, electrical shock, ignition or operational hazard, the equipment shall either be removed from service or repaired.

(f) At the completion of examinations and tests required by this section, the person who makes the examinations and tests shall certify by signature and date that they have been conducted. A record shall be made of any unsafe condition found, and corrective action taken.

(g) Certifications and records shall be kept for at least one year, and shall be made available at the mine for inspection by authorized representatives of the Secretary and representatives of miners at the mine.

§ 75.811 Cables for high-voltage electric face equipment.

(a) Each high-voltage cable shall have a voltage rating of at least the nominal phase-to-phase voltage of the circuit in which it is used.

(b) Each high-voltage cable shall have grounded metallic shielding around each power conductor.

(c) Metallic shielding applied in the form of a braid shall provide at least 84 percent coverage.

(d) Metallic shielding applied in the form of a serving (wrap) shall provide at least 60 percent coverage.

(e) High-voltage trailing cables shall be flame resistant in accordance with 30 CFR 18.64.

(f) The power conductors shall be at least No. 4 AWG.

(g) High-voltage trailing cables shall contain one or more bare equipment safety grounding conductors.

(h) Ground-check and interlock circuit conductors shall be contained within the high-voltage cable, and be at least No. 10 AWG.

§ 75.812 Cable support system; high-voltage longwall electric face equipment.

(a) Longwall mining systems shall be equipped with cable handling systems and support systems that are designed, installed, and maintained to protect the high-voltage cables from damage and to minimize the possibility of miners inadvertently contacting the cables.

(b) High-voltage cables used on longwall mining systems shall be deenergized prior to the removal of the entry conveyor belt structure.

§ 75.813 Guarding of cables for high-voltage electric face equipment.

(a) High-voltage cables shall be guarded at the following locations:

(1) Where persons regularly work or travel over or under the cables; and

(2) Where the cables leave cable handling systems or support systems to extend to electric components.

(b) Guarding shall protect the cables from damage and prevent miners from contacting the cables. The guarding shall be grounded metal or nonconductive, flame-resistant material.

§ 75.814 Safety devices for high-voltage systems supplying electric face equipment.

(a) Each unit of high-voltage equipment shall be equipped with a barrier between—

(1) The main disconnecting device and motor starter compartment; and

(2) Each motor starter compartment.

(b) Each unit of high-voltage equipment shall have—

(1) Covers arranged so that persons can work in the motor starter compartment without being exposed to energized high-voltage conductors or parts when the disconnecting device at the main controller is in the open position; and

(2) Cover interlock switches provided to automatically deenergize the high-voltage circuit supplying the unit when any cover that provides access to energized high-voltage conductors or parts is removed.

(c) Barriers shall be constructed of grounded metal or nonconductive insulating board.

(d) Control circuits of electric face equipment shall have—

(1) A two-winding transformer that electrically isolates the control circuit from the high-voltage circuits; and

(2) An electrostatic (Faraday) shielded between the secondary and primary windings. Such shields shall be aluminum or copper, connected to the equipment frame, and have a cross-sectional area consistent with 30 CFR § 75.714(c).

§ 75.815 Procedures for working on high-voltage systems supplying electric face equipment.

(a) Before any electrical work, including testing, troubleshooting, and fault finding, is performed in the motor starter compartment, the high-voltage qualified electrician who performs the work shall—

(1) Assure that the contacts of the main circuit disconnecting device at the main controller are open and grounded;

(2) Lock out the disconnecting device with a padlock and;

(3) Tag the disconnecting device.

(b) Before any electrical work, including testing, troubleshooting and fault finding, is performed on a high-voltage cable or motor, the high-voltage qualified electrician who performs the work shall—

(1) Assure that the high-voltage cable is disconnected;

(2) Connect the phase conductors in the high-voltage cable to the grounding conductors;

(3) Lock out the cable with a padlock and;

(4) Tag the cable coupler for the cable.

(c) Disconnecting devices and couplers shall be locked with an individual padlock for each person performing work.

(d) Tags used on deenergized electric circuits and equipment shall identify each person performing work on the circuit or equipment and identify the circuit or equipment being worked on.

(e) Padlocks and tags shall only be removed by the persons who installed them.

Subpart J—[Reserved]

Subpart K—Trolley Wires and Trolley Feeder Wires

§ 75.1000 Scope.

Sections 75.1001 through 75.1010 apply to all trolley systems that extend or originate underground. These sections provide requirements for—

(a) The installation and maintenance of trolley systems;

(b) Electrical protection of trolley systems; and

(c) Movement of off-track mining equipment and supplies in trolley entries.

§ 75.1001 Installation.

(a) Trolley wires and trolley feeder wires shall be located at least six inches outside of the track rail except where the wires cross over the rails at track switches.

(b) Trolley wires and trolley feeder wires shall not contact combustible materials, metallic waterlines, metallic structures, roof, or ribs.

(c) Trolley wires, bare trolley feeder wires, and bare signal wires shall be insulated where they pass through doors and stoppings and where they cross

within six inches of power wires and cables.

(d) Trolley wires and bare trolley feeder wires installed after [Insert the effective date] shall have at least six inches of radial clearance from the metallic parts of track-mounted equipment to the wires.

(e) Radial stub-feed trolley systems shall be provided with deadblocks installed—

(1) Between adjacent rectifiers; and

(2) In parallel with each stub-feed circuit breaker. See Figure K–1 in Appendix A.

(f) Parallel-connected rectifier trolley systems shall be provided with deadblocks installed—

(1) In parallel with each tie-feeder circuit breaker; and

(2) In parallel with each stub-feed circuit breaker. See Figure K–2 in Appendix A.

(g) Deadblocks shall be provided with at least two insulating gaps which will extinguish arcs on the trolley system.

(h) Each deadblock shall be distinctly marked at its location so as to be found quickly in event of an emergency.

§ 75.1002 Insulated hangers.

(a) Trolley wires and trolley feeder wires shall be supported on insulated hangers.

(b) Insulated hangers shall have a dielectric strength of at least 15 times the nominal voltage of the trolley system on which they are used.

(c) Each insulated hanger shall have two insulators stacked together when uninsulated wires are supported from metallic arches, square sets, overcasts, and other similar metallic structures.

§ 75.1003 Guarding.

(a) Energized trolley wires and bare trolley feeder wires shall be guarded to prevent accidental contact—

(1) Where supplies are stored, loaded, or unloaded;

(2) At mantrip stations;

(3) On each side of all doors and stoppings through which wires pass;

(4) Where a person works within three feet of the trolley wire except for a person operating rail-mounted haulage equipment;

(5) At track switches; and

(6) Where persons regularly pass under the wires.

(b) Trolley wires and trolley feeder wires shall be deenergized when guarding is installed or removed unless the guarding is temporary guarding designed to minimize shock hazards while it is being installed or removed. Temporary guarding shall be installed or removed in accordance with 30 CFR § 75.1007.

§ 75.1004 Cutout switches.

(a) A cutout switch which opens both the trolley wire and trolley feeder wire, shall be provided at—

(1) Each rectifier or direct-current generator.

(2) Each tie feeder circuit breaker.

(3) Each branch line within 100 feet of the trolley turnout.

(4) Intervals of not more than 2,000 feet in the trolley circuit.

(b) Each cutout switch shall be distinctly marked at its location so as to be found quickly in event of an emergency.

§ 75.1005 Circuit protection.

(a) Trolley wires and trolley feeder wires shall be protected against short circuits by circuit breakers as follows:

(1) Direct-current circuit breakers set at not more than 50 percent of the minimum available bolted short-circuit current when that current is less than 800 amperes.

(2) Direct-current circuit breaker set at not more than 75 percent of the minimum available bolted short-circuit current when that current is 800 amperes or more.

(3) Alternating-current circuit breakers protecting radial stub-feed trolley systems set at not more than:

(i) 40 percent of the minimum available bolted short-circuit direct-current when that current is less than 800 amperes; or

(ii) 60 percent of the minimum available bolted short-circuit direct-current when that current is 800 amperes or more.

(b) Circuit breakers shall not be connected in parallel.

(c) A direct-current circuit breaker shall be connected in series with the ungrounded power conductor at each rectifier supplying a radial stub-feed trolley system, unless an alternating-current circuit breaker is connected in series with each ungrounded conductor supplying power to the rectifier bridge. See Figure K–3 in Appendix A.

(d) On or after [insert date one year from the effective date of the rule], at least two direct-current tie-feeder circuit breakers shall be connected in the ungrounded power conductor of each rectifier used to supply power to a parallel-connected rectifier trolley system. See Figure K–4 in Appendix A.

(e) Each tie-feeder circuit breaker located at a parallel-connected rectifier shall automatically open when either—

(1) The rectifier bridge loses its source of power; or

(2) When any main circuit breaker located between the tie-feeder breaker and the rectifier opens.

§ 75.1006 Circuit breakers.

(a) Direct-current circuit breakers used on trolley systems with nominal circuit voltages of 250 to 300 volts shall have a minimum voltage rating of 330 volts.

(b) Direct-current circuit breakers used on trolley systems with nominal circuit voltage of 500 to 600 volts shall have a minimum voltage rating of 660 volts.

(c) Direct-current circuit breakers shall have interrupting-current ratings not less than the following values at a time constant (L/R) of 30 milliseconds:

(1) 15,000 amperes for frame sizes less than 1,000 amperes.

(2) 25,000 amperes for frame sizes 1,000 amperes to 2,000 amperes.

(3) 50,000 amperes for frame sizes over 2,000 amperes.

(d) Alternating-current circuit breakers installed at radial stub-feed rectifiers shall have an interrupting current rating not less than 20 times the continuous full load direct-current ratings of the rectifiers.

(e) Direct-current circuit breakers installed at rectifiers shall have continuous current ratings not less than 120 percent of the continuous full-load current ratings of the rectifiers.

(f) Alternating-current circuit breakers installed in radial stub-feed rectifiers shall have continuous current ratings not less than the continuous full load direct-current ratings of the rectifiers.

(g) Each direct-current circuit breaker shall be equipped with an instantaneous overcurrent relay that causes the circuit breaker to deenergize the circuit with no intentional time delay.

(h) Direct-current electronic overcurrent relays installed after [insert date one year from the effective date] shall be—

(1) Fail-safe; and

(2) Bi-directional.

(i) Automatically reclosing circuit breakers shall be equipped with load measuring devices that prevent the circuit breakers from reclosing whenever the prospective load current exceeds 300 amperes.

(j) Automatically reclosing circuit breakers installed in parallel-connected rectifier trolley systems shall be equipped with voltage differential devices that prevent the circuit breakers from reclosing whenever the voltage across the circuit breakers is between 15 and 85 percent of the nominal system voltage.

§ 75.1007 Handling.

(a) Trolley wires and trolley feeder wires shall be deenergized before any mechanical or electrical work is

performed on them except that persons wearing rubber boots and rubber insulating gloves with protective coverings designed to prevent physical damage to the insulating material may—

(1) Reinstall wires in hangers; or

(2) Install or remove temporary guarding that is designed to minimize shock hazards.

(b) Rubber insulating gloves used for handling trolley wires or trolley feeder wires shall be rated for at least 1,000 volts.

(c) Rubber boots, rubber insulating gloves, and protective coverings shall be examined before each use for visible signs of damage or defects.

(d) Boots, rubber gloves, and protective coverings with visible signs of damage or defects shall not be used.

§ 75.1008 Track bonding.

(a) Mine track used as a power conductor shall be welded or bonded as follows:

(1) Track used to transport coal from a junction of tracks of two or more coal-producing sections shall have both rails welded or bonded at every joint and shall have the rails crossbonded at intervals of 200 feet or less.

(2) Track used to transport coal from a single coal-producing section or used to transport only miners and supplies shall have one rail welded or bonded at every joint and shall have the rails cross-bonded at intervals of 200 feet or less. An authorized representative of the Secretary may require that both rails be welded or bonded at every joint when necessary to provide adequate electrical conductivity of the trolley system.

(3) Track switches shall have each switch approach cross-bonded within 20 feet of the switch and shall have the straight and curved track sections bonded together within five (5) feet of the switch frog.

(b) Metal ties when used as cross bonds shall be welded to both rails.

(c) Track shall not be used before it is bonded except when using equipment necessary to install the bonds.

(d) Return-feeder wires connected in parallel with track rails shall be bonded to the track rails at intervals not to exceed 1,000 feet.

§ 75.1009 Examinations, tests and maintenance of trolley systems.

(a) Trolley systems shall be tested, examined and maintained by a qualified electrician.

(b) Trolley circuits shall be tested at least once every 180 days to determine available short-circuit currents by—

(1) Passing measured amounts of currents through the circuits at the extreme ends of the circuits protected by each circuit breaker; and

(2) Measuring voltage drops at each of these locations.

(c) Available short-circuit currents shall be calculated from voltage-drop tests and used to determine maximum allowable circuit breaker settings.

(d) Circuit breakers shall be examined, tested and calibrated at least once every 180 days in accordance with the following:

(1) Circuit breakers and components shall be examined for physical damage.

(2) Short-circuit devices shall be tested and calibrated to values no greater than the indicated values and no less than 85 percent of the indicated values.

(3) Current-actuated short-circuit devices shall either be tested and calibrated by passing the amounts of current indicated by the settings through the devices to cause actuation or be tested and calibrated with external calibration sources when the devices are equipped with calibration coils.

(4) Electronic short-circuit devices shall be tested and calibrated either by passing current through the circuit breaker to cause actuation or by applying calibration voltages to the sensor leads to cause actuation with the sensor leads disconnected from the shunts. The test and calibration values shall be determined by the indicated settings.

(5) Load-measuring devices and load-indicating circuits shall be tested and calibrated to prevent reclosure by simulating load currents of 350 amperes or less through the circuit breaker.

(6)Voltage-differential devices shall be tested and calibrated to prevent reclosure by applying voltages not less than 15 percent of the nominal system voltages across the circuit breaker terminals.

(7) Load-measuring devices, voltage-differential relays, reclosing selective relays, and load-indicating circuits shall be tested and calibrated to values within plus or minus (±) 15 percent of the indicated values.

(e) When examinations, tests, or calibrations of trolley systems reveal a potential fire or shock hazard, the affected part of the trolley system shall either be removed from service or repaired.

(f) Trolley wires shall be aligned and maintained to provide for smooth tracking of trolley connectors on trolley wires.

(g) At the completion of examinations and tests required by this section, the person who makes the examinations and tests shall certify by signature and date that they have been conducted. A record shall be made of any unsafe condition found and corrective action taken.

(h) Certifications and records shall be kept for at least one year and shall be made available at the mine for inspection by authorized representatives of the Secretary and representatives of the miners.

§ 75.1010 Movement and transportation of metallic mining supplies and off-track mining equipment in entries containing trolley wires or trolley feeder wires.

(a) When metallic mining supplies or off-track mining equipment is either moved or transported under its own power or by other non-trolley-powered equipment, trolley wires and trolley feeder wires shall be deenergized for a distance of at least 200 feet on each side of the supplies or off-track mining equipment.

(b) When metallic mining supplies or off-track mining equipment are moved or transported by trolley-powered equipment, the supplies or off-track equipment shall be either—

(1) Placed and secured in a mine car so that no portion of the supplies or equipment extends above any side or end of the car used to transport the equipment.

(2) Transported on a supply car, provided that no portion of the supplies or equipment extends above the height of the vehicle located immediately in front of or behind the supply car; or

(3) Be moved in accordance with the following:

(i) Supplies or equipment shall be cleaned to remove combustible materials.

(ii) Supplies or equipment shall be grounded by a 4/0 AWG or larger copper conductor that is connected to the mine track or to the metallic frame of the track-haulage conveyance.

(iii) Supplies or equipment shall be placed and secured to prevent accidental movement (shifting) while being transported.

(iv) Supplies or equipment shall be covered on the top and on the trolley wire side with conveyor belting or other equivalent material that is flame-resistant in accordance with 30 CFR 18.65.

(v) Supplies or equipment shall be examined by a qualified electrician prior to moving or transporting the unit to ensure that it has been cleaned, grounded and covered.

(vi) Supplies or equipment shall be moved or transported under the direct and immediate supervision of a certified person.

(c) When supplies or off-track mining equipment are moved in accordance with paragraph (b)(3) of this section, and the vertical clearance between the supplies or equipment being transported and the trolley wire or trolley feeder wire at any location along the move is less than 12 inches, the following additional requirements shall be followed:

(1) A qualified electrician shall be stationed at the rectifier which supplies power to the trolley circuit where the supplies or equipment is being transported so that the trolley circuit can be deenergized in case of an emergency.

(2) Direct two-way communications shall be provided between the qualified electrician, the certified person supervising the move and a responsible person on the surface. Trolley phones used for two-way communication shall be battery powered unless a backup communication system is available which can be readily connected to the mine communication system.

(3) Miners who are not directly involved in the equipment move shall not be in the current of air that has passed over the supplies or equipment.

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Appendix A—Illustrations

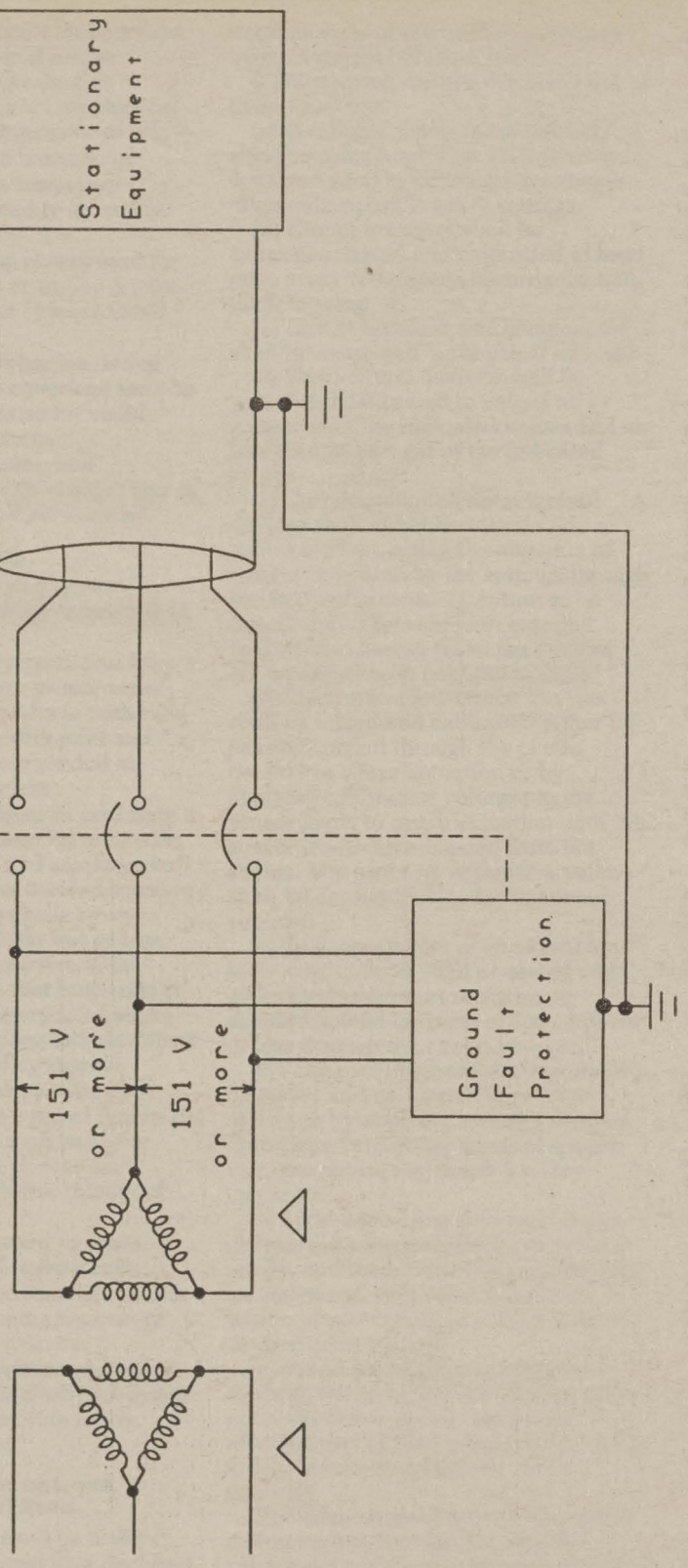

Figure H-1 - Illustration for requirements of 75.701(b)(3)

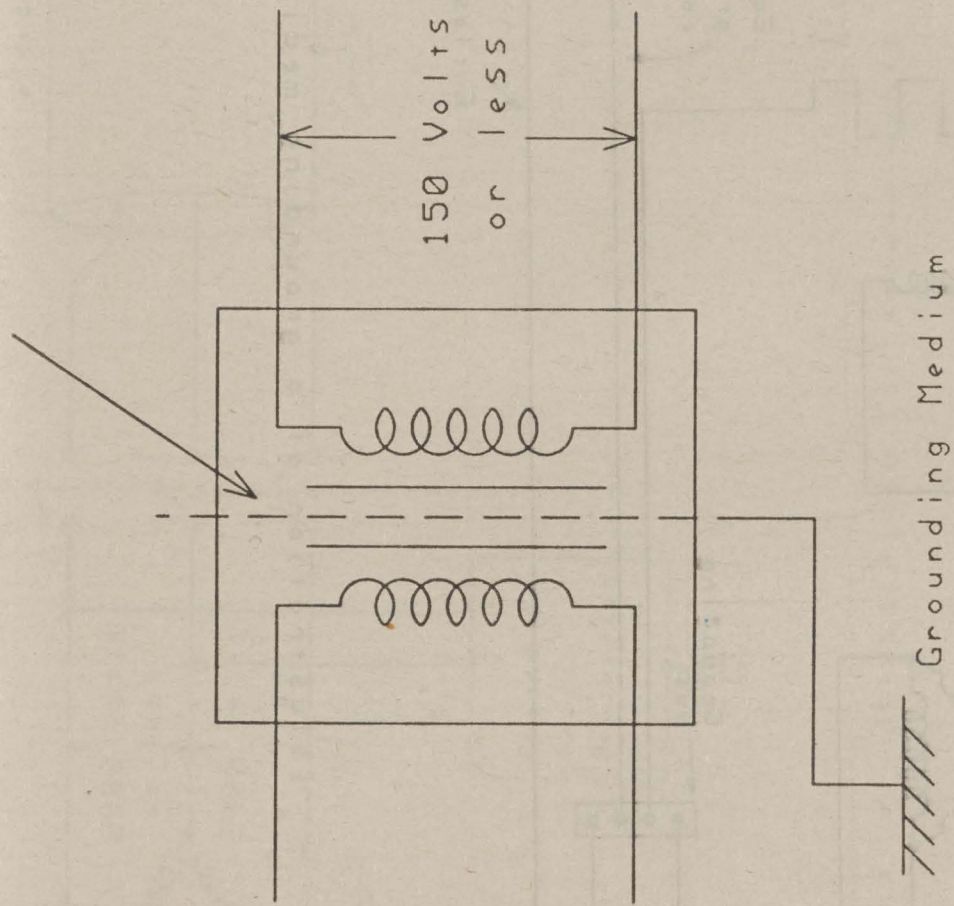

Figure H-2 - Illustration of a Faraday shield for 75.701(c)(2)

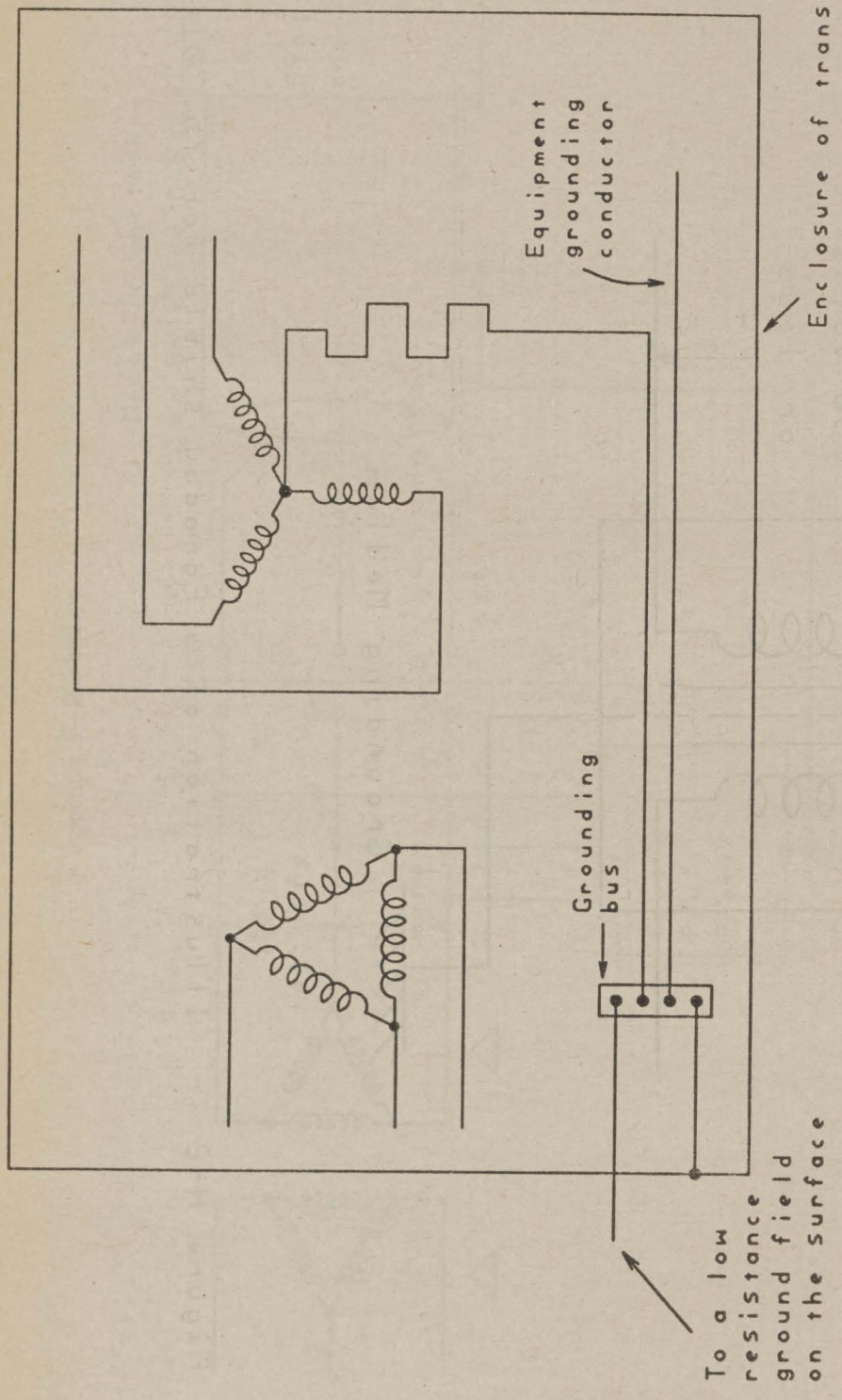

Figure H-3 - Illustration of a grounding medium for 75.702

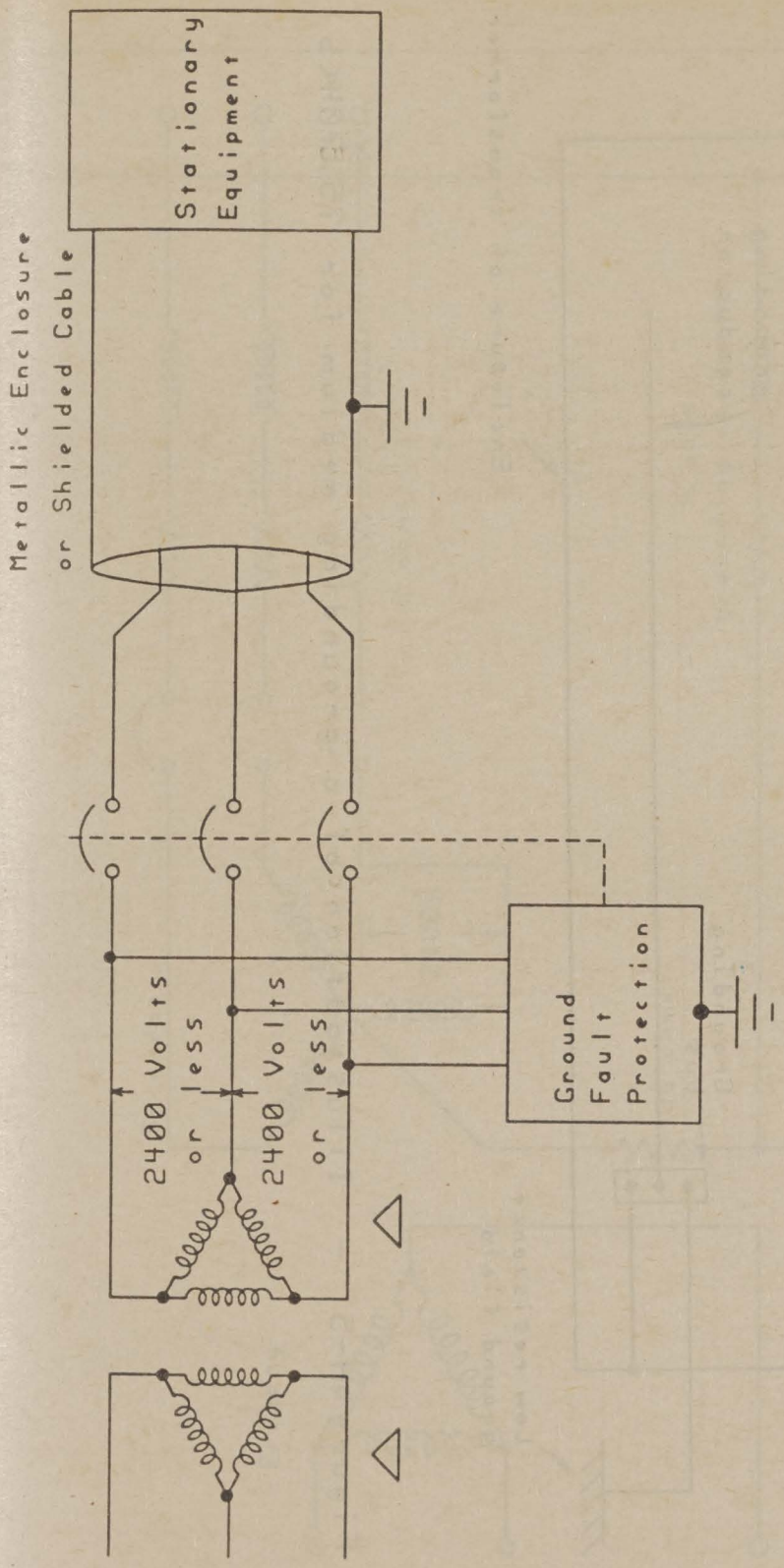

Figure H-4 - Illustration for requirements of 75.703

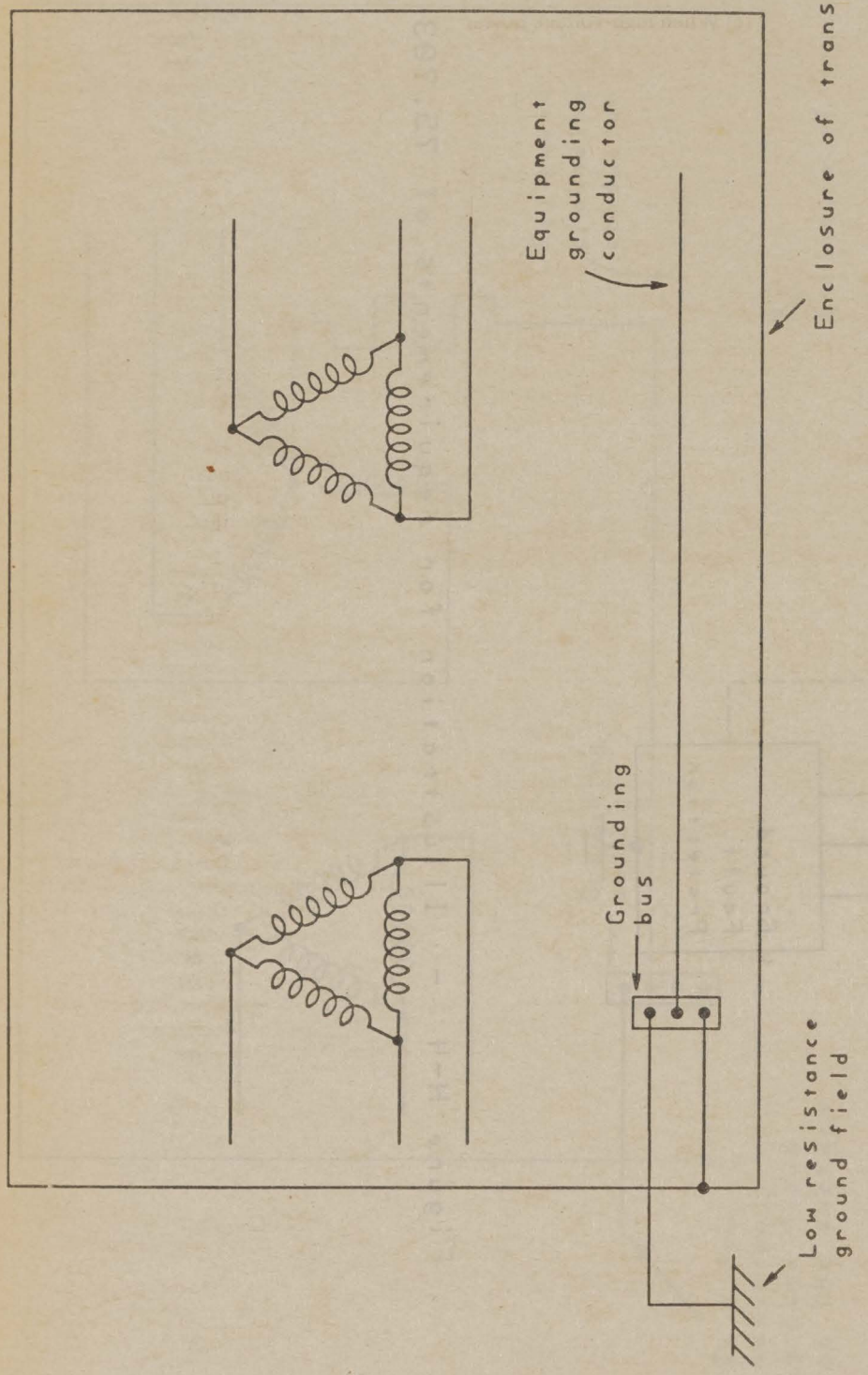

Figure H-5 - Illustration of a grounding medium for 75.704(b)

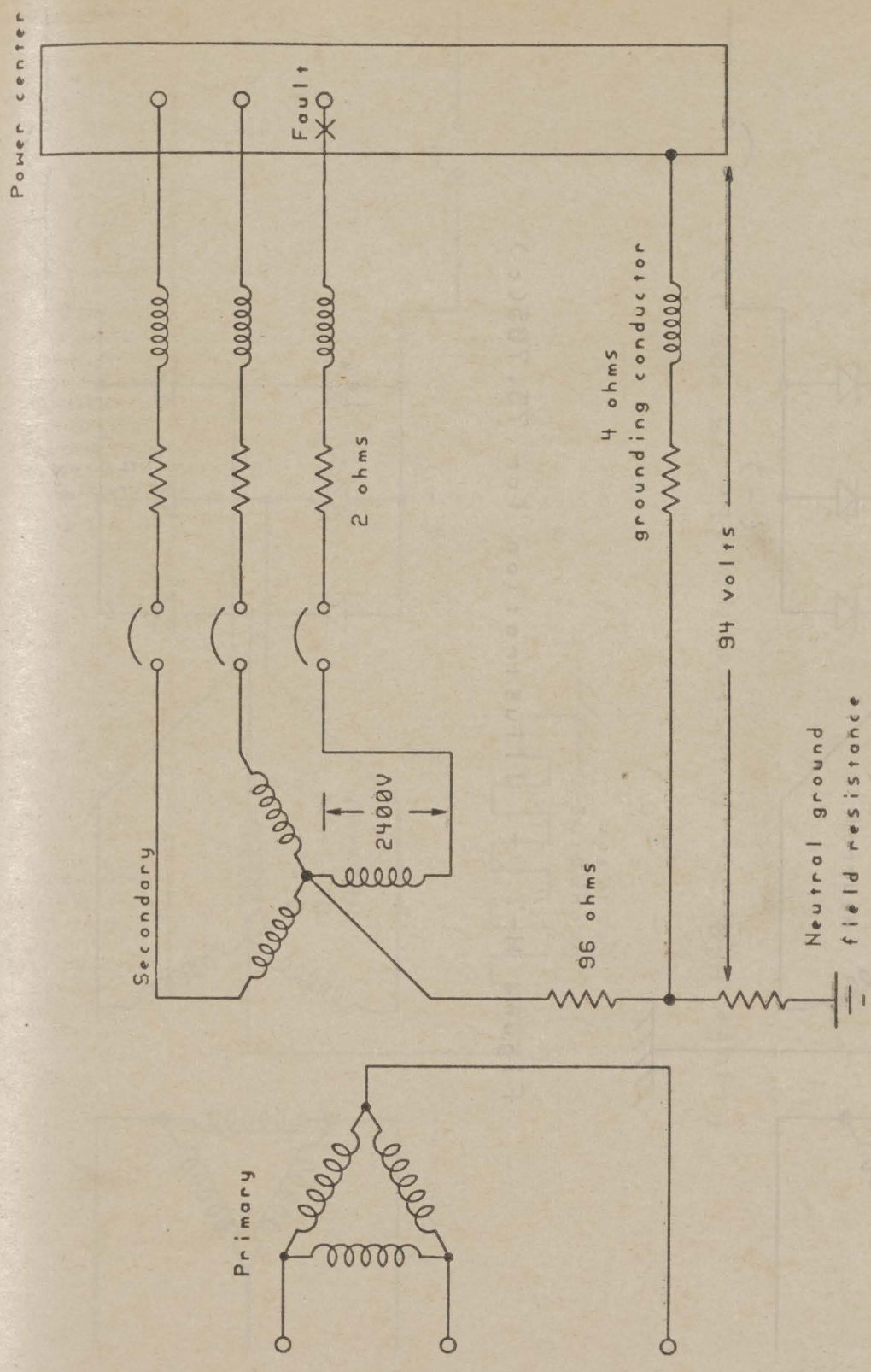

Figure H-6 - Illustration of requirements for 75.707(a)(2)

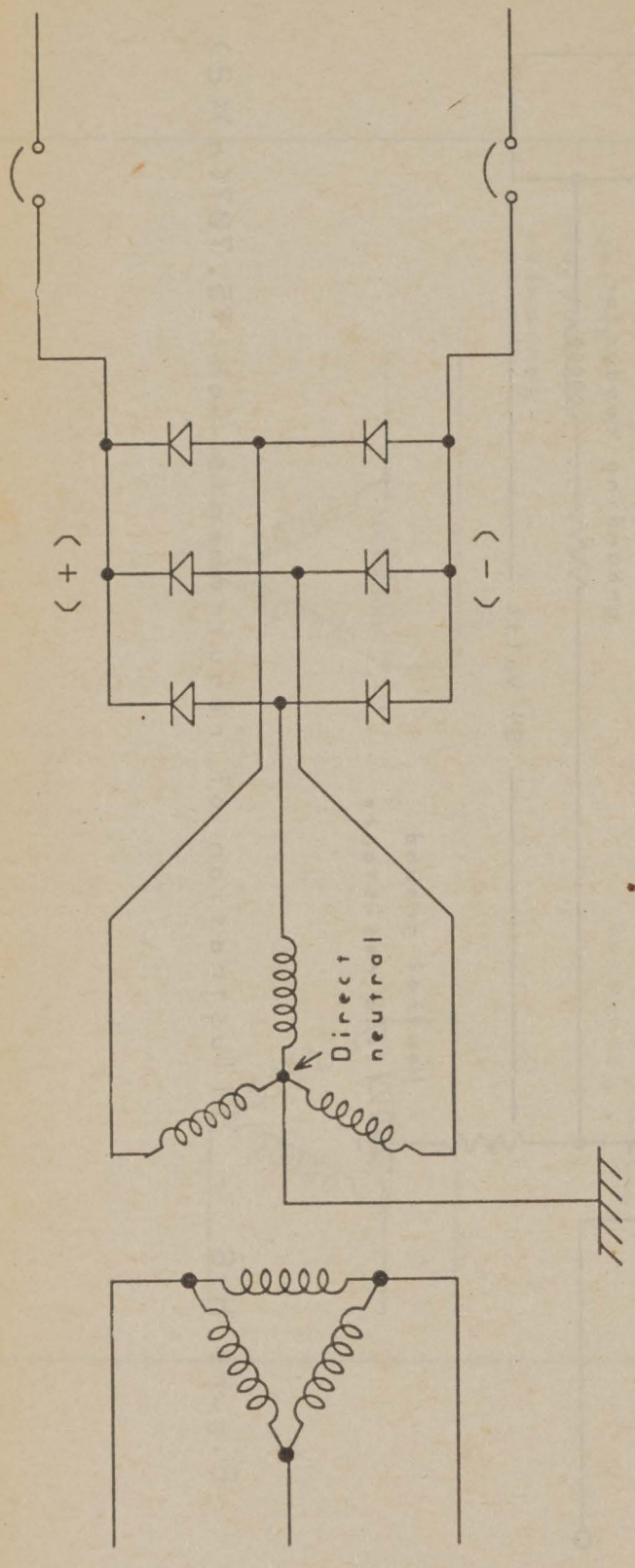

Figure H-7 - Illustration for 75.705(c)

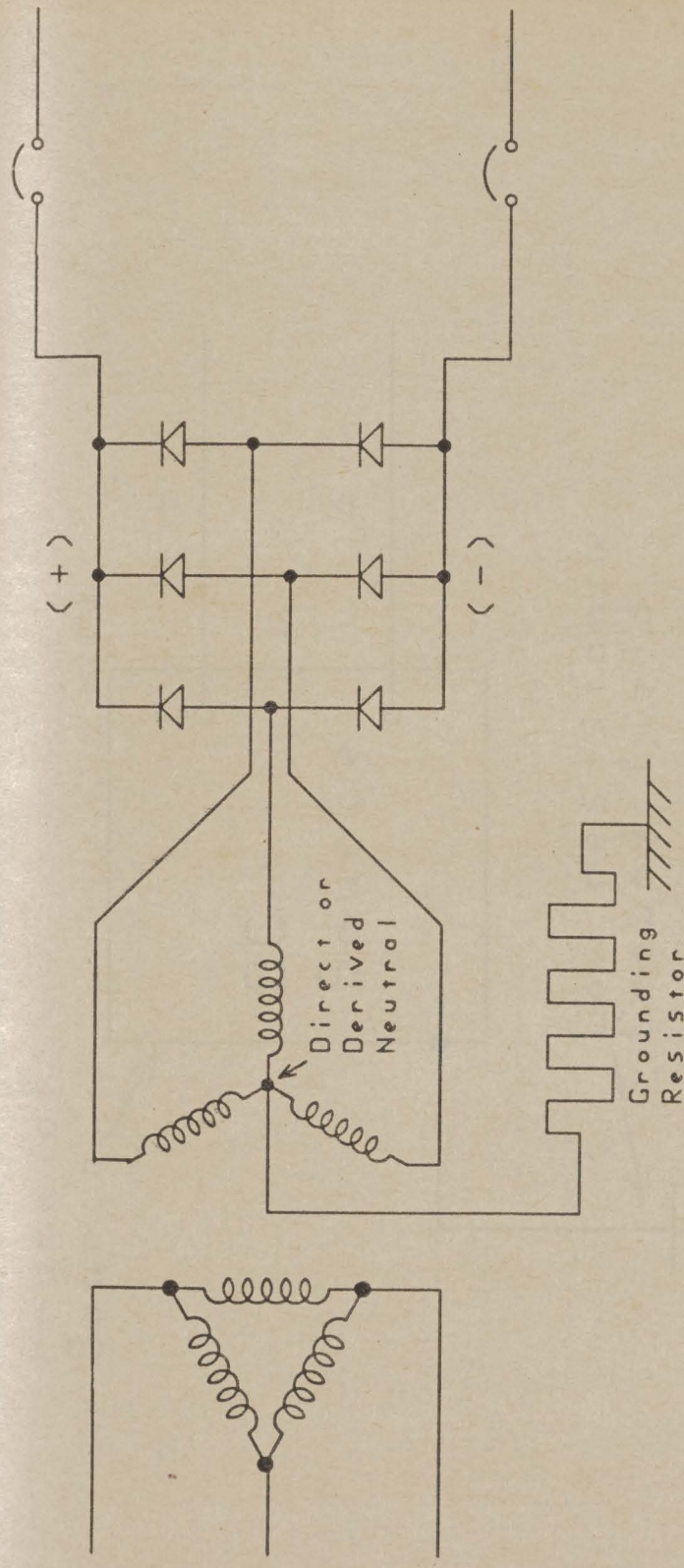

Figure H-8 - Illustration for 75.705(d)

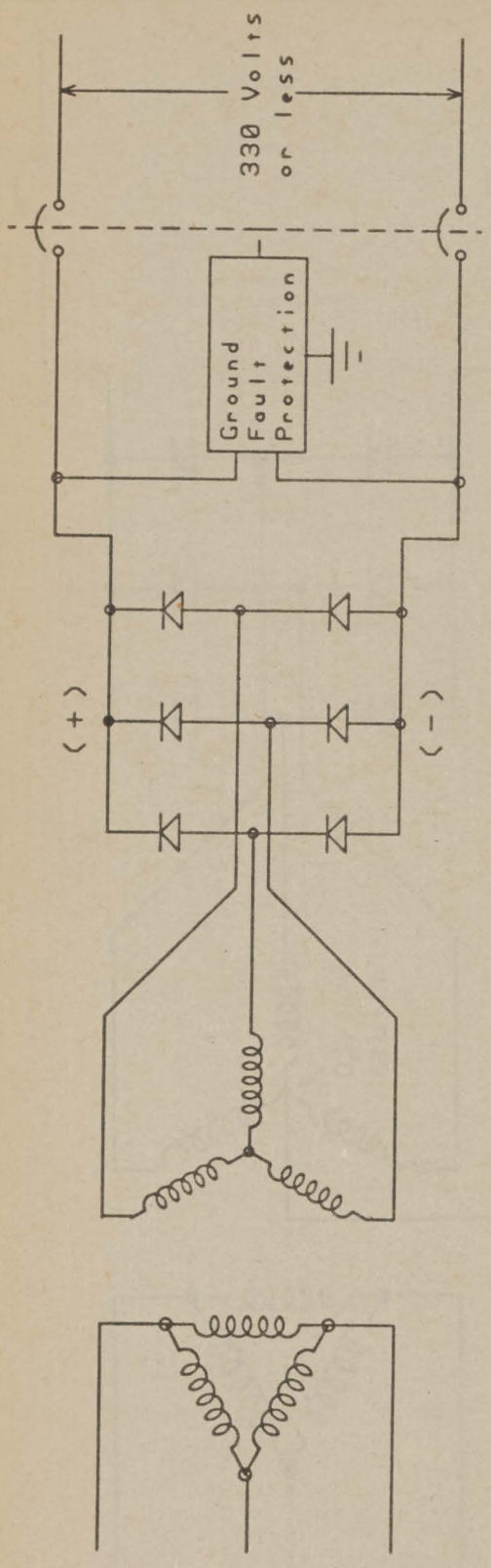

Figure H-9 - Illustration for 75.705(e)

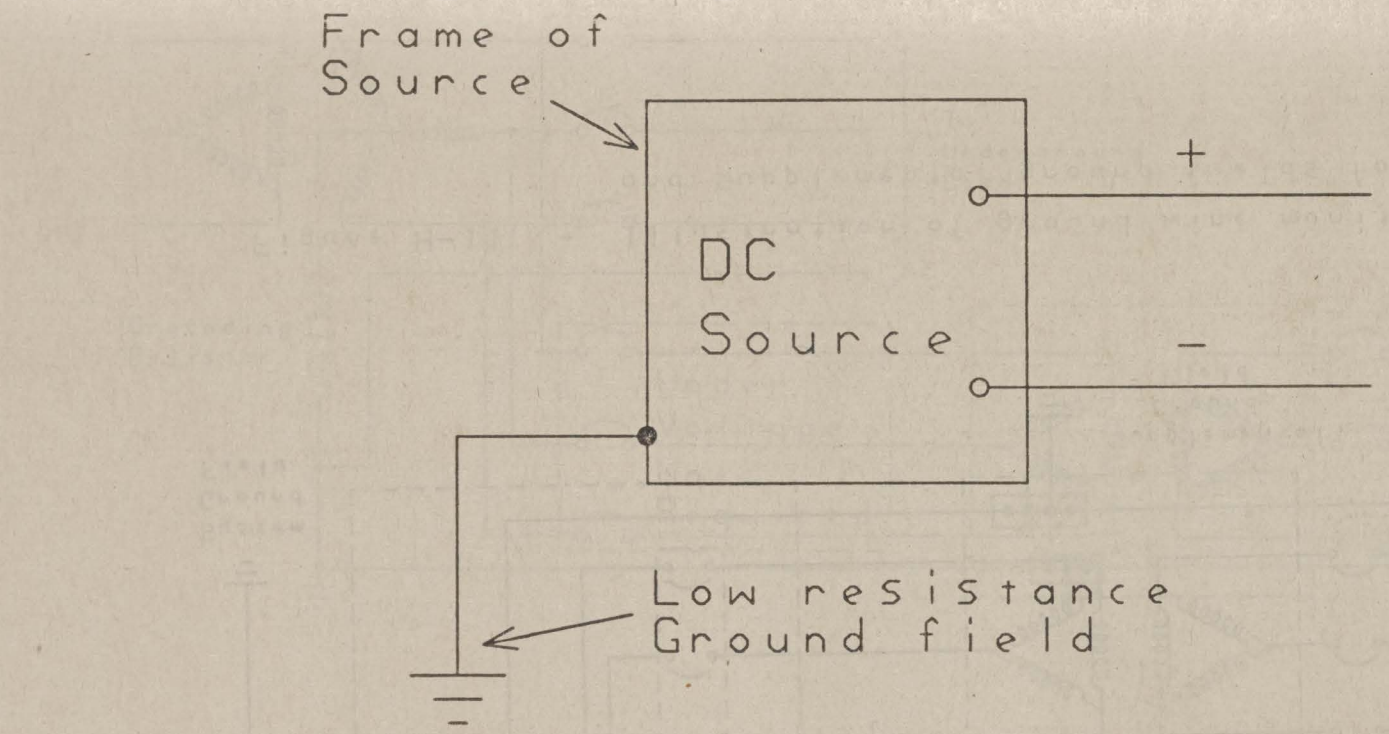

Figure H-10 - Illustration for 75.706(c)

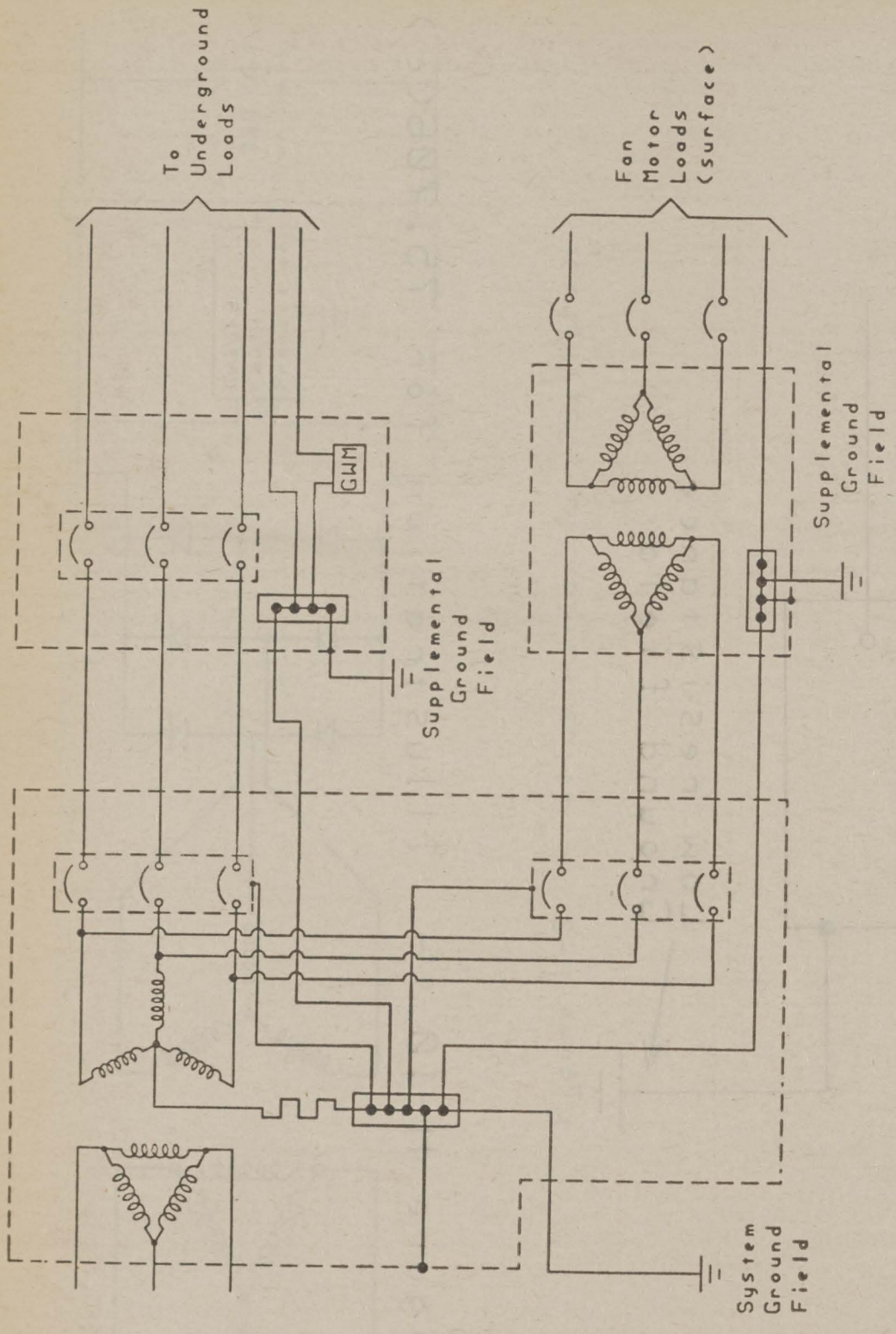

Figure H-11 - Illustration of ground wire monitoring and supplemental ground fields for 75.711(c)

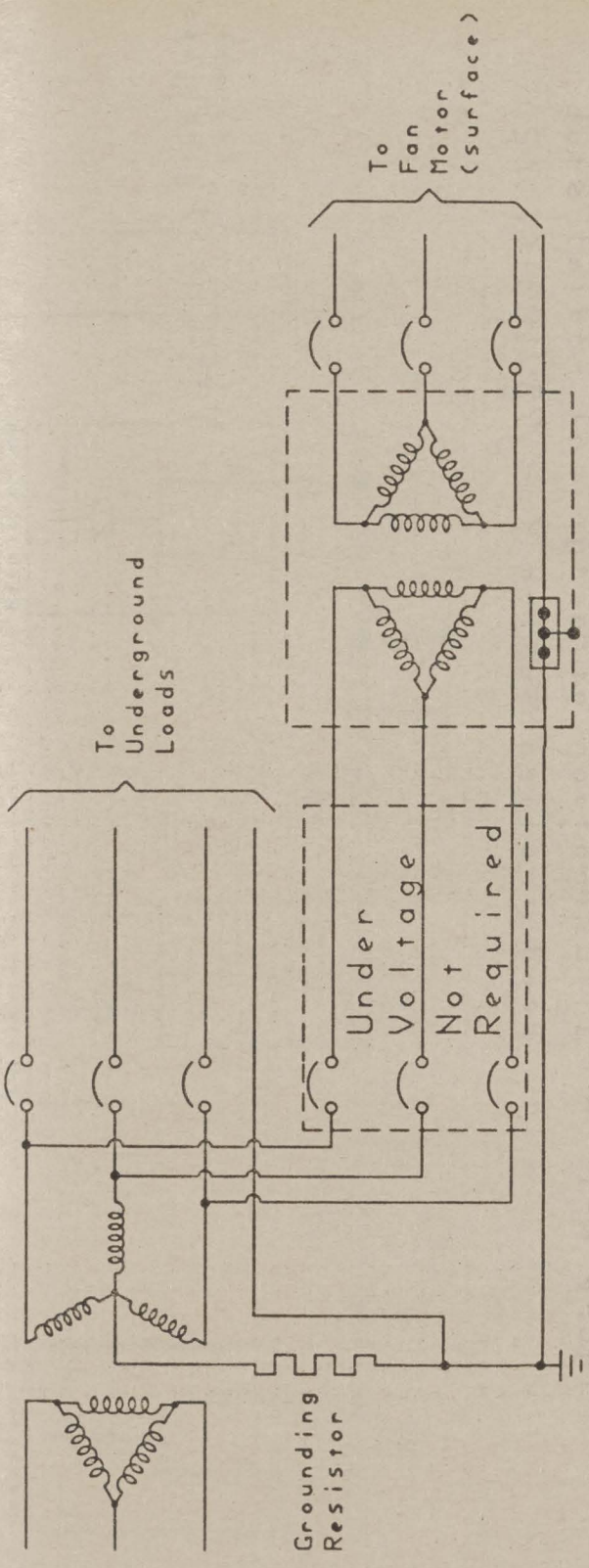

Figure I-1 - Illustration of a branch circuit for 75.802(a)(3)

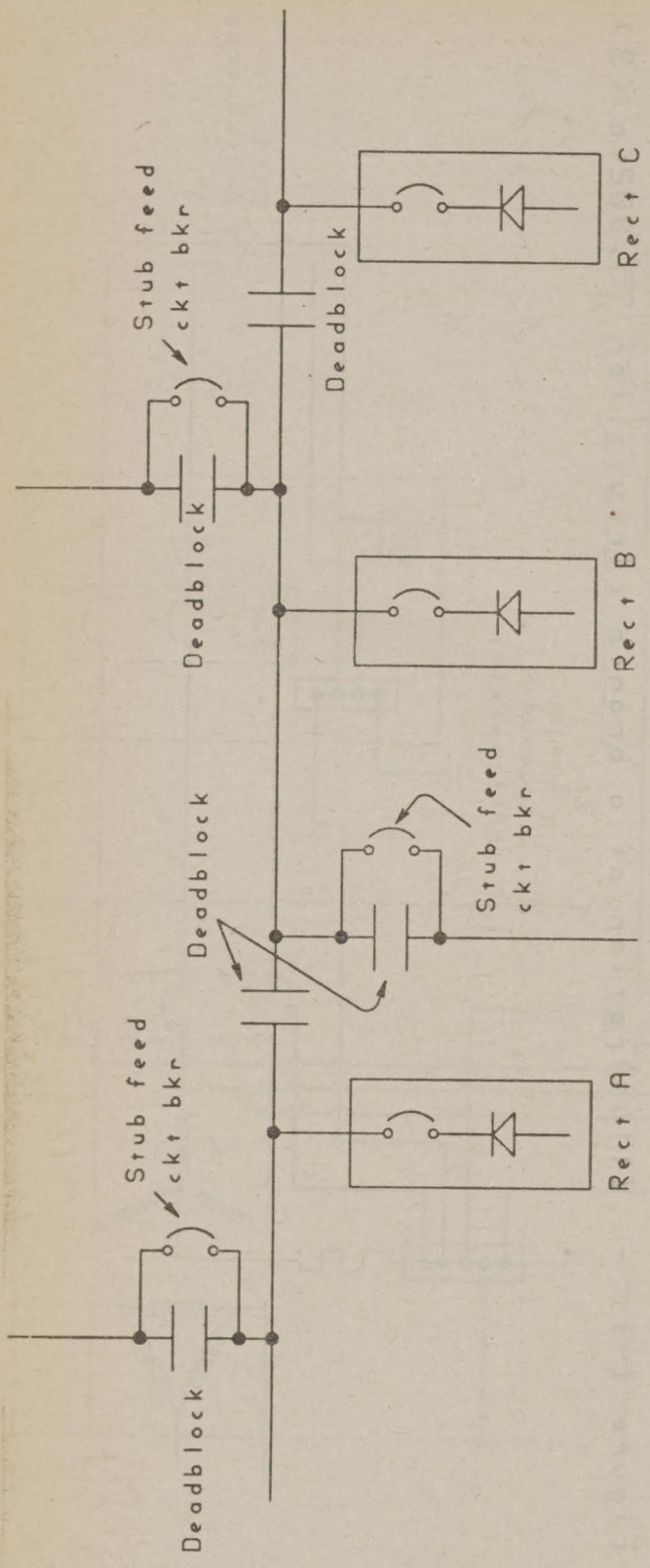

Figure K-1 - Illustration of a typical radial stub feed trolley system for 75.1001(e)(2)

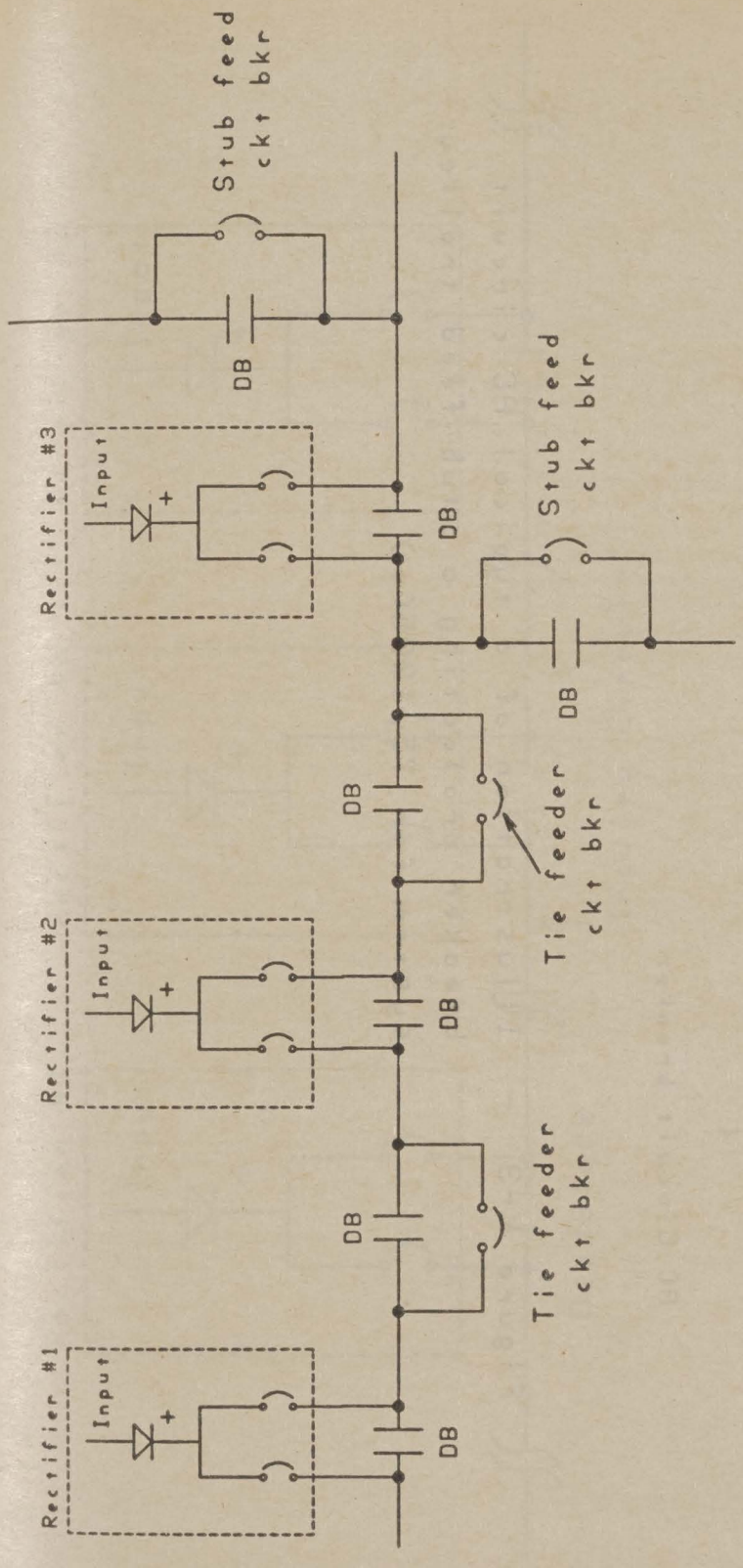

Figure K-2 - Illustration of a typical parallel-connected rectifier trolley system for 75.1001(f)(2)

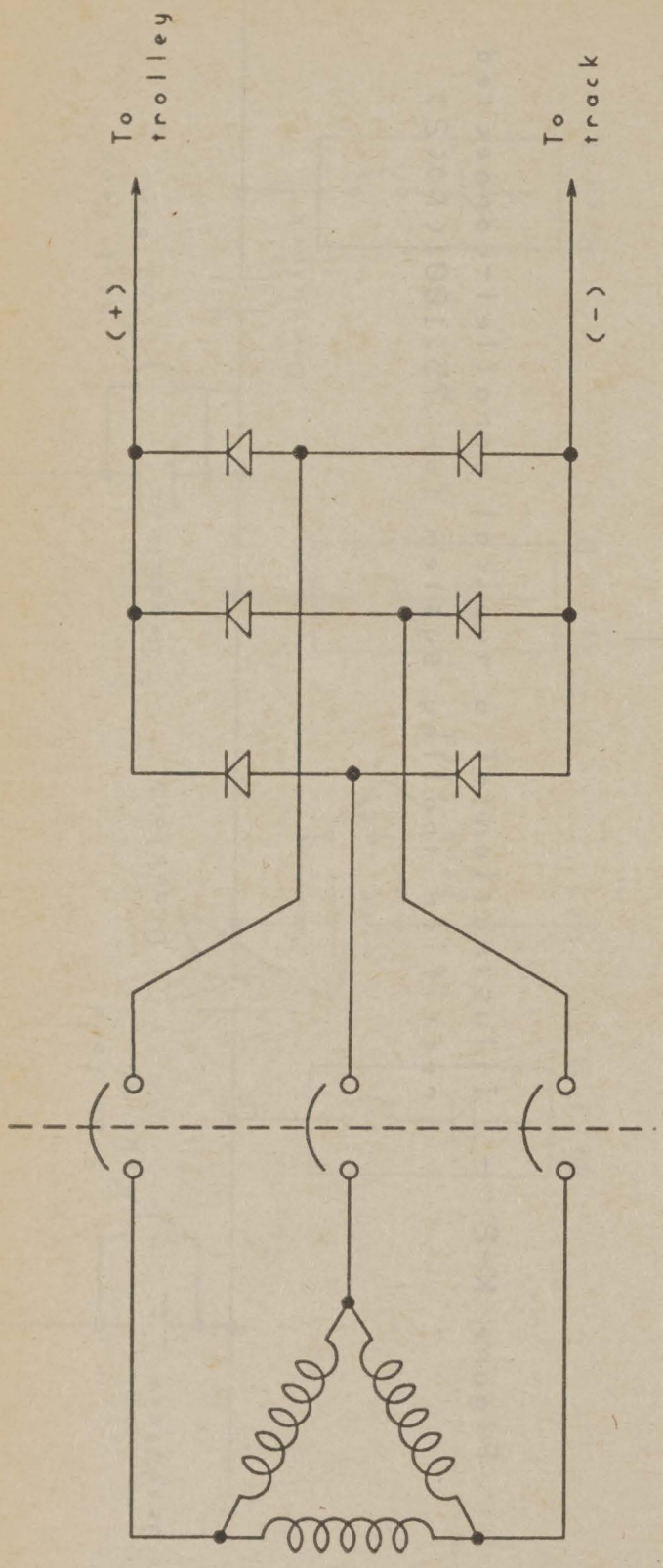

Figure K-3 - Illustration of a typical AC circuit breaker protecting a stub feed trolley system for 75.1005(c)

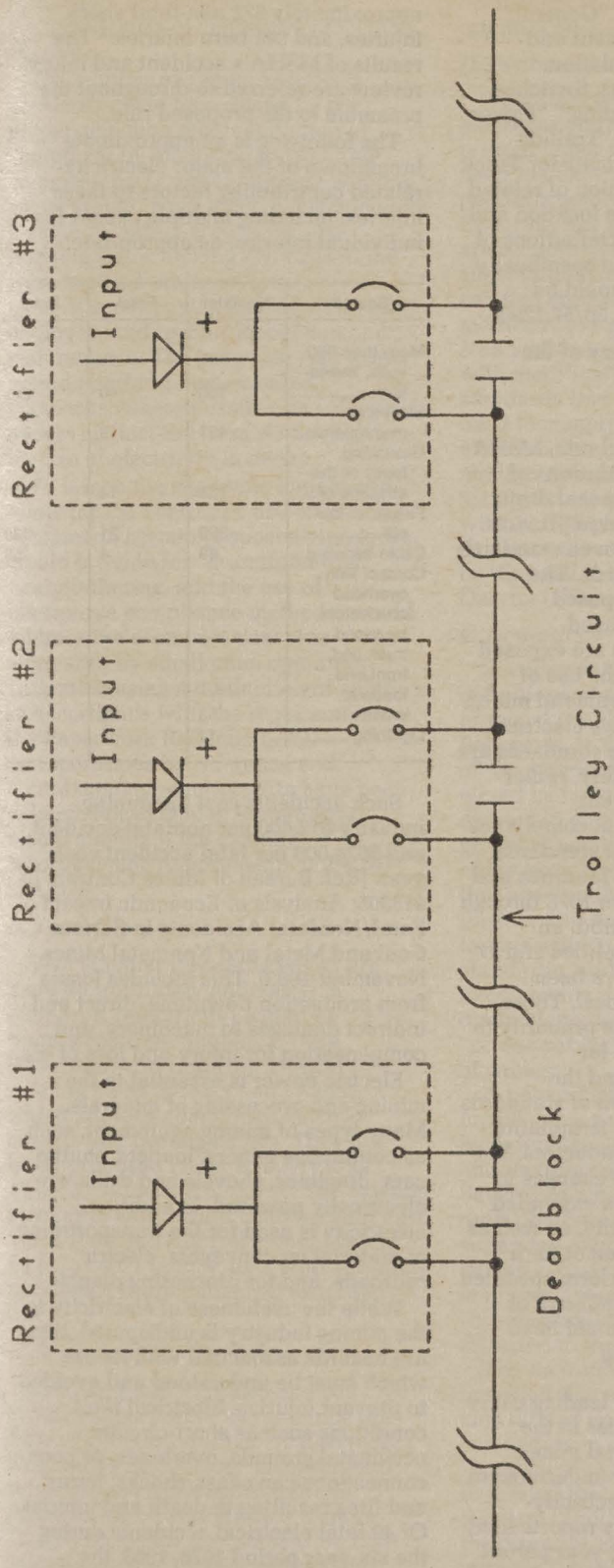

Figure K-4 - Illustrations for 75.1005(d)

[FR Doc. 89-27799 Filed 11-28-89; 8:45 am]
BILLING CODE 4510-43-C

DEPARTMENT OF LABOR

RIN 1219-AA14

30 CFR Parts 56 and 57

Electrical Standards for Metal and Nonmetal Mines

AGENCY: Mine Safety and Health Administration, Labor.

ACTION: Proposed rule.

SUMMARY: This proposed rule would update and clarify the Mine Safety and Health Administration's (MSHA) electrical safety standards at metal and nonmetal mines. These revisions would upgrade existing provisions consistent with technological advances in mining, eliminate unnecessary and duplicative standards and recordkeeping requirements, and allow for compliance alternatives.

DATES: Written comments and requests for public hearings on the proposed rule must be received on or before March 9, 1990.

ADDRESS: Send comments and requests for public hearings to the Office of Standards, Regulations, and Variances; MSHA, Room 631, Ballston Towers #3; 4015 Wilson Boulevard, Arlington, Virginia 22203.

FOR FURTHER INFORMATION CONTACT: Patricia W. Silvey, Director, or Yvonne Johnson, Project Officer, Office of Standards, Regulations, and Variances, MSHA, (703) 235-1910.

SUPPLEMENTARY INFORMATION:

I. Rulemaking Background

This proposed rule is part of MSHA's comprehensive review of its metal and nonmetal safety and health standards. MSHA announced the availability of a preproposal draft on May 20, 1983 (48 FR 22895), and invited public comment. During the review process, MSHA received suggestions and recommendations from many commenters. MSHA addressed commenters' suggestions in the proposal, as well as the specific goals of Executive Order 12291, the Regulatory Flexibility Act, and the Paperwork Reduction Act.

To aid in comparing the existing standards with the revised standards, this document includes a derivation table and a distribution table which cross-reference the existing standard numbers with the proposed standard numbers. In the following discussion, the designation "56/57" indicates that the standard applies to both parts 56 and 57.

The proposed revisions to Subpart K of parts 56 and 57 are contained in eight distinct categories, titled: "General;" "Work on Electric Equipment and Circuits;" "Guarding, Insulation, Separation;" "Connections, Switches, Controls;" "Safety Grounding;" "Power Cables and Conductors;" "Trailing Cables;" and "Trolley Circuits for Track Haulage." The categorization of related standards would facilitate location and use of the proposed rule. Definitions of terms used throughout and specifically applicable to subpart K would be contained in proposed §§ 56/57.12000.

II. Discussion and Summary of the Proposed Rule

A. General Discussion

In drafting this proposed rule, MSHA considered the recommendations of commenters to the preproposal draft. The revisions are intended to provide mine operators with improved standards to address electrical hazards. The primary benefit of the proposed standards would be increased protection for miners who are exposed to the hazards related to the use of electricity in metal and nonmetal mines, and the prevention of future electrical injuries and fatalities. The standards are directed toward miner safety, rather than protection of equipment.

MSHA estimates that full compliance with the existing electrical standards should have prevented 66 fatalities and 1,012 nonfatal injuries from 1978 through 1988. During this same period, an estimated additional 2 fatalities and 17 nonfatal injuries could have been prevented under the proposal. These additional benefits are due primarily to the proposed requirement for undervoltage protection and the expansion and clarification of standards addressing the insulation, termination, and shielding of power conductors. The proposed non-substantive changes to existing standards, such as expanded provisions to improve clarity, as well as the proposed new requirement for a qualified electrician to perform specified work, will increase the likelihood of preventing injuries that should have been prevented by existing requirements.

Electrical hazards are a leading cause of fatal and nonfatal injuries in the nation's metal and nonmetal mines. MSHA personnel recently undertook an informal analysis of all electricity-related accident and injury reports filed with the Agency for the 11-year period 1978 through 1988. The analysis showed that there were an estimated 1,300 electrical accidents occurring during that period, involving injuries to miners such as shocks and burns. This number includes 80 fatal electrocutions, approximately 372 non-fatal shock injuries, and 841 burn injuries.[1] The results of MSHA's accident and injury review are referred to throughout the preamble to the proposed rule.

The following is an approximate breakdown of the major electricity-related contributing factors to these injuries, including multiple causes for individual injuries, as appropriate:

Source	Nonfatal	Fatal	Total
More than 650 volts, line-to-line	169	40	209
Electrical maintenance	491	19	510
Grounding, faulty or the absence of	136	14	150
Failure to lock out	309	21	330
Cable handling	49	4	53
Contact with overhead conductors, by raised truck bed, front-end loaders, cranes	53	22	75
Lightning	11	1	12

Such accidents cost the mining industry $12,400 per nonfatal accident, and $674,000 per fatal accident each year. (Ref. Bureau of Mines Contract J0 113005; Analysis of Economic Impact of Fatal/Nonfatal Accidents in Surface Coal and Metal and Nonmetal Mines, November 1983). This includes losses from production downtime, direct and indirect damages to machinery, and compensation for injury and loss of life.

Electric power is essential to the mining and processing of minerals. Many types of mining equipment, such as continuous miners, loaders, shuttle cars, draglines, shovels and drills, are electrically powered. In addition, electricity is used for the transportation of material on conveyors, electric railroads, and for processing plants.

While the usefulness of electricity to the mining industry is undisputed, there are hazards associated with its use which must be understood and avoided to prevent injuries. Electrical fault conditions such as short-circuits, accidental grounds, overloads, or poor connections can cause shocks, burns, and fires resulting in death and injuries. Of 49 fatal electrical accidents during the six-year period 1978-1983, the majority occurred when persons contacted the energized frames of

[1] The analysis did not include a review of mechanical or crushing injuries caused by accidental electric equipment startup.

equipment, or contacted exposed energized parts of electric equipment or circuits.

The number of similar electrical accidents could be reduced by the proper selection and installation of equipment by enclosing or isolating energized parts, providing safe working space around equipment, using adequate insulation, safety grounding, and warning signs, locking switches in the open position under certain circumstances, using insulated flooring or gloves, and regular inspection and maintenance. The proposed rule would provide performance-oriented standards, where possible, to safeguard miners against the hazards arising from the use of electricity in mines.

To lessen the economic impact and allow for the continued use of existing equipment, certain proposed standards would provide for "grandfathering." Grandfathering, and the use of alternative compliance methods, would address the economic concerns expressed by small mine operators without causing a diminution of safety. In accordance with the requirements of the Paperwork Reduction Act, incorporations by reference and recordkeeping requirements have been deleted. For example, the proposal would eliminate the existing recordkeeping requirements in §§ 56/57.12028.

B. Transfers

Two existing standards which are more appropriately addressed in Subpart K (Electricity) would be transferred from Subpart C (Fire Prevention and Control). They are existing §§ 56/57.4011 and 57.4057, which address abandoned electric circuits and trailing cables. They are being proposed under Subpart K as §§ 56/57.12104 and 57.12700. The existing standards will remain codified with Fire Prevention and Control standards as §§ 56/57.4011 and 57.4057 until revisions to Subpart K are published as a final rule.

C. Incorporations By Reference

Existing §§ 56/57.12045 and 56/57.12048 incorporate by reference the *National Electrical Code* of 1968 (NEC). Existing §§ 56/57.12047 incorporate by reference the *National Electrical Safety Code* of 1961 (NESC); Part 2: "Safety Rules for the Installation and Maintenance of Electric Supply and Communication Lines;" and Supplement 2, 1968 (NESC). The NEC contains nationally recognized safety standards for the electrical industry. The proposed rule would replace the incorporated documents with specific performance-oriented requirements.

D. Petitions for Modification

Operators with petitions for modification that involve the standards revised under the proposed rule would need to determine the status of those petitions before the effective date of the final rule. For proposed standards which are renumbered, but remain substantively unchanged from the existing standards, operators with modifications granted for these standards need not reapply. Operators with modifications granted for standards that have been revised would need to comply with the new rule on its effective date. New petitions for modification of the rule may be submitted, as necessary, in accordance with 30 CFR part 44. If Agency assistance is needed, questions should be directed to the appropriate MSHA District Office.

E. Definitions

Sections 56/57.12000 would contain definitions of terms used throughout the proposal which apply specifically to Subpart K, to facilitate comprehension of the standards. Existing §§ 56/57.2 would be revised and several definitions deleted to eliminate repetition. The proposal would incorporate a definition of the term "cable"which conforms to that used by the Insulated Cable Engineering Association (ICEA). The term is used in several of the proposed standards, and it is defined in response to commenters, concerns that a distinction needs to be made between "power cables" and other specific types of cables.

A power cable would be defined so as to encompass all types of cables, including feeder cables, trailing cables, and flexible cords which conduct power. Several commenters to the preproposal draft objected to this definition and suggested exclusion of low energy cables such as communication, instrumentation and control cables. This recommendation was adopted and is reflected in the proposed language.

The definition of "cable" was revised to reflect that a cable may include uninsulated equipment safety grounding conductors to distinguish it from a "conductor". Commenters also requested that a specific definition of the term "trailing cable" be included in the proposal to identify it as a special purpose flexible power cable.

The proposed definition of a "circuit breaker" is consistent with the Institute of Electrical and Electronics Engineers (IEEE) and NEC definitions of the term. The phrase "injury to itself" would be replaced with the phrase "damage to the device". One commenter suggested that the definition of a circuit breaker should include "overcurrent and ground-fault settings." This approach would result in redundancy, as specific overcurrent and ground-fault settings are listed within the proposed standards in subpart K.

Commenters also suggested that the word "current" be substituted for "overcurrent," stating that "overcurrent" does not allow for use of magnetic and filament type breakers. Overcurrent was retained because it addresses the intended hazards and is consistent with IEEE and NEC definitions. As used in the proposed definitions, it means any current in excess of the rated current of equipment, or the ampacity of a conductor, which may result from ground-fault, overload or short-circuit conditions.

This proposal would revise the existing definition of a "conductor" in response to recommendations from several commenters. The proposal would clarify that a conductor is a wire which is intended to carry an electric current. This change would prevent application of electrical requirements to materials such as messenger wires, metallic equipment frames, and fences which are capable of carrying electric current, but are not intended for that purpose. This change would not except messenger wires intended for use as equipment safety grounding conductors from complying with applicable requirements.

"Equipment safety grounding conductor" would be a new term describing the conductor which connects the non-current-carrying metallic parts of electric equipment, raceways and other metallic enclosures to the safety grounding system. Commenters suggested using the term "equipment grounding conductor," as used by the NEC. The NEC is design-oriented and related directly to the installation and protection of equipment. By contrast, MSHA's proposed standards are primarily performance-oriented, and intended to enhance miner safety. In the Agency's view, it is important to stress that grounding is intended to safeguard persons from shock and burns, and not primarily to protect equipment. Conveying this concept would best be accomplished by using the term "equipment safety grounding conductor" as opposed to "equipment grounding conductor." The IEEE Standard 277-1983, "IEEE Recommended Practice for Cement Plant Power Distribution," uses this term to describe proper equipment grounding of quarry-related mining equipment, and

its *Standard Dictionary of Electrical and Electronics Terms*, IEEE Standard 100–1977, defines "safety ground conductor" in essentially the same manner as the proposed definition.

The existing definition of the word "insulated" would be revised by removal of explanatory language and clarification that compliance flexibility exists. The existing definition of "insulation" would be deleted, as its meaning is spelled out within the proposed standards.

New definitions of the terms "mobile electric equipment," "portable electric equipment" and "stationary electric equipment" would be included in the proposal as a means for classifying equipment according to the electrical hazards associated with its use. Varying methods of protection would be required under the proposal in accordance with the type of equipment. Therefore, separate definitions were necessary to distinguish between machine types. Equipment characteristics such as facility and method of movement, and type and duration of use were considered in defining these terms.

The proposal would incorporate a new definition of the term "overcurrent" derived from commenter suggestions and the NEC definition. Commenters indicated that a definition is necessary to distinguish "overcurrent" from "overload." Overcurrent is a descriptive term applied to ground-fault, short-circuit and overload conditions, where equipment is operated or conductors are loaded in excess of their rating or ampacity. The proposed definition of "overload" would revise the existing definition to clarify the term, and distinguish it from other faults. It is consistent with the NEC definition of an overload.

Several of the proposed standards would require electrical work to be performed by a "qualified electrician." That term is new, and would be defined as an individual who has met the requirements of proposed §§ 56/57.12100. Those sections would require certain mine electricians to be qualified under an operator's electrical training and qualification program.

The proposal would include a new definition of the term "rated," as used in Subpart K. A device is rated by testing it and making a comparison with a national consensus standard such as those prepared by the American National Standards Institute (ANSI), Underwriters Laboratories (UL), the IEEE, the ICEA, and Factory Mutual (FM). If no nationally-developed consensus standard is applicable, the manufacturer provides documentation that a device has been tested and does not present a burn, fire or shock hazard.

The proposed new definition of the term "safety grounding system" is derived from the IEEE and NEC definitions of "grounding system" and "equipment grounding conductor." It would be defined as a complete installation intended to provide a low-impedance fault current path to the system's protective device for non-current-carrying metallic parts enclosing electric conductors or circuits.

The proposal would modify the existing definition of a "short circuit" by changing the term "resistance" to "impedance" as suggested by commenters. The term "potential" has been retained and is consistent with the IEEE definition (Standard 100–1977).

Several other definitions have been included in the proposal to facilitate interpretation of the proposed standards and identify new terms. For instance, the proposed rule would utilize the terms "nominal voltage," "jacket," and "ground fault." They have been explained in proposed §§ 56/57.12000 for convenience.

Existing definitions of the terms "low potential" and "high potential" would be eliminated under the proposal. In lieu of utilizing broad voltage classifications, the proposed standards would apply to specific equipment or circuit voltages. Therefore, the low- and high-voltage categories were no longer necessary. Likewise, existing definitions of "electrical grounding" and "reverse-current protection" would be deleted, as they are not used in the proposed standards. The definition of a "distribution box" would be included in the applicable standards.

F. Section-by-Section Analysis

The following analysis examines the proposed rule and its effect on existing standards.

General

Sections 56/57.12100 Qualified Electricians

Sections 56/57.12100 would be new, addressing the qualification of mine electricians. Because of the danger and difficulty involved in some mine electrical work, Subpart K would require certain tasks to be performed by a qualified electrician. This standard would require such work to be performed by individuals who have met the requirements of an operator's qualification program. In the Agency's view, such persons would possess the knowledge and skill necessary to safely and accurately complete electrical work which affects their own well-being, as well as the well-being of other miners.

The need for specific qualifications to perform electrical work is illustrated by the number and types of electrical accidents occurring in metal and nonmetal mines. A review of electrical accident reports from 1978 through 1988 has indicated that 17 of the 80 electricity-related fatalities during that time (approximately 21%), and 382 of the 1213 nonfatal electricity-related injuries (approximately 32%) reported involved persons who had not been properly trained in electrical work procedures. Many of the injuries and fatalities reported to MSHA involved non-electricians engaged in electrical maintenance or repair work. For example, in 1986, a mechanic was electrocuted when he inserted fuse cut-outs, one in each hand, into a high-voltage overhead feeder while standing in the raised bucket of a frontend loader. An individual trained in electricity and its hazards would never have attempted this, knowing such a procedure would lead to death or serious injury.

The intent of the standard is to assure that persons engaged in dangerous electrical work are made aware, not only of the proper technical procedures, but of the hazards associated with such work. Additionally, requiring certain work to be performed by trained, qualified electricians would serve to enhance compliance with other mandatory electrical standards in 30 CFR parts 56 and 57. Persons knowledgeable in these requirements are more apt to be diligent in complying with them.

The standard would offer a wide variety of compliance alternatives, to be chosen at the option of the mine operator. For instance, metal and nonmetal mine electricians could be qualified under procedures used by other Federal or state agencies. As an alternative, operators could take advantage of labor union apprenticeship programs for the qualification of mine electricians, as is presently the practice in some mines. This flexibility in compliance alternatives would serve to promote training of mine electricians. MSHA does not want to discourage participation in training programs, such as apprenticeships, under the standard. Additionally, electrical work is often done by independent contractors, particularly in smaller metal and nonmetal mines. Providing qualification compliance alternatives would not disallow such a practice.

Sections 56/57.12101 Electric Equipment and Conductors

This proposed standard would revise and combine existing §§ 56/57.12002, 56/57.12030, 56/57.12035, 56/57.12040 and 56/57.12041. It would address safe practices for the selection, installation, use and maintenance of electric equipment and conductors. Paragraph (a) would require electric equipment and conductors to be installed and maintained by a qualified electrician, and used in a manner which prevents shock and burn hazards to persons. Equipment and conductors presenting such hazards would be required to be tagged and the hazard corrected. This would assure that persons responsible for the maintenance and repair of electric equipment have the knowledge and skill necessary to perform the work safely, and that miners working near electric equipment are not exposed to the risk of injury.

The preproposal draft listed several environmental factors to be considered with the use of electric equipment and wiring. Several commenters suggested that paragraph (a) be deleted or revised, because the environmental factors listed were vague and did not enhance safety. The environmental factors listed in paragraph (a) have been deleted, and the standard has been revised to clarify its intent.

Paragraph (b) would require electric equipment and conductors installed after the effective date of the rule to be selected and located in surroundings compatible with their design and intended use. This would minimize the compliance burden of the proposal on operators, particularly of small mines, while assuring miner protection on newly installed equipment.

Sections 56/57.12102 Bare Conductors

This section would revise existing §§ 56/57.12012. It would limit the allowable voltage of bare conductors accessible to contact by persons to 40 volts. Several commenters believed that the preproposal draft coverage of all bare conductors accessible to contact would expand the scope of the existing standards, which only address bare signal wires. This position was not adopted in the proposal because the same shock hazard exists on all exposed bare conductors, regardless of whether it is a signal wire or power conductor.

In the preproposal draft, the term "potential" in existing §§ 56/57.12012 was replaced by the more accepted and recognized term "voltage." The term "inadvertent" was added to clarify that the phrase "accessible to contact" means accessible to inadvertent or unintentional contact. These revisions would be retained in the proposed rule.

Sections 56/57.12103 Overcurrent Protection

Sections 56/57.12103 would require overload and short-circuit protection for electric circuits and equipment, other than trailing cables, with fuses or other automatic circuit interrupting devices. Such devices would be required under paragraph (a) to safely interrupt the circuit under all overload and short-circuit fault conditions. Overcurrent protection for trailing cables and trolley circuits would be addressed in proposed §§ 56/57.12701 and 56/57.12801, respectively.

Performance requirements for overcurrent protective devices would be spelled out in the proposed rule, based on references to the ratings tables accompanying the proposal. The standard and tables would replace existing §§ 56/57.12001 and 56/57.12065. The tables accompanying the proposal would codify overcurrent protection requirements, eliminating need for reference to the NEC. They are derived from accepted safety standards, as well as information taken from the NEC.

The overcurrent protection provisions and the tables specifying ratings and settings for protective devices would assure proper deenergization of circuits and equipment in the event of overcurrent conditions. Arcing and conductor overheating, and the resulting hazards to miners such as fires and electrical shock would thereby be prevented.

Under paragraph (b), motors would be required to be protected against overloads at no more than 125 percent of their full-load current, and paragraph (c) would require short-circuit protection of motors as specified in Tables 56/57.12103–1 and 56/57.12103–2. Some commenters were concerned that specified values could prevent motors from starting. The values are based on the NEC, and should not pose frequent start-up problems. However, in the eventuality that the specified values would cause insufficient current for the starting of alternating-current (ac) motors, paragraph (d) would permit adjustments in circuit breaker trip values. In no instance would the setting be permitted to exceed 1300 percent of the motor's full-load current on instantaneous-trip circuit breakers, or 400 percent of the motor's full-load current for inverse-time circuit breakers. Therefore, the standard would provide maximum circuit protection, but would allow for the practical necessity of having sufficient current for equipment start-up.

Paragraph (e) would require all three-phase motors to be protected so that an overcurrent in any phase will deenergize all ungrounded phases. This would assure that the remaining phase conductors will not also become overloaded and increase the risk of shocks and fires. Under paragraph (f), transformers would have to be protected on the primary side, with overcurrent protection rated at no more than 250 percent of their rated full-load current.

Paragraph (g) would provide that when the required rating of a fuse or circuit breaker without an adjustable-trip unit does not correspond to a standard rating for fuses or circuit breakers, the protective device used would not be permitted to exceed the next higher standard rating. In such cases, the Agency would permit the use of a lower standard rating, or the next higher standard rating to allow for flexibility when necessary.

Circuit breakers or fuses providing short-circuit protection would be required under paragraph (h) to be installed where the circuit conductors are connected to the supply. However, feeder tap conductors which are 25 feet or less in length, have ampacities of at least one-third of the ampacity of the feeder conductors, and terminate at a circuit breaker or fuse with current ratings that do not exceed the ampacity of the feeder tap conductors, would not have to meet the requirements of this provision. The 25-foot requirement is consistent with national standards, which recognize that a longer length could significantly increase the resistance in the circuit. The proposal would limit the resistance in the circuit to a value that would allow adequate fault current to flow through the system, thereby allowing the system overcurrent protection to properly operate.

Paragraph (i) would require wiring to be protected at no more than the ampacity specified in proposed §§ 56/57.12601. However, as specified in paragraph (j), overcurrent protection would not be required on incandescent lamps supplied from direct-current (d-c) systems, provided the length of ungrounded conductors does not exceed eight feet. MSHA experience demonstrates that a requirement for overcurrent protection in these circumstances would not be justified, since the design of incandescent bulbs is such that their filaments will fuse during an overcurrent situation. The higher resistance of a conductor longer than eight feet could cause it to overheat in such a situation, posing a fire hazard to miners.

Paragraph (k) would state that the overload protection requirements of the standard would not apply where interruption of a circuit presents a hazard to persons. However, measures would have to be taken to warn persons when an overload occurs. Two examples of where an overload warning would be permitted are: (1) An electrically driven fire pump providing water or fire retardant to fight a fire which endangers miners, (2) an electrically driven mine hoist used to transport miners to a safe location during an emergency evacuation. Overload warning could be given by a warning light or alarm which clearly indicates that the circuit is overloaded.

Paragraph (l) is new, and would prohibit connection of fuses, circuit breakers, or a combination of both in parallel. This would ensure that the integrity of the protective device is maintained, and that ratings for protective overcurrent devices are used which will not cause damage to the circuit. The design of fuses and circuit breakers presently employed in the industry requires full-line current for the devices to accurately and reliably operate within their parameters.

Sections 56/57.12104 Unused Conductors

This standard would revise existing §§ 56/57.4011 and would transfer these Subpart C (Fire Prevention and Control) standards to Subpart K, because the hazards addressed are electrical. The proposal addresses shock hazards created when a person comes into contact with abandoned or unused energized conductors.

The existing standard would be revised to clarify the meaning of the term "abandoned" and identify the type of equipment the standard addresses. In response to commenters, the term "conductors" is substituted for the phrase "electric wiring" and the subheading changed from "unused wiring" to "unused conductors." Some commenters stated that confusion exists about where conductors should be disconnected. The proposal specifies that the disconnection shall be made at the conductor's supply point. The standard would also include the option of insulating the conductor ends and locking-out the circuit to allow for maintenance and repair, as suggested by some commenters. MSHA considers the combination of insulating and locking-out exposed ends to provide protection equivalent to removing the conductor from its supply source. If the conductors were merely insulated, and the supply source was not also locked out, an individual would be able to energize the conductor by mistake. In addition, the insulation could be damaged, rendering it ineffective. Locking-out would provide back-up protection. The combination of these two would make it impossible to mistakenly energize an unused conductor.

Sections 56/57.12105 Doors and Cover Plates

This standard would revise existing §§ 56/57.12032, and would require that doors and cover plates on electric equipment which allow access to electric connections be kept closed, except during installation, testing and repairs. The term "door" would be substituted for the term "inspection" for clarity. Commenters indicated that a shock hazard occurs only with exposed uninsulated connections, and recommended the standard apply only to these connections. This recommendation was not adopted in the proposal, since insulated connections are exposed to damaging environmental conditions such as water, sunlight, vibration and material spillage, which can cause deterioration of the insulation. If insulated connections are damaged and accessible to contact, a shock hazard would exist.

One effect of this standard would be to assure that control switches are not located in the same compartment as electric connections. To operate such switches, persons should not be exposed to injury through contact with electrical connections. Such switches should be positioned on the outside of the compartments.

Sections 56/57.12106 Danger Signs

This proposed section is derived from and combines existing §§ 56/57.12021 and 56/57.12022. It would require the posting of visible danger signs at all substations, switchyards and control centers to warn against entry by unauthorized persons, due to potential shock and electrocution hazards involved with such locations.

Several commenters objected to the preproposal draft standard's application to "major electrical installations," stating that its scope would require posting of warning signs in unnecessary areas. In response to these concerns, the proposal has been revised to require posting of signs only at the specified areas. The proposal would adopt commenters' recommendations that the term "prohibit" be deleted since signs cannot prohibit entry, but only warn against entry. One commenter recommended that warnings should be aimed at "unauthorized persons." This suggestion was not adopted because the proposed language adequately identifies persons to be alerted by warning signs.

Sections 56/57.12130 Clearance of Equipment

This section would combine and revise existing §§ 56/57.12045 and 56/57.12071. It would address shock hazards created when equipment such as cranes, trucks, end-loaders, shovels, ladders, surveyor rods, tools or supplies contact bare overhead conductors. According to MSHA's review of injury reports from 1978 through 1988, approximately 75 electrical injuries, including 22 fatalities, have occurred under these circumstances.

Paragraph (a) would require bare overhead conductors of more than 650 volts, line-to-line, installed parallel to roadways and under which haulage trucks have access, to be suspended at least ten feet higher than the raised bed of any haulage truck used at the mine. A ten-foot clearance would prevent contact by individuals, as well as accidental energization of the haulage equipment frame. Commenters believed that this provision would require all overhead high-voltage conductors to be raised. The proposal has been revised to only address conductors alongside the road, and not those that cross over the road. An example would be a truck parking area adjacent to a haulage road. In response to commenters' suggestions, the proposal would apply only to bare conductors of more than 650 volts. MSHA estimates that half of the electricity-related fatalities from 1978 through 1988 involved greater than 650 volts.

Under paragraph (b), when equipment is moved or operated near energized bare overhead conductors of less than 69,000 volts, and the clearance is less than 10 feet, the conductors would be required to be deenergized, or other precautionary measures taken to prevent energization of the equipment frames. This provision would not apply to trolley conductors, but would apply to overhead utility or power conductors. It would minimize the risk of persons being shocked or electrocuted through contact with energized conductors.

Paragraph (c) would contain safety precautions to be used when equipment is moved or operated near energized bare overhead conductors of 69,000 volts or more. Such conductors would be required to be deenergized, or a minimum clearance established between the conductor and the equipment, as specified in Table 56/57.12130, accompanying the standard. The distances specified would provide

minimum safety clearance for the protection of persons.

Commenters expressed concern that compliance with the preproposal draft requirement of a 50-foot limitation for storing and stockpiling supplies and materials near overhead high-voltage conductors would be difficult to achieve. In response to these concerns, the 50-foot limitation was deleted. Paragraph (d) of the proposal would only prohibit storage and stockpiling of supplies and materials directly underneath bare conductors.

Work on Electric Equipment and Circuits

Sections 56/57.12200 Lockout Procedures.

This section would revise existing §§ 56/57.12016 and 56/57.12017. It would mandate lockout procedures to provide protection against mechanical and electrical hazards. Paragraph (a) would require electric circuits and equipment to be deenergized before electrical or mechanical work is performed on them, except when energization is necessary for performing mechanical work. This provision would assure that persons are protected against shock and electrocution, as well as being caught in or pinned by equipment.

From 1978 through 1988, there were 209 electrical injuries, including 40 fatalities, involving contact with voltages over 650 volts. During the same time period, MSHA estimates that 510 accidents, 19 fatal, occurred during electrical maintenance work. For example, one individual was killed by contacting an energized 13,200-volt line while cleaning an insulator. If the circuit had been properly deenergized and locked out during maintenance, the fatality would not have occurred. Performance of work on equipment or circuits which were not properly locked out was a contributing factor in 309 nonfatal and 21 fatal accidents during that time. Many of the victims had attempted to work directly on energized circuits. The proposed standard would strengthen existing standards to assure that electrical and mechanical work is performed with minimum risk, and that involved circuits and equipment are deenergized unless power is essential to performing mechanical work.

Paragraph (b) would require installation of individual padlocks for each person performing work and individual tags identifying each person to prevent the circuits from being inadvertently energized and equipment set in motion prior to the completion of work. Additionally, to assure the safety of each individual, only the person installing a padlock or tag would be permitted to remove it. The provision in existing §§ 56/57.12016 allowing authorized persons to remove locks and tags would not be retained under the proposal in order to enhance miner safety.

There may be some unusual circumstances in which the mine operator could demonstrate a need to remove an employee's lock. Recently, the Occupational Safety and Health Administration (OSHA) issued a final rule with such an exception. (54 FR 36644) Under the OSHA rule, the employer could remove an employee's lock if, at a minimum, the employer has procedures to: verify that the employee is not at the facility; make all reasonable efforts to contact and inform the employee that the lock has been removed; and ensure that the employee knows that the lock has been removed before resuming work at the facility. The Agency solicits comments on whether and under what circumstances such an exception would be appropriate for metal and nonmetal mining.

At least two of the fatal accidents previously mentioned occurred when power was accidentally applied to circuits being tested. The proposed requirement would greatly reduce the likelihood of accidental reenergization before all persons are able to place themselves out of danger, or before each person working on the circuit is identified. Each individual would be made responsible for installing and removing a padlock and tag. At the change of shifts, it would be the responsibility of a foreman or other supervisory personnel to assure that the circuit or equipment being worked on is properly tagged or locked out.

The rule would specifically require a padlock for locking out purposes since this device is presently in use throughout the industry. Most electric equipment in use is capable of easy installation of a means to attach a padlock. The Agency does not foresee a necessity for extensive alteration of equipment designs for compliance purposes. MSHA considers padlocks to be the most reliable, tamper proof devices available for the purpose.

The need for both locks and tags stems from the nature of the mining industry. Specifically, the underground environment is normally quite dark, making it difficult to visually ascertain whether a tag has been affixed to a circuit. Additionally, mining differs from other industries in the lengths of the circuits used. An electrical cable used underground may extend hundreds of feet, snaking around corners and entries. Such use would be unusual in a non-mining setting. These conditions facilitate the possibility of electrical accidents, absent appropriate precautions, and indicate a need for requiring both locking-out and tagging of electric circuits or equipment before work is performed on them. However, MSHA solicits comment on whether to permit the option of tagging out circuits and equipment alone in surface facilities and structures which are more similar to typical industrial atmospheres.

Paragraph (c) of the proposed rule would permit testing to locate electrical problems and adjusting of energized circuits, provided safety precautions are taken. The circuit voltage would have to be 1040 volts or less, the work performed by a qualified electrician, as specified in proposed §§ 56/57.12100, and procedures, tools and equipment used which are designed to assure personal safety. This would be an option only when it would be impractical to deenergize the circuit. The term "troubleshooting" was deleted and the word "adjusting" is now used for clarification.

Sections 56/57.12201 Plugs and Receptacles

This standard would revise existing §§ 56/57.12007. It would help to reduce shock and burn hazards by prohibiting the practice of making or breaking cable connections under load on circuits greater than 150 volts, line-to-ground. The proposal has been clarified by inclusion of a voltage limitation, and would allow for connectors of the load-break type. The title of the preproposal draft standard "Load-Break Disconnects," was revised in response to comments that the title and standard's language were inconsistent.

Some commenters suggested the voltage level be raised to 480, while others suggested it be deleted. It was also suggested that the value be made 150 volts to achieve consistency with other proposed standards. A value of 150 volts, line-to-ground was chosen because it would not diminish the safety measures intended by the standard.

Sections 56/57.12202 Fuses

This section is derived from existing §§ 56/57.12036 and 56/57.12037, and would address shock and burn hazards that may be created when installing or removing fuses by hand. Some commenters were concerned that the preproposal draft did not allow the use of "screw-in type fuses," which can be safely handled without the use of a tool. The proposal provides for the use of "tools or procedures," that would prevent electric shock or burns. This

language would have the effect of permitting the use of screw-in type fuses. One commenter recommended that the proposal not allow a fuse to be installed by hand in an energized circuit. This recommendation was not adopted, since some fuses can safely be installed by hand in energized circuits using the proper procedures.

Sections 56/57.12203 Cable Handling

Existing §§ 56/57.12014 and 56/57.12039 would be revised under this proposed standard for handling energized cables. Paragraph (a) of the proposal would prohibit movement of power cables energized to a voltage in excess of 150 volts line-to ground by other equipment unless sleds or slings insulated from the equipment are used. To avoid confusion, the standard specifies that the pulling or dragging of a trailing cable by the equipment it powers would not be prohibited.

Several commenters suggested that MSHA accept the alternative use of shielded cable with ground fault tripping set at 25 amperes. These measures do not provide sufficient personal protection against shock, because 25 amperes is five-thousand times the accepted safe level of current, according to information made available to the Agency. Some commenters suggested that MSHA limit the application of the proposed rule to cables of more than 650 volts, line-to-line. This recommendation was not adopted, because the hazards addressed also apply to cables of 650 volts or less, line-to-line.

Paragraph (b) is derived from existing §§ 56/57.12104. It would require the use of insulated hooks, tongs, slings, gloves, mitts, aprons, or other insulated personal protective equipment capable of protecting against shock when power cables energized to a voltage in excess of 150 volts line-to-ground are moved manually. One commenter suggested that insulated aprons should be an acceptable means of personal protection for cable handlers. This recommendation was adopted, and the proposal includes examples of equipment which would be acceptable for compliance purposes. The specific equipment used would be left to the discretion of the operator, provided it offers adequate miner protection.

Paragraph (c) would set standards for the maintenance of insulated handling equipment. It would have to be examined before each use for visible signs of damage or defects, and removed from use when damaged or defective. These procedures would assure that miners will not rely for their protection on equipment which no longer retains its protective characteristics.

Under paragraph (d), surplus trailing cables serving shovels, cranes and similar equipment would be required to be stored in cable boats, on reels mounted on the equipment, or in some other manner which would protect them from mechanical damage. Compliance with this provision would assure that when surplus cables are put into use, they will not expose miners to shock or fire hazards. One commenter recommended that paragraph 1(b) of the preproposal draft dealing with storage of surplus cables be combined with preproposal draft §§ 56/57.12–65. This suggestion was not adopted, because preproposal draft standard §§ 56/57.12–65 dealt with guarding.

Sections 56/57.12204 Access

This section would revise existing §§ 56/57.12019. Its purpose is to prevent electric shock by providing for the minimum amount of safe working space around energized electric equipment. Under paragraph (a), working space would be required around installations and equipment constructed after the effective date of the rule, where access to exposed energized electric equipment is necessary.

The proposed rule would clarify the term "suitable clearance" in the existing standard by including a table of minimum working spaces derived from the National Fire Protection Association, Inc. (NFPA), 70 E. Table 56/57.12204 would accompany the standard, along with explanatory materials. Some commenters suggested that the table should not apply to stationary, mobile or portable installations. However, the Agency believes that the proposed table incorporates safe working area clearances for all types of equipment.

Commenters also suggested that the table should only apply to new installations, because "suitable clearance" has been accepted in the past. In response, the proposal would apply only to equipment installations constructed after the effective date of the proposal. This would minimize the economic impact of the requirement, while upgrading overall safety. For existing installations, the standard would provide for an alternative to compliance with Table 2, by allowing the use of precautionary measures which protect persons from electric shock or burns. Examples of such measures would be deenergization or the use of insulated gloves or insulated blankets.

Guarding; Insulation; Separation

Sections 56/57.12300 Connections and Grids

Existing §§ 56/57.12023 would be revised under this section. It would require insulation of exposed electric connections and resistor grids. Where insulation would be impractical, they would be required to be guarded to prevent inadvertent contact by persons or equipment. The existing standard contains specific language that permits protection by location as an acceptable means of compliance. The preproposal draft revision deleted this language. Several commenters requested that it be retained in the proposed rule to provide an alternative method of compliance. This language was not retained because parts protected by location are not considered exposed and would not be addressed under the standard.

For purposes of this section, a connection or resistor grid would be considered to be exposed if it is bare and inadequately protected by guarding, isolation or insulation. Under the proposal, insulating or guarding would only be required for exposed electric connections and resistor grids that are not otherwise protected by their location. Insulation would be preferred to guarding. However, guarding may be used to comply with this standard where insulation would be impractical. The existing standard applied to all connections and grids and needed specific language to allow for the alternative of protection by location. Requiring guarding of connections and grids which are located so as to prevent contact would be unnecessarily redundant.

Some commenters recommended that the term "bare" be substituted for the term "exposed." This recommendation was not adopted because exposed more accurately describes the hazardous conditions addressed by the standard.

Sections 56/57.12301 Communication Conductors

This standard would revise existing §§ 56/57.12010 and 56/57.12048. Paragraph (a) would require all communication conductors to be isolated or insulated to prevent them from contacting bare energized parts. The provision would apply only to bare energized parts, while existing §§ 56/57.12010 applies to all energized power conductors and sources. The Agency's view is that proper insulation or isolation would address the shock hazard.

Paragraph (b) would require communication conductors carried on

poles supporting insulated power conductors to be located below the power conductors. Persons working on communication conductors are exposed to shock hazards from power conductors located on the same pole. The preproposal draft standard encompassed insulated and uninsulated power conductors, and would have required a space of at least 30 inches between conductors to provide access to the higher conductors. In response to comments, the proposal would apply only to uninsulated power conductors, and the 30-inch spacing requirement has been deleted.

Paragraph (c) would prohibit attachment of communication conductors to a crossarm that carries uninsulated power conductors. Several commenters suggested insertion of the phrase "if located below power conductors." This recommendation was not adopted because paragraph (b) would require all communication conductors to occupy the lower pole position when the pole is shared by a power conductor. The proposed rule would delete incorporation by reference to the NEC in existing §§ 56/57.12048, and would instead include specific compliance requirements.

Sections 56/57.12302 Lights, Guarding

This standard would revise existing §§ 56/57.12034 and would require guarding of portable extension lights and lights less than eight feet above travelways and working places to prevent a hazard to persons. The existing standard contains a height reference of seven feet, which was changed to eight feet in the preproposal draft. The eight-foot height reference would be retained, despite commenters concerns that it may not be possible in all mines.

Lights which are seven feet or less above travelways and working places are within easy reach of individuals of average height. An eight-foot clearance would place lights out of the reach of most persons, and assure that they would not be injured by inadvertent contact with lighting components. In mines where an eight-foot clearance is not attainable, the alternative protection of guarding to prevent hazards would be available under the proposal.

Paragraph (b) would require guarding of other types of lights when they present a hazard to persons, and paragraph (c) would prohibit lamps from contacting combustible materials. One commenter suggested the standard should require guarding of lamps to provide protection against falling glass from a broken lamp or one that has exploded. A broken or exploded lamp could create a shock or burn hazard and would be covered under paragraph (b) of the proposed standard. Additionally, the standard would address the risk of fire from mine lighting.

Sections 56/57.12330 Transformers

This standard would revise existing §§ 56/57.12026, 56/57.12067 and 56/57.12068. Paragraph (a) would require compliance with one of four equally protective alternative methods of preventing persons from inadvertently contacting energized transformer parts. Transformers would be required to be of the totally enclosed type, or installed so that exposed energized parts are at least eight feet above the ground. An eight-foot elevation of these parts would be permitted as an alternative to an enclosure because it exceeds the height of the tallest person, and inadvertent contact with the bare energized parts would be difficult.

Additionally, guarding could be achieved by installing the equipment in a transformer house or surrounding it by a sturdy fence at least six feet high and separated by at least three feet from any parts, casings or energized conductors. Any of these four methods of isolating or separating transformer parts from contact would be acceptable to the Agency. Some commenters recommended that transformers of 650 volts or less, line-to-line be specifically excepted from the requirements of the proposed standard because compliance would be difficult. The Agency believes that the allowance of four alternative methods of compliance would remove the need for such an exception.

Paragraph (b) would require gates or doors of transformer enclosures to be locked to prevent unauthorized access to exposed energized parts which are less than eight feet above ground. Locking would minimize the risk of unqualified persons gaining access to the transformer enclosure and being shocked or electrocuted. The phrase "gates or doors" was added to the provision, and the term "exposed" was substituted for "bare" to clarify the standard's intent. Finally, paragraph (c) would require metallic transformer houses and fences to be connected to the metallic case of the safety grounded transformer. This would assure that fault conditions would not energize the metallic structure of the equipment.

Sections 56/57.12331 Substations

This standard is derived from existing §§ 56/57.12026 and 57.12085, and would contain guarding requirements for substations. The proposed rule was revised to require enclosure of substations containing exposed energized parts subject to inadvertent contact by persons. Additionally, when the enclosure is a metallic fence or structure, it would be required to be connected to the substation's safety grounding system to minimize shock hazards.

Connections; Switches; Controls

Sections 56/57.12400 Identification

This standard would revise existing §§ 56/57.12018. It would require circuit breakers, trolley taps, fuse switchboxes and other disconnecting devices to be legibly, durably and distinctively marked to show which electric equipment they supply. This standard would assure accurate identification of equipment and their protective devices, and reduce the risk of inadvertent energization of equipment or circuits being worked on. Devices which can be identified by their proximity to the equipment would be exempted from the requirement. The recommendation of one commenter to remove the exception from the standard was not adopted, as it would result in requiring unnecessary labeling of all circuit breakers and disconnect devices.

The proposal adopts commenters suggestions for substituting the term "devices" for "switches" to allow for state-of-the-art equipment. The word "other" was added for clarity since circuit breakers are also disconnecting devices.

Sections 56/57.12401 Insulating Mats

This standard is derived from existing §§ 56/57.12020. It would prevent electric shocks and electrocutions by requiring insulating mats at all switchboards and power-control switches where energized parts create shock hazards. The existing standard requires protective insulation at all switchboards and power-control switches, including on units of mobile equipment, where shock hazards exist. The proposal would apply only to switchboards and control switches where a hazard exists due to exposed energized parts, including on mobile equipment. The broader scope of the existing standard was not retained because the hazard to persons is far less when energized parts are not exposed and cannot be contacted.

Several commenters suggested changing the term "exposed" to "bare." However, IEEE Standard 100–1977 defines exposed parts as live parts "that can be inadvertently touched or approached nearer than a safe distance by a person." The preproposal draft wording has been retained because it clarifies the intent of the standard and

achieves consistency with the other proposed standards.

Some commenters recommended that the standard allow for the use of grounded metallic plates as an alternative to insulating mats. With the use of metallic plates, if a person contacts a live part or an internal component of equipment, an electrical path is completed to ground through the person, resulting in an electrical injury or electrocution. Use of an insulating mat may prevent this type of occurrence. Other commenters expressed concern about the effectiveness of the mat when covered with water. Under this condition the mat is no longer insulating and would not meet the requirements of the proposed rule. One commenter expressed concern that the revision, unlike the existing standard, would fail to provide protection for persons exposed to electrical fault conditions. This hazard would be addressed in the proposed safety grounding provisions of this subpart.

Sections 56/57.12402 Undervoltage Protection

This proposed standard would be new, and would prevent the unintentional start-up of electrically-powered equipment such as mine hoists, elevators, tool heads, arc welders and conveyor belts. Starting of such machinery without warning can expose persons to crushing and pinning accidents, as well as entanglement in equipment parts. To prevent these occurrences, electric powered machinery must be equipped with undervoltage protection.

The proposed standard would require that upon loss of voltage, the equipment remain deenergized until manually restarted. Undervoltage devices are designed to detect the voltage of the circuit and cause the circuit breaker to open and deenergize the circuit upon a sudden loss of voltage, and keep it deenergized until manually reset. Otherwise, unexpected start-up of belts or equipment could injure miners.

Several commenters requested clarification of the term "undervoltage." Some commenters indicated the use of undervoltage is much broader than the phrase "loss of power," and recommended the title be changed to "loss of power protection." This recommendation was not adopted because the term undervoltage more clearly expresses the Agency's intent.

The concept of "undervoltage protection" is based on the *IEEE Dictionary of Electrical and Electronics Terms*, Standard 100–1977, definition as "the effect of a device, operative on the reduction or failure of voltage, to cause and maintain the interruption of power to the main circuit. Note: The principal objective of this device is to prevent automatic restarting of the equipment. Standard undervoltage or low-voltage protection devices are not designed to become effective at any specific degree of voltage reduction."

One interpretation of the term characterizes undervoltage as a large percentage drop in system voltage, as opposed to a total loss of voltage. The proposed language would eliminate the occurrence of circuit trips when there is a sudden load on the system resulting in a normal voltage drop. For example, use of a high-voltage continuous miner can create a heavy load on the system, with no resultant hazard. Pumps, level control circuits and equipment that by design can automatically start and stop safely would not be required to have undervoltage protection. Such a requirement would be unnecessarily restrictive.

Section 57.12460 Branch Circuit Disconnecting Devices

This standard would revise existing § 57.12084, applicable to underground metal and nonmetal mines. It would require the use of disconnecting devices underground at all branch circuits extending from primary power circuits. This provision would allow main power circuits to remain energized, while permitting deenergization of branch circuits to perform work or repairs. It would eliminate the need for the dangerous practice of performing work on energized circuits.

Paragraph (a) would require such devices to be designed to be opened under load without hazard to persons. This would limit the occurrence of electrical injuries caused by arcing or sparking when devices are opened under load. Some commenters suggested the words "designed to be opened under load" be substituted for "that can be opened under load," used in the preproposal draft. This recommendation was adopted, because all disconnecting devices designed to be opened under load without hazard by necessity can be opened under load without hazard.

Paragraph (b) would require disconnecting devices for underground branch circuits to be located as close as practical to shafts, adits, levels and boreholes. Compliance with the provision would facilitate quick access to the devices in case of an emergency situation.

Under paragraph (c), disconnecting devices would be required to be provided with a means of visually showing that the branch circuit is disconnected when the device is open. Compliance with the standard would eliminate the risk of unknowingly working on an energized circuit. Several commenters suggested substituting "indicate" for "visually show" to allow the use of molded case circuit breakers, vacuum breakers and others. This recommendation was not adopted because the possibility exists that an indication could give a false signal that the device is open, when it is not open. The proposal was revised to require visual disconnects only for disconnecting devices at branch circuits extending from primary power circuits and to allow alternate means of compliance.

Safety Grounding

Sections 56/57.12500 Grounding

This section would revise existing §§ 56/57.12025 and 56/57.12027. It would require mines that use electricity to have safety grounding systems, and give performance objectives for such systems. From 1978 through 1988, MSHA estimates that there were 150 grounding-related accidents in metal and nonmetal mines, including 14 fatal injuries. These figures indicate the need for reliable safety grounding systems for the protection of miners.

The proposed standard does not specify design criteria for the grounding system. The methods and designs used to achieve this goal would be left to the designer of the system. The preproposal draft contained an equation, ($V^2t=30375$), that some commenters objected to. It has been deleted from the proposal and placed in Appendix 1 as a reference. The performance objective of the proposal can be obtained by using the equation or other methods.

The equation was derived from IEEE Standard 80–1976, § 4.3 (Duration); $I^2t=0.0135$. The equation used in the proposal's appendix differs from the IEEE equation because it relates voltage to time with an assumed body resistance of 1500 ohms whereas, the IEEE equation relates current to time without assuming body resistance. The body resistance factor may make the proposal equation easier to use.

The 1500 ohm value is based on Underwriters Laboratories, Inc., "Standard for Ground-Fault Circuit Interrupters" (UL 943). This value is 50 percent higher than the recommended value of 1000 ohms in IEEE Standard 80–1976, § 5, but safety would not be diminished because the 1000 ohm value does not factor in contact resistance to Earth.

Some commenters suggested that the standard should apply only to fault

conditions of more than 100 volts. However, information available to the Agency indicates that a shock hazard could exist using this voltage. This has been shown by C.F. Dalziel, a recognized authority on shock hazards, using the equation $I^2t=0.0135$, developed by Dalziel. (Ref. IEEE Standard 80–1976). According to Dalziel, values below this curve, for current and time, will provide protection for 99.5 percent of the population against ventricular fibrillation.

IEEE Standard 80, § 4.3 (Duration), used this equation as a basis for determining shock hazards and designing substation ground grids. One hundred volts can be tolerated for approximately 3 seconds, if the assumption is made that the person's total resistance is 1500 ohms. Therefore, to achieve compliance with the standard, a voltage of 100 volts, for example, would have to be cleared within three seconds, so as not to present a disabling or fatal shock. In addition, MSHA fatality data documents that persons have been killed through exposure to voltages less than 100 volts. For example, a welder was killed when his neck came into contact with the electrode of an electric welder energized at approximately 80 volts.

In response to some commenters, the proposal was modified to limit the number of faults that must be used to determine if a shock hazard exists. On grounded systems, a line-to-ground fault would be used to determine if a shock hazard exists. On ungrounded systems, a double line-to-ground fault with one of the faults at the source would be used. The operation of lightning arresters and faults in the utility system have been removed from the proposal.

Paragraph (b) would require the voltage on non-current carrying metallic parts of equipment to be controlled by limiting the magnitude or the duration of the voltage, or a combination of both. Appendix I, following the proposed rule, would be a useful guide for compliance purposes. Using the formula in the appendix, a voltage of 100 volts, for example, should be cleared within three seconds. This would limit the possible exposure time to voltages capable of causing injury or death to persons.

Some commenters questioned the method to be used to limit step and touch potentials. Using IEEE Standard 80, ground grids can be designed around any substation for the purpose of limiting step and touch potentials. The resistivity, or resistance of a volume of Earth, of the soil in which the grid is placed is a minor factor in determining the grid design.

Sections 56/57.12501 Alternating-Current Equipment

General grounding requirements for a-c equipment would be addressed by this standard, which is derived from §§ 56/57.12025, 56/57.12027 and 56/57.12033. Paragraph (a) lists structures to be connected to the safety grounding system by equipment safety grounding conductors. For reasons discussed in connection with the proposed definitions, the term "equipment safety grounding conductor" is employed by the proposal. The format of the preproposal draft has been altered in response to recommendations made by commenters. Alternating-current and d-c equipment are addressed in separate sections, and portable, mobile and stationary equipment are addressed within those standards.

Metallic frames, enclosures and other exposed non-current-carrying metallic parts of electric equipment would be required to be connected to the safety grounding system by equipment safety grounding conductors. Therefore, a common safety grounding system would be shared by the unit of equipment and exposed non-current-carrying metallic parts associated with it. In case of insulation failure on a power conductor, which can allow contact between the energized conductor and some portion of a metallic enclosure, the enclosure may become energized with the voltage of the conductor. Anyone contacting the enclosure would then be exposed to the voltage of the conductor. A common safety grounding system would assure that no difference in voltages capable of injuring or electrocuting miners would exist between the structures.

Metallic fences and barriers around high-voltage equipment and installations would also have to be connected to the safety grounding system by equipment safety grounding conductors. This would prevent the occurrence of abnormal voltages on the structures due to contact with an energized conductor. A person who brushes against or leans upon an energized fence, for example, could otherwise be exposed to a serious shock hazard if the fence is not properly connected to the safety grounding system.

Metallic enclosures of a-c conductors would also be required to be connected to the safety grounding system by equipment safety grounding conductors. Therefore, a complete grounding path would be provided for enclosures of a-c conductors, to minimize the risk of harm to persons contacting them. Equipment safety grounding conductors would also be required to connect metallic messenger wires to the safety grounding system. Messenger wires are sometimes used to support single-conductor energized cables in mines. If a splice in such a cable should become damaged where it is supported by messenger wire, the messenger wire could become energized with the voltage of the cable. This would present shock and fire hazards where energized messenger wires contact other structures.

Metallic structures or racks which support electric equipment or conductors would be addressed under the provision. Cable trays which hold energized power cables would be an example of structures addressed by the standard. A breakdown in the cable's insulation could cause the metallic tray to become energized with the voltage of the conductor, presenting a possibly lethal hazard to persons unknowingly coming into contact with the tray. Under the proposal, the tray would be required to be connected to the safety grounding system in order to limit the voltage which could occur on it.

Paragraph (b) would require metallic cable shielding to be connected to the safety grounding system by equipment safety grounding conductors at each termination. This provision would ensure a complete, low-impedance path to the safety grounding system, to prevent stray voltages from energizing the shielding and creating a shock hazard.

Before batteries on battery-powered equipment are connected to a battery charger, paragraph (c) would require the metallic battery trays to be connected to the grounded metallic frame of the charger by equipment safety grounding conductors. Trays would be required to remain connected to the frame until the batteries have been disconnected from the charger. A primary to secondary fault could energize the entire equipment frame. Under the proposed standard, this occurrence would be prevented, since faults would be cleared by the safety grounding system. This standard is intended to apply only to battery-powered equipment, and not all equipment which is started by the use of a battery.

Over the last twenty years, accidental energization of equipment being serviced by battery chargers has occurred, with resulting death to persons who unknowingly contacted the energized equipment frame. The proposed grounding standard would help to reduce the occurrence of similar accidents in the future by assuring that battery trays are properly connected to the safety grounding system during operations which pose a risk of electrical injury. In response to one

commenter's concern, it should be noted that the proposal is not intended to apply to automobiles and trucks, since it addresses battery-powered, rather than battery-started, equipment.

Paragraph (d) would require metallic cable hangers or supporting structures to be connected to the safety grounding system or insulated from the cable. These precautions would protect persons from shock and fire hazards should damage to the cable occur.

Under paragraph (e), exposed metallic enclosures of hand-held electric equipment would be required to be connected to the safety grounding system, except in three instances. Equipment which is double insulated, as determined by an independent testing laboratory, and which does not present a shock hazard, or equipment which is operated at a maximum of 40 volts would not be required to be connected to the safety grounding system.

Hand-held equipment which is double insulated would be exempted from the standard, because two independent insulation systems would provide adequate protection against shock hazards. Damage to one of the insulation systems would not expose miners to energized parts. Some nationally recognized private concerns perform insulation testing to assure that dangerous leakages of current will not occur. Equipment which has been listed by such groups as double-insulated, and which would not present a shock hazard would be acceptable to the Agency for purposes of the exception.

Some commenters stated that even double insulated tools should be grounded with a safety grounding conductor. However, the Agency believes that this would place an unnecessary restriction on the use of equipment that is generally accepted as being safe to operate without an equipment safety grounding conductor. Tests conducted by MSHA contained in Publication U.S.D.O.L. IR–1081 (1978), support the position that double insulation is a safe alternative to equipment safety grounding for hand-held tools. Other commenters expressed concern that the use of double insulated tools would be unsafe in wet locations. However, requiring an equipment safety grounding conductor would not make double insulated tools any safer to use in wet locations. The majority of hand-held electric equipment, with or without equipment safety grounding conductors, is not designed to be used in wet locations.

Under paragraph (f), generator powered equipment mounted on the same metallic frame as the generator would not be required to be connected to the mine's safety grounding system. This would exempt the specified equipment from the requirements of the standard, as it is a self-contained unit. Therefore, there is no likelihood of the occurrence of differing potentials on the metallic frame. No safety advantage would be gained by connecting such equipment to the safety grounding system.

Sections 56/57.12502 Direct-Current Equipment

This standard would revise existing §§ 56/57.12025 and 56/57.12027, and would contain grounding requirements for d-c equipment. The terms "grounded" and "equivalent protection" in the existing standards have been replaced with specific requirements. Mine operators have expressed their opinion that these terms are vague and subject to varying interpretation and misunderstanding. Accidents have resulted where the standard has been interpreted to mean that any connection to earth provides acceptable safety grounding. The proposal also sets necessary exceptions to the requirement for equipment that must be connected to the mine's safety grounding system.

This section would also list several types of equipment and structures which would be required to be connected to the mine safety grounding system by equipment safety grounding conductors. It would address metallic frames, enclosures and other exposed non-current-carrying metallic parts of conductors and equipment, metallic messenger wires used to support d–c conductors, metallic racks and structures used to support trolley wires and trolley feeder wires, and metallic overcasts in trolley systems.

For reasons discussed in connection with the previous section, shock and fire hazards would be prevented by the proposed requirements. Several commenters expressed their view that it is not necessary to require grounding of all d–c systems or rubber-tired trolley assist systems. However, in MSHA's view, metallic frames that enclose or are subject to becoming energized by electric circuits must be safety grounded to prevent injuries or fatalities to persons who contact them. The same hazards to miners exist on this type of equipment as any other equipment frame. Therefore, the same necessity for effective safety grounding exists.

Paragraph (b) would require silicon diode grounding systems to be installed in accordance with proposed §§ 56/57.12504, which would detail safety requirements for that method of grounding. Paragraph (c) would require that component parts of complete units of equipment be solidly connected to the frames of the equipment for grounding purposes, to assure a common connection to the safety grounding system.

Under paragraph (d), equipment which is double insulated, as determined by an independent testing laboratory, and which does not present a shock hazard, or equipment powered by internal batteries which are an integral part of the equipment, or equipment which is operated at a maximum of 40 volts, would not be required to be connected to the safety grounding system. These types of equipment would be exempted from the requirements of the standard for reasons discussed in connection with paragraph (e) of the previous section.

Paragraph (e) would be an exception to the proposed standard. Generator-powered equipment mounted on the same metallic frame as the generator would not be required to be connected to the mine's safety grounding system. As discussed in connection with the previous section, no safety advantage would be gained by connecting such equipment to the safety grounding system.

Sections 56/57.12503 Equipment Safety Grounding Conductors

Design and performance requirements for equipment safety grounding conductors would be addressed in this proposed section, which is derived from existing §§ 56/57.12025 and 56/57.12027. Equipment safety grounding conductors are an essential part of grounding systems in that they are used to connect non-current-carrying exposed metallic parts of equipment and structures to the mine safety grounding system. They are the means of preventing the appearance of dangerous voltages on equipment frames and structures by providing a path from the equipment to the safety grounding system. Proper performance and design of these conductors are essential to the prevention of electrical accidents related to inadequate or ineffective grounding conductors.

Paragraph (a) would require that equipment safety grounding conductors for portable and mobile electric equipment be one or more stranded copper conductors contained within the cable or flexible cord supplying the equipment. Grounding conductors should be enclosed inside cables serving heavily-used portable or mobile electric equipment in order to protect them from physical damage and deterioration. Stranded copper conductors would provide the necessary flexibility and

strength for use within cables or flexible cords.

Paragraph (b) would set requirements for equipment safety grounding conductors for stationary equipment. They would be required to be contained together with the circuit conductors in the raceways, cables, or cords, or wrapped around the raceways, cables or cords containing the circuit conductors, or a continuous metal framework, conduit, or metallic conducting medium that complies with the voltage exposure requirements of proposed §§ 56/57.12500. The closer the grounding conductor is located to the power conductor, the less impedance exists between the two. Thus, fault currents will follow the conductor to the safety grounding system, and not directly to earth. Minimum impedance would facilitate effective operation of the equipment safety grounding conductor.

Paragraph (c) would detail the required cross-sectional area of equipment safety grounding conductors. When the circuit conductor is No. 6 AWG (American Wire Gauge) or larger, the combined cross-sectional area would be required to be equal to or greater than one half of the cross-sectional area of the circuit conductor. When the circuit conductor is smaller than No. 6 AWG, the combined cross-sectional area of the equipment safety grounding conductor would have to be equal to that of the circuit conductor.

These conductor sizes, at a minimum, would assure that they are capable of safely carrying the currents to which they may be exposed, and also provide the necessary mechanical strength. The sizes are consistent with the recommendations made in the Bureau of Mines Final Report, No. G0155102, entitled "Open-Pit Metal Mining Grounding Systems." The report resulted from work done by the Pennsylvania State University on behalf of the Bureau of Mines.

Paragraph (d), would require equipment safety grounding conductors installed outside of raceways, cables or cords, and used to ground stationary equipment to be No. 6 AWG or larger. Equipment safety grounding conductors of this size would be able to withstand physical damage and deterioration from the harsh mining environment. Otherwise, the flexing and movement to which such cables are subjected could cause damage to the grounding conductor without damaging the larger phase conductors.

Under paragraph (e), switches, fuses, circuit breakers, ground-fault devices and overcurrent devices would be prohibited from being installed in equipment safety grounding conductors. This would be a preventative measure to ensure that the devices specified could not interfere with the operation of the grounding conductor.

Paragraph (f) of the proposed rule would require ground-wire devices installed in the equipment safety grounding conductor for the purpose of suppressing inter-machine arcing, or in conjunction with ground-wire monitoring systems, to be substantially designed and constructed to withstand the maximum amount of phase-to-phase current to which they may be exposed from simultaneous ground-faults. The effect of this provision would be to permit the use of arc suppression devices, which can minimize shock hazards, if they are substantially designed and constructed to perform their intended function despite elevated fault currents. The proposal would provide standards designed to assure that the use of such devices would not increase the possibility of electric shock hazards.

Paragraph (g) of the proposed standard would require that when ground-wire devices addressed by paragraph (f), such as arc traps and ground-wire monitor filters and diodes, are used, they would have to be connected to the safety grounding system by two separate equipment safety grounding conductors. A single ground-wire monitor is not capable of detecting both the integrity of the ground-wire and whether ground-wire devices are properly connected to the safety grounding system. The proposed standard would provide for a back-up equipment safety grounding conductor connection in case one should fail or become damaged. A second conductor would ensure that the grounding conductors will not become open, without the expense associated with a second ground-wire monitor. MSHA solicits comment on the necessity of a second equipment safety grounding conductor, and the safety benefits thereof.

Under paragraph (h), separate connections to the mine track, the grounded return-feeder conductor, or the metallic frame or enclosure used as the safety grounding system would be required for the equipment safety grounding conductor and the return power conductor on d-c powered equipment. If the equipment safety grounding and return conductors are attached to the safety grounding system by the same connection, both could easily be dislodged or damaged. If both are simultaneously dislodged, the frame of the equipment could become energized, creating a risk of electrical injury to miners. Separate connections would assure the integrity of the safety grounding system, and address the hazards.

Paragraph (i) would require equipment safety grounding conductors for draw-out equipment or plugs and receptacles to be the first conductors connected when making connections, and the last conductors broken when breaking connections. In this way, the safety grounding system for the equipment would remain intact while draw-out units, such as circuit breakers, are being installed or removed. Therefore, ground-fault protection against arcing and ignitions would be provided while devices are being withdrawn or separated.

Under paragraph (j), when power is supplied between separate metallic parts of equipment, the parts would be required to be connected together through an equipment safety grounding conductor. Compliance with this provision would assure that hazardous potentials do not develop between the component parts of the equipment. For example, a person contacting the metallic headlight enclosure of a unit of equipment which is not properly connected to the frame of the unit could receive an electrical shock if the voltage which exists on the headlight enclosure differs from that of the equipment frame. Grounding through a common safety grounding system would serve to minimize the possibility of such an occurrence.

Paragraph (k) would require the frame of a portable or mobile generator supplying remote loads to have equipment safety grounding conductors connecting the frames of each remote load to the frame of the generator. This standard would address power take-off equipment, for example. It would assure that remote loads and the equipment supplying them are connected to a common safety grounding system.

Finally, paragraph (l) would require equipment safety grounding conductors to be bare or properly identified. The effect of this provision would be to identify the conductors that are the connection to the safety grounding system. This section would assure that persons would not mistake the equipment safety grounding conductor for a power conductor. The standard would minimize the possibility of an equipment safety grounding conductor being connected to an incoming power conductor and energizing the equipment frame.

Sections 56/57.12504 Silicon Diode Grounding

This section of the proposal would govern the use of silicon diode grounding, and is derived from §§ 56/57.12025 and 56/57.12027. It would make clear under what conditions silicon diode grounding would be permitted. The proposed standard would contain specific design and performance standards for silicon diode grounding of metallic frames, enclosures, or other exposed non-current-carrying metallic parts of off-track equipment.

Under the proposed standard, when the metallic frames of off-track equipment are grounded by silicon diodes, the diode grounding system would have to meet several requirements. The standard would allow for the compliance alternative of silicon diode grounding, but only if proper safety precautions are taken. These proposed requirements are similar to the conditions typically included in petitions for modification of mandatory standards granted by the Agency on the grounds that the alternative compliance scheme provides equivalent miner protection.

Under paragraph (a), the polarity of each grounding diode would be required to be compatible with the grounded polarity of the d-c system. When the polarity of the grounding diode is proper, current will only flow from the frame of the equipment to the grounded power conductor during faults. However, if the polarity is reversed, dangerous voltages would remain on the frame of the equipment. Further, the overcurrent devices which would be required by paragraph (c) of the standard would be unable to detect the occurrence of a ground-fault if polarity was reversed. Reversed polarity could therefore defeat the safety grounding system, and expose miners to electrocution hazards.

Under paragraph (b), each grounding diode would be required to have a threaded base used to solidly connect the diode to the machine frame. This provision would also serve to ensure a proper, complete grounding path for off-track equipment. It would prohibit the use of "hockey-puck" style connections, which utilize a pressure connector. Unlike hockey-puck connections, a threaded base diode would screw into the frame of equipment, keeping debris from interfering with the connection and the correct functioning of the diode. The standard would also preclude the use of welding for such connections, as the heat involved with the process could destroy the diode.

Under paragraph (c), an overcurrent device would be required to be installed between grounding diodes and the grounded power conductor when a silicon diode grounding system is used. The overcurrent device would have to be designed to cause the main contactor or the circuit interrupting device to deenergize all circuits on the machine when 50 amperes or more flows through the grounding diode. The proposal would therefore require the circuit breaker to trip when a current of 50 amperes or more passes through the diode. A current of less than 50 amperes, in MSHA's view, represents a safe cut-off value. However, methane monitors would be permitted to remain functional to continuously test for dangerous gas levels despite deenergization of a circuit.

Paragraph (d) of the standard would require installation of a polarizing diode in the control circuit which prevents the unit of equipment from being operated when the polarity of the supply conductors is reversed. As discussed previously, improper polarity of the diode can defeat the grounding system. Under this provision, operation of equipment would be made impossible if the supply diode's polarity is reversed, thus preventing unanticipated energization of the frame of the equipment. The standard imposes a precautionary condition on the use of an alternative method of silicon diode grounding.

Under paragraph (e) of the proposal, the forward current rating of each grounding diode would have to be equal to or greater than 750 amperes when used to ground a continuous mining machine, or equal to or greater than 400 amperes when used to ground other equipment, regardless of the voltage of the equipment. Lower forward current ratings, in MSHA's view, could cause the grounding diode to open and fail to trip the circuit breaker during a fault, leaving the equipment frame ungrounded. The proposal would assure a safe and dependable safety grounding circuit which will not fail under overcurrent conditions for all equipment, without reference to voltage. The provision refers to the current or size of the diode, which is an alternative to requiring a grounding conductor, instead of the equipment voltage.

Paragraph (f) of the standard would require the peak reverse voltage rating of the grounding and polarizing diodes to be equal to or greater than 1,200 volts. This provision would help to prevent failure of the solid state device. Electric equipment can be subjected to severe overvoltages, which can cause the grounding or polarizing diode junction to rupture, short circuit, or open, leaving equipment frames exposed to energization. If the polarizing diode ruptures, its ability to retard the function of the control circuit would be lost. This could allow the equipment frame to be energized if polarity is reversed. The proposed standard would address these hazards.

Sections 56/57.12505 Low-Resistance Ground Fields

This proposed standard would set requirements for the design and construction of low-resistance ground fields. It is derived from §§ 56/57.12025, 56/57.12027 and 56/57.12028. Paragraph (a) of the proposal would require low-resistance ground fields used in the safety grounding system to be designed and installed in a manner to assure that the maximum exposure voltage under fault conditions does not create hazardous step and touch potentials. In evaluating ground field safety, the standard would require consideration of the parameters of the system, including soil resistivity, available fault currents, ground field construction, and the operating times of protective devices.

Under paragraph (b), low-resistance ground fields used in the safety grounding system would be required to be maintained at 25 ohms or less. Electric current follows the path of lowest resistance that it encounters. Therefore, the lower the resistance of a ground field, the more likely it is that protective devices can operate to remove ground faults and minimize the possibility of energization of equipment frames. A maximum 25-ohm resistance to earth would serve to maintain resistance at a low level to facilitate the proper operation of ground-fault protective devices.

The system resistance value may deviate from the 25-ohm maximum only if evaluation of the system in accordance with the safety considerations of paragraph (a) indicates that a lower value of resistance is necessary, or a higher value of resistance may safely be used. In this manner, some flexibility would be added to the rule to take into consideration the special circumstances of each mine and its ground-fault protection system.

Paragraph (c) would be a new requirement that the surface area of ground field materials have at least four square feet of contact with soil. For example, the use of three grounding rods measuring 5/8-inch in diameter and eight feet in length would be one method of achieving compliance with the proposed standard, since they would provide at least four square feet of contact with soil. Typically, many more

than three grounding rods are presently used in the construction of ground fields. In MSHA's view, four square feet would be a suitable minimum surface contact area to ensure that the ground field has a low resistance to earth. The proposed requirements for ground fields would aid in protecting miners from shock and burn hazards due to voltages appearing between frames or enclosures of electric equipment and earth. A safe, dependable safety grounding system would be provided for under this proposed standard.

Sections 56/57.12506 Testing

This standard would revise existing §§ 56/57.12028, and would detail procedures for testing of the safety grounding system. Existing recordkeeping requirements would be deleted under the proposal, as past experience has shown that records in this case do not give an indication of the safety of the grounding system. Other revisions are based on the results of a study of Electrical Accidents Relating to Grounding Systems at Surface and Underground Metal and Nonmetal Mines, 1978–1983, conducted by MSHA.

The study attributed at least 80 electrical accidents, including five fatalities in that time period, to either a faulty grounding system or the lack of a grounding system.[2] Additionally, the study concluded that, "Most of the accidents could have been prevented if a well designed grounding system were installed and maintained. Maintaining the integrity of the ground circuit is of paramount importance for safe operation of electrical equipment." The testing procedures outlined in the proposal would assure that problems arising in mine safety grounding systems are identified and dealt with in a prompt manner to avoid the occurrence of future injuries and fatalities.

Paragraph (a) would require continuity tests to assure the integrity of the system on all installations made after the effective date of the rule, and when repairs are made to the safety grounding system. The safety grounding system would additionally be required to be reviewed at intervals not to exceed twelve months to assure that the maximum voltage exposure under fault conditions complies with the requirements of subpart K. Initial testing and annual review of the safety grounding system would assure that installation and maintenance of the system are being properly performed, and that a complete, low-impedance ground path is available to prevent occurrence of lethal voltages on equipment frames. The standard would also simplify and clarify the testing required under the existing standard.

For mine power systems utilizing a-c voltage of less than 650 volts, paragraph (c) would require the resistance to earth of the safety grounding system's connection to earth to be maintained at 25 ohms or less, and be physically separated from the substation grounding system. The separation would be required to be the larger of 25 feet or five times the largest dimension of the safety grounding system's connection to earth. As discussed earlier, a resistance value of 25 ohms or less would provide a low-impedance path to ground for fault currents, instead of energizing equipment frames.

The standard would also take into consideration the practical necessities at each mine. It would allow deviation from the value of 25-ohms or less when such a value could not be attained, but only if the operator assures that the system complies with the ground field requirements of proposed §§ 56/57.12505. The voltage level was raised from 600 volts to 650 volts in the proposal to be consistent with other standards in subpart K.

Physical separation from the substation grounding system would prevent transmission of fault current occurring on the substation system to the safety grounding system and energizing equipment frames. Several commenters suggested that separation of the safety grounding system from the substation ground contradicts IEEE Standard 80–1976, § 16.5, which addresses separate grounds, and interconnected grounds in a substation. The IEEE Standard states that these grounds should be interconnected, but should not be used to provide safety grounding for equipment outside the substation.

This is clearly supported by IEEE Standard 142–1982, § 2.6, and accompanying figures 20 and 21(a) and (b). Figures 21(a) and 21(b) show the shock hazard that can occur when the safety grounding system is tied to the substation ground. IEEE Standard 142–1982, requires at least a 50-foot separation of ground beds. The proposal requires at least a 25-foot separation. The separation distance would increase as a function of the size of the safety grounding system's connection to earth. The required separation would be a physical separation and not a complete electrical isolation.

Paragraph (d), would contain requirements for reviewing mine power systems utilizing a-c voltages greater than 650 volts line-to-line. Review would be required to include determinations of the safety grounding system's resistance to earth at its connection to earth. Some commenters to the preproposal draft were not certain of where the resistance measurement of the grounding system would be required to be taken. The proposal would clarify that tests must be conducted where the equipment safety grounding conductor is intentionally connected to earth.

A determination of the maximum fault current able to flow into the safety grounding system, and the impedance of the safety grounding system at electric loads or sources of 500 kVA or larger would also be required. Several commenters wanted to know how to obtain the voltage exposure. There are several acceptable methods including calculations, measurements, or a combination of the two, dependent upon the configuration of the system. The voltage determinations do not have to be conducted if the system has not changed since the effective date of this standard. Some commenters suggested referencing the NEC. The proposal is largely performance-oriented, and is not intended to provide design criteria. However, the NEC could be used as a source for obtaining compliance with the proposed standard.

Paragraph (e) would require a weekly check to be made of the continuity of all mobile equipment safety grounding conductors, except when they are continuously monitored with an MSHA tested ground-wire monitoring device. The preproposal draft referenced a fail safe grounding system as a testing alternative, which generated confusion on the part of some commenters. For clarity, the proposal has been altered to allow the use of a ground-wire monitoring device tested by MSHA. These devices are available and have been required and used in mines for several years. The proposal would not require ground-wire monitors, but would permit their use as an alternate means of compliance.

Additionally, commenters requested that the interval for checking the continuity of equipment safety grounding conductors be increased from a weekly check to a monthly check on mobile equipment. In MSHA's view, a monthly interval would be too infrequent for checking equipment safety grounding conductors. Mobile equipment is constantly in motion, causing flexing and potential damage to the cables serving it, as well as equipment safety grounding conductors. Unlike phase conductors, equipment

[2] As previously noted, MSHA estimates that from 1984 through 1988, an additional 60 nonfatal and six fatal grounding-related accidents have occurred.

safety grounding conductors will not prevent a machine from operating if broken. Additionally, most mines use a weekly electrical maintenance schedule, during which the section is shut down to perform examinations and repairs. The continuity check could be done coincidentally with the maintenance shut down, under the proposal. Without frequent checks, it would be impossible to tell whether the conductor is broken or damaged, rendering the safety grounding system ineffective for preventing electric shocks. MSHA solicits comments on the appropriateness of the interval.

Power Cables and Conductors

Sections 56/57.12600 Installation

This proposed standard would revise existing §§ 56/57.12004, 56/57.12011 and 57.12082, and would address installation of cables and insulated conductors and prevention of mechanical damage to them. Paragraph (a) would require that they be installed so that they are protected against physical damage, adverse ambient conditions and failure of adjacent mechanical systems.

Several commenters expressed the view that it is impossible to protect cables from all physical damage because of the nature of mining operations and the difficulty of achieving sufficient protection. The Agency continues to believe that it is possible and necessary to protect cables from physical damage in order to assure a safe work place. IEEE Standard 242 (1975), "IEEE Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems," addresses this subject in Chapter 11 on Conductor Protection. The IEEE Standard 242 Section 11.6, "Physical Protection of Cables" addresses mechanical hazards, adverse ambient conditions and damage by foreign elements. The proposed standard would reflect the philosophy of IEEE Standard 242 by requiring protection from damage caused by vehicles, falling objects, misdirected excavation, water, chemicals, bursting pipelines and broken conveyor belts. Minor or cosmetic damage that does not reduce the protective function of the jacket would not be cited under the proposal.

Paragraph (b) of the proposal would minimize the hazard of inadvertent energization of pipelines by prohibiting their use for the support of cables and insulated conductors. However, the proposal would allow cables and pipelines to be installed on the same support, provided work can be performed on pipelines without creating a shock hazard. The preproposal draft would also have prohibited cables and insulated conductors from contacting pipelines. Several commenters indicated that no hazard is created when cables contact pipelines because cables are equipped with shielding or jackets which would protect them from damage from pipelines. In response to those comments, paragraph (c) would prohibit only insulated conductors from contacting pipelines.

Sections 56/57.12601 Ampacity

The proposed standard for cable and conductor ampacities is derived from existing §§ 56/57.12004. New ampacity tables, derived from the NEC and ICEA standards, for proper sizing of conductors would accompany the standard. Paragraph (a) would require electric conductors to be of a size and current-carrying capacity to assure that a rise in temperature resulting from normal operating conditions does not exceed the rating of the insulation and conductors. Exceeding the rating assigned by the manufacturer could expose persons to electric shock or electrocution hazards by causing deterioration of the insulation and conductors. Therefore, conductor sizes and ampacities should be compatible with the current level rated for and used in the circuit.

Under paragraph (b), branch circuit conductors supplying electric equipment would be required to have ampacities of at least 125 percent of the full-load current rating of the equipment. The 125 percent value would provide a buffer, and take the occurrence of higher than normal currents into consideration. For similar reasons, paragraph (c) would require the ampacity of feeder circuit conductors which supply multiple loads to be at least the sum of the full-load current ratings of all the loads plus 25 percent of the highest full-load current of the largest load.

Under paragraph (d), the size of conductors for electric equipment would be required to conform to ampacity Tables 56/57.12601–1 through 56/57.12601–10, or other tables appropriate for the conditions where the conductors are used. Several commenters to the preproposal draft expressed concern about being limited to using the tables supplied. The tables included in the standard are intended to be used as a reference to aid in compliance efforts. However, the use of other appropriate tables would be acceptable to the Agency, provided no safety hazards are introduced.

Some commenters requested derating factors for ambient temperatures. Under paragraph (e), conductor ampacities would be required to be corrected according to the ambient temperature where the conductor is used, if this temperature is other than the temperature at which the conductor was rated. Deterioration of conductor insulation due to a higher ambient temperature than the insulation rating could present a shock hazard. Table 56/57.12601–11 was included because the derating factors vary as a function of the rated temperature of the conductor. The determination of what value is to be used would be left to the operator.

Paragraph (f) would require that when four or more conductors are contained in the same raceway, conduit, or cable, the maximum allowable load current must be reduced according to Table 56/57.12601–12 accompanying the standard. Some commenters recommended that derating factors be included when three or more conductors are contained in a raceway. In response to these commenters the proposal includes derating factors from Article 310 of the NEC.

Some commenters expressed concern that the preproposal draft did not specify the length of conductors. Lengths were not specified, because this would impose design criteria for installations where conductors are used. These revisions are intended to be performance- rather than design-oriented where possible, while preserving a high level of miner safety.

Sections 56/57.12602 Insulation, Termination and Shielding

This section is derived from existing §§ 56/57.12008, and would specify insulation requirements for power cables and conductors. Paragraph (a) would require power cables and conductors to have insulation rated for at least the voltage of the circuit in which the conductor is applied. Trolley wires and uninsulated surface overhead conductors of more than 650 volts line-to-line would be exempted from the insulation requirement due to their use and accessibility.

A potential hazard is created when the conductor insulation rating is below the nominal impressed voltage, possibly causing the insulation to break down and result in damage to the cable. Damaged cable would present a readily available ignition source for a mine fire or explosion, as well as produce a potential shock hazard to persons handling the cable or working on or near the equipment served by the cable. The conductor insulation voltage rating is usually identified on the outer jacket of the cable. Operators could, by looking at this identification, determine the

adequacy of the cable for use in a particular circuit.

Some commenters suggested that paragraph (a) refer to insulated conductors instead of all conductors. "Insulated" was excluded because the only conductors at a mine that can be bare are trolley wires and overhead conductors of more than 650 volts, line-to-line. In underground mines, only trolley wires below 2kV can be bare. Commenters also expressed concern that field testing in the preproposal draft was dictating design standards, with no increase in miner safety. In response to these concerns, the proposal has been revised to delete reference to insulation performance requirements.

Under paragraph (b), a new provision, power cables and conductors installed on the surface in circuits with line-to-line voltages above 2,000 volts and subject to contact by persons would be required to have metallic shielding around each power conductor. Some commenters indicated the preproposal draft did not recognize "approved" use of unshielded conductors and stated that the use of metallic shielding is unnecessary in some protected locations. In response to commenters, the proposal has been modified to require shielding of cables and conductors in underground areas of mines, and on surface areas of mines only where they are accessible to persons.

"The IEEE Recommended Practice for Electric Power Distribution for Industrial Plants," standard 141–1976, recommends shielding be provided on cables between 2kV and 8kV. Shielding is required by the NEC (310–6, 400–31(b), 1984) on cables above 2kV. Cables in all underground and some surface mine areas would be subjected to conditions stated in IEEE Standard 141–1976, and would require shielding. Under a provision solely applicable to underground mines, § 57.12602(b) would require all power cables and conductors installed underground in circuits with line-to-line voltages above 2,000 volts to have insulation and metallic shielding around each power conductor. The exception for inaccessible cables and conductors would not apply underground due to the limited clearances and the increased risk of damage to cables and conductors in the underground environment.

Under paragraph (c), metallic enclosed power cables and conductors would not be required to be shielded, provided the enclosure is continuous and connected to the safety grounding system. This provision would give an alternative to shielding which offers equal protection. A continuous enclosure, solidly connected to the safety grounding system would assure an efficient grounding path, and added physical protection for cables and conductors.

Paragraph (d) would require cables to enter metallic frames of electric enclosures through fittings sized for the cables, which prevent damage to the cable jackets and the insulation of the internal conductors. The standard would lead to secure fittings which would cause minimal strain on the connections. Under paragraph (e), insulated conductors would be required to enter metallic frames of electric enclosures through fittings with insulated bushings sized for the conductors. Insulated bushings would offer physical protection for the insulation of conductors not protected by a jacket.

Paragraph (f) is new, and would contain an exception to the proposed requirements of paragraphs (d) and (e). It would state that cables and conductors in conduit that enter metallic frames of electric enclosures would not be required to be equipped with fittings or bushings when protection against damage by sharp edges is provided. This provision would offer a compliance alternative designed to provide the same measure of protection.

Paragraph (g) is new, and would require conductors to be secured so as to prevent mechanical strain on electrical connections. Hazards resulting from improper conductor and cable fittings include electric shock and electrocution from energized equipment frames. By requiring fittings at locations where cables and insulated conductors enter electric compartments to be designed to prevent strain on electrical connections, chaffing and damage to the cable or conductors would be prevented, and the number of injuries to persons from these conditions would be reduced.

Some commenters felt jackets would not be proper protection for cables and conductors where they enter frames. The proposal would not allow jacketing to serve as protection under these conditions. Cables should enter frames through proper fittings to prevent damage to the jacket and internal conductors. Commenters also suggested elimination of insulated bushings. This recommendation was not adopted because conductors having only an outer protective jacket are not sufficiently protected from damage where they enter metal boxes.

Sections 56/57.12603 Splices and Repairs

This standard is derived primarily from existing §§ 56/57.12013 and 57.12088, and would set safety requirements for splicing and repair of cables. Existing practices on splices and splicing methods were researched by the Bureau of Mines (Mine Trailing Cables and Cable Splices, Contract #J0199106). The results show a high failure rate of splices. The proposal would define the type of cable splices permitted and is intended to reduce the number of accidents involving splice failures and burning cables. The proposal does not limit the number of splices in a cable.

Paragraph (a) is new, and would require that cables be spliced, terminated or repaired by a qualified electrician, defined in the proposal as an individual who has met the requirements of an operator's qualification program in accordance with proposed §§ 56/57.12100. This would assure that persons are protected against shock and fire hazards created by improperly-spliced cables. By requiring that cables be attended to by qualified electricians, the knowledge and training of such individuals would be brought to bear on a difficult and potentially hazardous task.

Paragraph (b) would require splices in trailing cables to contain only one connection point in each conductor. A single connection of two severed ends of trailing cable would provide the best possible electrical conductivity. The introduction of more than one connection point would reduce the electrical conductivity of the splice to an unacceptable level which could lead to inadequate electrical protection for the circuit and a shock and fire hazard on the circuit and the equipment it serves.

Paragraph (c) would require terminations of cable shielding to be connected to equipment safety grounding conductors at each splice and termination. This would assure that shielding is connected to the safety grounding system to prevent individuals from contacting dangerous voltages under fault conditions.

Paragraph (d) would set standards for splices and repairs of cables. They would be required to have conductivity and current-carrying capacity sufficient to prevent insulation damage from heating of conductors. This provision would require a splice or repair to match the ampacity of the rest of the cable as closely as possible, which would reduce the risk of damage to the insulation from overheating of the connection. Damaged insulation could place miners at risk of contacting energized cable components.

It would also require severed conductors to be joined by welding or compression-type connectors. The Agency is aware of the use of some unsafe splicing methods in the industry.

For instance, square knot splices and soldering, which create high-resistance areas within the cable, are sometimes used. High resistance can lead to excessive heating and arcing at the location of the splice or repair and cause the connection to open.

The NEC recommends exothermic welding, pressure connectors and clamps for joining severed grounding conductors to assure an electrically efficient and mechanically strong splice. The NEC standard would not allow soldering for that purpose. The proposed rule would adopt the NEC treatment of grounding conductors for all components of trailing cables. It would require tight-fitting connections formed by welding or compression-type connectors. The proposal would prohibit the use of unsafe splicing methods which can give rise to shock and fire hazards.

Each power, control, and ground-check conductor would be required to be individually re-insulated with insulation having at least the same thickness, temperature rating, and dielectric strength as that of the original insulation. By requiring replacement insulation to have the same protective characteristics as the original insulation, the proposal would assure that the integrity of the cable insulation is maintained. Phase-to-phase and phase-to-ground short-circuits from weaker insulation could also be prevented under the provision.

Splices and repairs would be required to have semiconducting tape replaced over the insulation of each power conductor within shielded cable. This would help to seal the point of joinder to assure an efficient electrical connection. Within shielded cable, shielding in the form of metallic braid or serving (wrap), or metallic tape applied in half-lapped layers replaced over each power conductor would be required.

The outer jacket of the cable would be required to be replaced to provide at least the same thickness and protection as that of the original jacket. Therefore, the proposal would require the repaired jacket to have physical strength equal to the original jacket. Finally, the outer jacket would have to be sealed, vulcanized, molded, or fused to the cable's original jacket to prevent the moisture of the underground environment from causing sparking at the splice or repair.

Several commenters objected to use of the word "bonding" to describe joining the spliced outer jacket to the original cable jacket. Some commenters believed that "bonding" means only vulcanizing. The proposed standard is now more specific about the process of connecting the replacement jacket to the original jacket. These provisions would preserve, as nearly as possible, the dielectric and mechanical strength of the original cable in making splices and repairs. Therefore, the likelihood of electrical arcing or heating at the point of connection would be reduced.

Paragraph (e) of the proposal would allow the use of one trailing cable splice which does not meet the requirements of paragraph (d) for the time period necessary to move the equipment for repair of the cable, provided the splice is mechanically strong and insulated to prevent shock. Although the terms "permanent" and "temporary" would not be employed by the proposal, this standard would provide for safe movement of equipment using one short-term splice to facilitate repair work if precautions are taken to prevent shock hazards.

Section 57.12603 would contain a paragraph (f), applicable only to underground areas of metal and nonmetal mines. It would require splices and repairs in trailing cables used underground to be made with splice and repair kits that meet the flame-resistance tests in 30 CFR 18.64. Flame-resistance tests are made on assembled specimens by MSHA's Approval and Certification Center. Acceptance markings appear on the outer jacket of the repair or splice, indicating that it has passed the tests and was found to be acceptable by MSHA. This would ensure that, when the splice and repair kit was assembled in accordance with the manufacturer's instructions, the kit would have fire-resistant properties similar to those of the cable's original components. MSHA is considering proposing an approval regulation for splice and repair kits. Under such a proposal, a splice and repair kit for trailing cables would have to be approved by MSHA prior to its use in a mine.

Sections 56/57.12604 Lightning Protection

This standard would revise existing §§ 56/57.12065 and 56/57.12069. It would provide requirements intended to prevent transmission of lightning voltages to the mine electrical system. Information available to MSHA indicates that 12 lightning-related accidents, one of them fatal, occurred from 1978 through 1988. The proposal would require surge arresters to be provided for exposed ungrounded power conductors and telephone wires in order to prevent similar accidents in the future. Several commenters suggested that the term "surge arrester" should be changed to "lightning arrester." The IEEE defines "surge arrester" and does not define "lightning arrester." The proposal would continue use of the term "surge arrester," which would be defined in proposed §§ 56/57.12000.

Paragraph (b) contains new provisions which would no longer require surge arresters to be installed on power conductors and telephone wires, provided they are buried, installed beneath a protective metallic covering, or enclosed within grounded metallic shielding, coverings, or enclosures throughout their entire length. These types of conductors would be, in MSHA's view, sufficiently protected against transmittal of dangerous voltages caused by surface electrical lightning surges. The proposed change would eliminate the need to cut into these cables solely to install surge arresters. Thus, persons would not be unnecessarily exposed to the hazards involved in the installation process.

Use of the term "suitable lightning arresters" in the existing rule would be replaced and clarified in the proposal by a requirement that surge arresters be rated for the voltage and current of the circuit they protect. The proposal would no longer require that surge arresters be of an approved type, since performance parameters have been included in the standard.

Some commenters indicated that surge arresters are not sized according to current rating. The Bureau of Mines conducted a study in 1981 in conjunction with the Pennsylvania State University on power systems. Their report, Contract No. J0155009, showed four important parameters for the proper application of surge arresters. These parameters were: voltage rating, sparkover voltage, discharge current and the IR discharge voltage. The report describes the classes of arresters with typical voltage rating ranges and current withstand voltages for each class. To clarify MSHA's intent, the proposal would be revised to require proper sizing according to the class of application. For example, the "Distribution Class" is typically rated for 1kV to 18kV, and they can withstand a 65kA current surge.

Proposed § 57.12604 would contain additional requirements for surge arresters at underground metal and nonmetal mines. Surge arresters for conductors that enter an underground mine would be required to be located on the surface within 100 feet of the point where the conductors enter the mine, are buried, installed beneath a protective metallic covering, enclosed within grounded metallic shields, coverings or enclosures, or supported by

grounded metallic messenger wires. Although the location of a lightning strike can clearly not be controlled, a 100-foot distance would severely limit the distance in which lightning could strike inby a surge arrester, possibly transmitting a voltage surge underground and energizing equipment frames. Lightning strikes outby the arrester would cause excess voltage to be transmitted to ground.

At underground mines, surge arresters for conductors extending underground would be required to be connected to a low-resistance ground field that is separated from neutral ground fields by a distance of not less than 25 feet. This would separate the underground grounding circuit from the surface distribution grounding circuit, thereby reducing the likelihood of a lightning surge being transmitted underground from the surface power system.

Some commenters claimed that separation of surge arrester grounds from equipment grounds would be dangerous. The separation of arrester grounds from equipment grounds provides protection by shunting the lightning transient energy to the arrester grounds. The 1972 and 1982 publications of the "IEEE Recommended Practice for Grounding of Industrial and Commercial Power Systems," Standard 142, § 2.6, describes proper separation. The separation of ground fields for surface mines would be addressed by proposed § 56.12506(c).

Sections 56/57.12630 Support Structures and Guy Wires

This section would revise existing §§ 56/57.12047, and provide requirements for support structures and guy wires. The incorporation by reference to the NESC was deleted, and replaced by the inclusion of specific requirements, using NESC standards as a reference guide. Paragraph (a) would require guy wires attached to structures supporting uninsulated overhead power conductors, other that phone wires, to be electrically connected to the equipment safety grounding conductor at the supporting structure end of the guy wire.

Alternatively, such guy wires could be provided with one or more insulators which have a dry flashover voltage at least double the nominal voltage, and a wet flashover voltage at least as high as the nominal voltage. The insulators, in this case, would be required to be at least eight feet from the ground. Commenters requested clarification of this provision. It means that the insulator cannot be less than 8 feet from the earth, regardless of degree or direction of slope of the earth around the base of the guy wire where persons could walk. Several commenters expressed objection to the specificity of the insulator rating included in the preproposal draft. Ratings are needed to provide safety, and are consistent with those in ANSI C29.1–1976, "Electrical Power Insulators."

Some commenters believed that the preproposal standard intended to encompass guy wires supporting telephone lines. However, telephone lines are not considered to be power conductors for purposes of this standard. Commenters also expressed uncertainty about the voltages which would be addressed by the standard. It would cover all power conductor voltages.

Additionally, commenters questioned the effect of the preproposal draft on public utility equipment installed on mine property. Where guy wires supporting overhead power conductors are present on public utility lines, they are typically and routinely provided with grounding or insulation. Any guy wires which support uninsulated overhead power conductors installed on mine property, which have the potential for causing injury to miners would fall within the coverage of the standard, although the rule would not require installation of guy wires. Enforcement of the standard under MSHA jurisdiction would depend upon the circumstances and location of the guy wires. The proposed requirement is adopted from NESC standards, used as a guideline by operators as well as utilities for many years. The proposal provides for two equivalent performance-oriented compliance alternatives intended to achieve the same safety objective.

Sections 57.12660 Support in Shafts and Boreholes

This standard would specify requirements for providing support for power cables and insulated conductors in shafts and boreholes, and is derived from existing § 57.12083, applicable to underground metal and nonmetal mines. Paragraph (a) would require power cables and insulated conductors in shafts and boreholes to be supported by clamping or strain relief devices which prevent strain on the conductors and functional damage to the jacket and insulation. Several commenters suggested that damage to the outer jacket cannot be avoided since one function of the jacket is to protect the internal conductors from physical damage. A small amount of physical damage, which does not affect the function of the jacket, will not create a hazard. The word "functional" has been added to the proposal to accommodate this situation.

The preproposal draft would have addressed power cables alone, but in response to commenter suggestions, the phrase "or insulated conductors" was added. Several commenters recommended adding "or other methods" to provide for other means of cable support. This recommendation is not adopted, but paragraph (c) of the proposal would allow for other methods when the cable is designed to be self-supported.

Paragraph (b) would require clamp or strain relief devices to be installed as close to the top of the cable or conductor run as practical. Under paragraph (c), additional support devices would be required to be installed in vertical shafts and boreholes along the cable or conductor run at distances not greater than the values specified in Table 57.12660, accompanying the standard. Some commenters objected that the table of spacing for conductor supports cannot be applied to all mining conditions. However, the table would provide only the maximum permitted distances between supports, allowing for shorter distances where necessary. It would not require additional supports for specially designed cables such as steel wire armor cables.

Commenters suggested that "shaft" be defined in the proposal. The term has not been defined because the Agency believes that it is readily understood by persons in the mining community, but the term "vertical" was added for clarity. The proposal would adopt the commenter suggestion that the proposal apply to boreholes as well as shafts.

Trailing Cables

Sections 56/57.12700 Insulation; Shielding

This section would revise existing § 57.4057, applicable only to underground cables, and transfer the standard from Subpart C, Fire Prevention and Control, to Subpart K. The proposed standard would include requirements for trailing cables in all mine electrical systems, including surface mines and mills. Under the proposal, trailing cables would be required to have conductor insulation rated for at least the line-to-line voltage of the circuit, and shielding for the purpose of confining the voltage stresses when used to supply equipment over 2,000 volts line-to-line. Trailing cables used in underground mines would also be required to have flame resistant qualities in accordance with existing 30 CFR § 18.64 due to the confined space in

underground mines and the possibility of smoke and fires.

Several commenters objected to parts of the preproposal draft which they interpreted as setting forth design criteria. The proposal is not intended to impose unnecessary design criteria. For instance, it would not specify the name or type of conductor insulation or shielding. It would only require conductor insulation to be rated for at least the line-to-line voltage.

One commenter stated that requiring shielding for cables that carry voltages greater than 2,000 volts would be unnecessary, because there are cable designs that do not need shielding above 2,000 volts. However, the need for cable shielding under these voltage conditions is supported by the NEC [Article 400, "Flexible Cords and Cables"]. A shielding requirement is also supported by research conducted at the Pennsylvania State University for the Bureau of Mines, Final Report, Contract No. G015512, "Open Pit Metal Mining Grounding Systems," August, 1976. MSHA is persuaded that shielding is needed for cable voltages greater than 2,000 volts by the conclusions arrived at by these recognized bodies. Therefore, the suggestion of the commenter has not been implemented.

Sections 56/57.12701 Overcurrent Protection.

This standard would revise existing §§ 56/57.12003, and provide requirements for overcurrent protection for trailing cables of portable and mobile electric equipment. The term "mobile equipment" in existing §§ 56/57.12003 has been expanded to include "portable electric equipment". Paragraph (a) would require trailing cables serving portable and mobile equipment to have short-circuit and ground-fault protection for each ungrounded conductor that will safely interrupt all ungrounded conductors under fault conditions. A new ground-fault protection provision for trailing cables was included in the preproposal draft, and would be retained in the proposal in order to prevent explosion and shock hazards. Without such protection, faults could energize equipment frames and expose persons to contact with lethal voltages.

Under paragraph (b), ungrounded trailing cable conductors energized at voltages of 1,040 volts or less would be required to be protected by an inverse-time circuit breaker with a maximum current rating as specified in Table 56/57.12701-1, accompanying the standard. The table was derived from an IEEE publication.

Alternatively, such cables could be protected by an instantaneous-trip or short-time delay electronic circuit breaker having a time delay not to exceed 0.1 seconds. Such protective devices would be required to have a maximum instantaneous setting of not more than the values listed in Table 56/57.12701-2 for 480-, 600-, and 1,040-volt trailing cables. The values in Table 56/57.12701-3 would be applicable to 300- and 600-volt d-c trailing cables.

Another option would be protection by an instantaneous-trip or short-time delay electronic circuit breaker having a time delay not to exceed 0.1 seconds, and a setting that does not exceed the lower value of either 115 percent of the maximum starting current for the unit of electric equipment, or 60 percent of the lowest value of bolted phase-to-phase short circuit current at any point in the circuit. This protection option would apply only when the circuit to be protected does not function properly using values listed in the tables, and a circuit analysis assures that the circuit does not present a hazard to miners. If the circuit breaker won't function properly, the operator would be permitted to set a higher or lower trip level after determining that it would not pose a hazard.

Under paragraph (c), ungrounded conductors of trailing cables energized at voltages greater than 1,040 volts would be required to have instantaneous short-circuit protection. The setting of such devices would be prohibited from exceeding the lower of either 175 percent of the maximum starting current for the unit of electric equipment, or 75 percent of the minimum phase-to-phase short-circuit current available at any point in the circuit.

Some commenters expressed concern that the proposal would prohibit the use of fuses. The use of fuses would not be prohibited, but when used, they would have to be provided with a means for opening all ungrounded phases during a fault. The requirements of paragraphs (a) and (b) would apply to the use of fuses to protect trailing cables and when applying circuit breakers at voltages other than those specified in the tables.

Several commenters objected to the standard, indicating that overcurrent protection only protects equipment. A fire from electric equipment however, especially underground equipment, could endanger the lives of miners. An underground mine is a confined area where a fire could expose miners to smoke and toxic gasses. Therefore, the protective measures which would be required under the proposal are necessary.

Some commenters suggested that the NEC be incorporated by reference, instead of placing ground-fault protection requirements and tables in the proposal. This recommendation has not been adopted due to the difficulty of ascertaining compliance requirements when incorporation by reference is used. The Agency believes that including the relevant portions of such documents in the standard facilitates an accurate understanding of its requirements. The tables and other proposals in this Subpart are based on accepted industry standards, and would provide necessary protection against hazards that are unique to the mining industry.

Several of the commenters supported the need for short-circuit and ground-fault protection. The Bureau of Mines, Final Report, No. G0155102, "Open Pit Metal Mining Grounding Systems," August, 1976, recommended the use of short-circuit and ground-fault protection.

Sections 56/57.12702 Attachment

This section is derived from existing §§ 56/57.12038. It would require trailing cables to be attached to equipment so that functional damage to the cable jacket and damage to the insulation of the internal conductors is prevented and strain does not occur on electric connections. The performance-oriented language of the standard is intended to assure proper protection of cables from chaffing and other damage which can defeat the protective function of the jacket, as well as offer support for the cable. The use of devices such as strain clamps or cable grips would be suitable for compliance with the proposed standard.

Several commenters to the preproposal draft suggested that damage to the outer jacket cannot be prevented, because one function of the jacket is to protect the conductors from physical damage. A small amount of damage or abrasion which does not affect the protective function of the jacket would not create a hazard. The word "functional" has been added to the proposal to reflect this intent.

Sections 56/57.12703 Portable Distribution Boxes

This section would provide standards for protective devices on portable distribution boxes, and is derived from existing §§ 56/57.12006. The proposal would require portable distribution boxes to have a disconnecting device for each branch circuit, and a means to clearly show that each circuit has been physically disconnected. For purposes of this standard, indications such as a plug removed and separated from its

receptacle would suffice. Several commenters suggested that visual indications, such as lights, alone would not ensure disconnection of a circuit and could result in a worker being exposed to electric shock. MSHA agrees, because of the unreliability of light indicators. They may burn out and fail to function when needed. The intent of the standard is to ensure disconnection, and to clearly indicate whether the circuit has been disconnected. The standard has been altered to clarify this intent.

Under a new provision in paragraph (c), portable distribution boxes would be required to have a means which identifies each disconnecting device and cable with its related load, and a means of preventing connection of a cable to the wrong protective device when two or more cables connect to the same distribution box. Accidental or inadvertent energization of circuits and equipment being worked on has been the cause of many electrical accidents in metal and nonmetal mines. The standard would require proper use and identification of circuit protective devices to prevent such injuries.

Several commenters recommended that paragraph (c) be revised by substituting the phrase "higher rated circuit breaker" for "wrong circuit breaker". This recommendation has not been adopted, because the intent of the proposal is to prevent accidents which occur because of an improper cable connection. The phrase "wrong protective device" was used in the proposal to allow for compliance alternatives.

Sections 56/57.12704 Guarding

This section would require trailing cables and power conductors to be protected against physical damage from mobile equipment or other loads by bridges, trenches, suspension, or by location. It is derived from existing §§ 56/57.12005. The method of protection, from among these alternatives, is left to the discretion of the operator. In underground mines, trailing cables would be permitted to be protected from damage by suspension from the mine roof or rib.

The adequacy of the protection supplied by the bridge, or other method would be measured by how well it protected the trailing cable from physical damage. For example, where a trailing cable is located in a trench, but has been damaged by mobile equipment running over the trench, an MSHA inspector might conclude that there was a violation, even though there was a trench constructed, since damage to the cable had not been prevented.

Sections 56/57.12705 Disconnecting Devices

This standard would be new, and would require that disconnecting devices for trailing cables be equipped with a means for installing a padlock. As discussed in connection with proposed §§ 56/ 57.12200, miners have been injured and killed by contact with inadvertently or prematurely energized equipment or circuits. The proposed standard would strengthen existing rules to assure that electrical and mechanical work is performed with minimum risk, and that involved circuits and equipment remain deenergized while work is being performed.

Each trailing cable disconnecting device, in MSHA's view, should be equipped with a means for installing a padlock, so that miners would not be able to disconnect the circuit at a location that could not be locked out. For instance, if a circuit with several disconnecting devices could only be locked out at the device nearest the power source, a miner might choose to disconnect at a device nearer to his or her work station. If that device had no means of locking-out, the possibility of mistaken reenergization of the circuit would exist. As previously noted, MSHA's accident and injury data for 1978 through 1988 shows that 330 accidents, 21 of them fatal, were attributable to the failure to lock out. Miners should not be exposed to that hazard. The procedure involved in providing a means to install a padlock might be drilling a hole in the device or attaching a hasp and staple. Many of the disconnecting devices being manufactured are currently equipped with means for installing a padlock.

Trolley Circuits for Track Haulage

Sections 56/57.12800 Installation and Maintenance

This section would revise existing §§ 56/57.12050 and 57.12086. Its intent is to minimize the risk of persons contacting bare trolley conductors, and the risk of injury resulting from trolley pole dewirements. The proposed standard would require trolley wires and exposed trolley-feeder wires to be installed opposite the clearance side of haulageways, except where such installation would create a greater hazard. The specified installation location would help to prevent persons or equipment from contacting energized trolley wires.

Trolley wires and exposed trolley feeder wires would be required to be suspended at least seven feet above the track. Compliance with the seven-foot clearance provisions would make inadvertent contact with the trolley wire and resulting shock difficult. Finally, trolley wires would be required to be aligned and maintained to provide for smooth tracking of trolley collectors on trolley wires. This would reduce arcing and sparking, thereby minimizing the risk of electrical injuries and fires.

Some commenters expressed concern about the application of this section to cranes. Cranes would not be addressed by this section and this is reflected in the section title. Commenters also recommended that the proposal apply to "exposed" trolley feeder wires. The opening phrase of the proposal has been altered to reflect that position.

Sections 56/57.12801 Circuit Protection and Isolation

This standard would revise existing §§ 56/57.12065. It would require trolley wires and trolley-feeder wires to be protected against overcurrent by an automatic circuit interrupting device which deenergizes the circuit if a short-circuit occurs at any point in the system. Several commenters objected to this provision as being too design-oriented. However, the proposal allows for compliance alternatives; any automatic circuit interrupting device that can accomplish the requirement would be acceptable.

The trip setting of such devices would be required not to exceed 50 percent of the minimum available bolted short-circuit current when the current is less than 800 amperes. When the current is 800 amperes or more, the device's trip setting could not exceed 75 percent of the minimum available bolted short-circuit current. Above 800 amperes, there is more available fault current. Therefore, the trip setting of the device need not be as sensitive at this level as with currents below 800 amperes.

The protective device must be adjusted to open at a fault current value that is less than the minimum expected fault current. The proposal would require that the trip setting interrupting devices not exceed 50 percent of the maximum (bolted) fault current available at the point in the system which yields least (minimum) short-circuit current.

Some commenters considered the values specified in the preproposal draft to be too high, and suggested that values should not be established. Values have been included in the proposal, but they would not be fixed values. They are expressed as upper limits for the minimum expected fault current, and lower values would be acceptable. For example, if an operator considers the 50 percent value hazardous, a lower setting

would still achieve compliance with the standard.

The proposal would require that trolley wires and trolley feeder wires be provided with a means of isolation at intervals of not more than 2,000 feet and near the beginning of each branch line. Compliance with this provision would minimize the risks of fire and shock. Without an accessible means of isolation, miners could be tempted to work on or near an exposed, energized trolley circuit, subjecting themselves to the hazards of shock or electrocution. A nearby means of isolation could also be useful for deenergizing the circuit in the event of an accident or emergency. The 2,000-foot distance has been in wide use in the mining industry for many years without adverse effects. The proposed spacing is comparable to that which has been recommended by the Bureau of Mines (Miners' Circular, Bureau of Mines, Electrical and Mechanical Hazards and Falls of Persons at Metal and Nonmetallic Mines, March, 1955).

Sections 56/57.12802 Track Bonding

This section would consolidate and clarify existing §§ 56/57.12042 and 57.12081, which address track bonding and bonding of metal pipelines to ground return circuits. Paragraph (a) would require track serving as the trolley circuit return to be bonded at every joint and crossbonded at intervals not exceeding 200 feet. Paragraph (b) would require metallic pipelines and structures installed less than ten feet from track serving as the trolley circuit return to be insulated or guarded, or bonded to the track at intervals not exceeding 1,000 feet, to prevent shock hazards. The provision has been clarified to indicate that it would not apply to other materials temporarily lying alongside the track.

A suggestion by some commenters that "structures" not be covered by the revision was not adopted because of the hazards associated with structures installed near tracks. Shock and fire hazards would arise if the trolley wire should contact structures which are not bonded, insulated or guarded. By contrast, if the trolley line contacts a bonded structure, operation of the short-circuit device would remove these hazards.

The preproposal draft contained a provision for insulating or guarding safety grounding conductors near the track. Several commenters indicated that this requirement may conflict with other requirements contained in paragraphs (b) and (c), and should be deleted. MSHA agrees with this recommendation, and the language has been deleted from the proposal.

Paragraph (c) would specify that when rails are moved or replaced, or when broken bonds are discovered, they shall be rebonded within three working shifts. Several commenters objected to the preproposal draft, which would have required immediate repair of broken bonds. As with existing §§ 56/57.12042, the preproposal draft would have required repairs to be made when the break occurs. The proposed change to a three shift maximum would allow adequate time to perform the necessary work, yet assure that rebonding is done in a prompt manner.

MSHA's present policy on enforcement of the three shift repair requirement in existing §§ 56/57.12042 would remain in effect under the proposal. A citation for a violation of the standard would not be issued until the end of the third working shift after rails are moved, replaced or a broken bond is discovered. That is, assuming a three shift operation, if a broken bond is discovered on a day shift, the citation would be issued at the end of the next day shift if the broken bond is still not repaired. A citation would not be issued if the bond has been repaired within this period of time.

Since mine track is used as an electrical conductor in conjunction with trolley wires and trolley feeder wires, compliance with the proposal would assure that the track is mechanically and electrically efficient by setting specific bonding requirements at regular intervals on the track. This would ensure adequate electrical conductivity of return circuits. These proposed requirements are based on accepted industry practice and MSHA's experience with trolley systems.

Sections 56/57.12803 Trolley Guarding

This section is derived from existing §§ 56/57.12066 and 57.12080, and would designate specific locations and conditions for guarding of energized trolley wires and bare trolley feeder wires to prevent accidental contact. The requirements in the proposal emphasize that guarding is required not only where miners work, but at other locations where they are exposed on a frequent or regular basis to the shock hazards of exposed energized trolley circuits. Specific locations are addressed in the proposal to clarify where guarding would be required.

Paragraph (a) would require guarding at all points where supplies are stored, loaded or unloaded, at mantrip stations, on each side of doors and stoppings through which wires pass, where persons other than those operating rail-mounted haulage equipment work within three feet of the wire, at track switches, and where persons regularly pass under the wire. Protection from energized trolley circuits is necessary not only where persons perform their normal work tasks, but also where they load, unload or generally work with supplies transported by rail.

Paragraph (b) of the proposal would require trolley wires and trolley feeder wires to be deenergized when guarding is installed or removed. An exception to this provision would allow the installation and removal of temporary guarding designed to minimize shock hazards while work is being conducted in the area while the trolley system is energized. This temporary guarding would allow operators to continue operation of trolley systems while installing or removing guarding. This type of guarding is designed to protect the persons from exposure to the bare energized trolley circuit wires.

Some commenters recommended that guarding by location be permitted in the rule. MSHA agrees. Installation of guards would not be necessary if location would prevent persons or metallic tools and equipment from contacting trolley wires. Installation of guards would only be required under the proposal where persons can contact energized trolley wires. When persons work in close proximity to exposed trolley wires, temporary trolley wire guarding may be used to prevent electric shock.

Sections 56/57.12804 Circuits Powered from Trolley Wires

This standard is derived from existing §§ 56/57.12053. It would address the hazards of electric shock from loose or disconnected return wires and from fires caused by high-resistance connections. It would require the return wire of all circuits powered from trolley wires to be connected to the trolley wire return circuit to assure continuity and prevent arcing. Some commenters to the preproposal draft expressed concern that the word "securely" was omitted from the draft proposal. The proposal substitutes performance language for the word "securely".

G. Derivation Table

The following derivation table lists the number of each proposed standard, and the number of the existing standard from which it is derived. Standards that uniformly appear in 30 CFR parts 56 and 57 are designated in this table as 56/57.

DERIVATION TABLE

Proposed number	Existing number
56/57.12100	New
56/57.12101(a)	56/57.12002
	56/57.12030
	56/57.12040
	56/57.12041
56/57.12101(b)	56/57.12035
	56/57.12041
56/57.12102	56/57.12012
56/57.12103(a)	56/57.12001
	56/57.12065
56/57.12103(b)	56/57.12001
56/57.12103 (c) through (k).	56/57.12001
	56/57.12065
56/57.12103(1)	New
56/57.12104	56/57.4011
56/57.12105	56/57.12032
56/57.12106	56/57.12021
	56/57.12022
56/57.12130	56/57.12045
	56/57.12071
56/57.12200 (a) and (b)	56/57.12016
	56/57.12017
56/57.12200(c)(1)	56/57.12017
56/57.12200(c)(2)	New
56/57.12200(c)(3)	56/57.12017
56/57.12200(c)(4)	New
56/57.12201	56/57.12007
56/57.12202	56/57.12036
	56/57.12037
56/57.12203 (a), (b) and (c).	56/57.12014
56/57.12203(d)	56/57.12039
56/57.12204	56/57.12019
56/57.12300	56/57.12023
56/57.12301	56/57.12010
	56/57.12048
56/57.12302	56/57.12034
56/57.12330(a)	56/57.12067
56/57.12330(b)	56/57.12068
56/57.12330(c)	56/57.12026
56/57.12331	56/57.12026
	56/57.12085
56/57.12400	56/57.12018
56/57.12401	56/57.12020
56/57.12402	New
57.12460	57.12084
56/57.12500	56/57.12025
	56/57.12027
56/57.12501 (a) through (d).	56/57.12025
	56/57.12027
56/57.12501(e)	56/57.12033
56/57.12501(f)	56/57.12025
	56/57.12027
56/57.12502	56/57.12025
	56/57.12027
56/57.12503	56/57.12025
	56/57.12027
56/57.12504	56/57.12025
	56/57.12027
56/57.12505	56/57.12025
	56/57.12027
	56/57.12028
56/58.12506	56/57.12028
56/57.12600	56/57.12004
	56/57.12011
	56/57.12082
56/57.12601	56/57.12004
56/57.12602(a)	56/57.12008
56/57.12602 (b) and (c) New.	
56/57.12602 (d) and (e)	56/57.12008
56/57.12602(f)	New
56/57.12602(g)	56/57.12008
56/57.12603(a)	New
56/57.12603 (b) through (e).	56/57.12013
	57.12088
57.12603(f)	New

DERIVATION TABLE—Continued

Proposed number	Existing number
56/57.12604	56/57.12065
	56/57.12069
56/57.12630	56/57.12047
57.12660	57.12083
56/57.12700 (a) and (b)	New
57.12700(c)	57.4057
56/57.12701	56/57.12003
56/57.12702	56/57.12038
56/57.12703 (a) and (b)	56/57.12006
56/57.12703(c)	New
56/57.12704	56/57.12005
56/57.12705	New
56/57.12800	56/57.12050
	57.12086
56/57.12801	56/57.12065
56/57.12802 (a), (b) and (c).	56/57.12042
	57.12081
56/57.12803(a)(1)	56/57.12066
56/57.12803(a)(2)	57.12080
56/57.12803(a)(3)	New
56/57.12803(a)(4)	57.12080
56/57.12803(a)(5)	New
56/57.12803(a)(6)	57.12080
56/57.12803(b)	56/57.12066
56/57.12804	56/57.12053

H. Distribution Table

For the convenience of the reader, the following distribution table has been added as a cross-reference guide. Standards that uniformly appear in 30 CFR parts 56 and 57 are designated in this table as 56/57.

DISTRIBUTION TABLE

Existing No.	Proposed No.
56/57.12001	56/57.12103
56/57.12002	56/57.12101
56/57.12003	56/57.12701
56/57.12004	56/57.12600
	56/57.12601
56/57.12005	56/57.12704
56/56.12006	56/57.12703
56/57.12007	56/57.12201
56/57.12008	56/57.12602
56/57.12010	56/57.12301
56/57.12011	56/57.12600
56/57.12012	56/57.12102
56/57.12013	56/57.12603
56/57.12014	56/57.12203
56/57.12016	56/57.12200
56/57.12017	56/57.12200
56/57.12018	56/57.12400
56/57.12019	56/57.12204
56/57.12020	56/57.12401
56/57.12021	56/57.12106
56/57.12022	56/57.12106
56/57.12023	56/57.12300
56/57.12025	56/57.12500
	56/57.12501
	56/57.12502
	56/57.12503
	56/57.12504
	56/57.12505
56/57.12026	56/57.12330
	56/57.12331
56/57.12027	56/57.12500
	56/57.12501
	56/57.12502
	56/57.12503
	56/57.12504
	56/57.12505

DISTRIBUTION TABLE—Continued

Existing No.	Proposed No.
56/57.12028	56/57.12506
56/57.12030	56/57.12101
56/57.12032	56/57.12105
56/57.12033	56/57.12503
56/57.12034	56/57.12302
56/57.12035	56/57.12101
56/57.12036	56/57.12202
56/57.12037	56/57.12202
56/57.12038	56/57.12702
56/57.12039	56/57.12203
56/57.12040	56/57.12101
56/57.12041	56/57.12101
56/57.12042	56/57.12802
56/57.12045	56/57.12130
56/57.12047	56/57.12630
56/57.12048	56/57.12301
56/57.12050	56/57.12800
56/57.12053	56/57.12804
56/57.12065	56/57.12103
	56/57.12604
	56/57.12801
56/57.12066	56/57.12803
56/57.12067	56/57.12330
56/57.12068	56/57.12330
56/57.12069	56/57.12604
56/57.12071	56/57.12130
57.12080	56/57.12803
57.12081	56/57.12802
57.12082	56/57.12600
57.12083	57.12660
57.12084	57.12460
57.12085	56/57.12331
57.12086	56/57.12800
57.12088	56/57.12603
56/57.4011	56/57.12104
57.4057	56/57.12700
New	56/57.12100
New	56/57.12402
New	56/57.12705

II. Executive Order 12291 and the Regulatory Flexibility Act

MSHA has prepared an initial analysis in accordance with Executive Order 12291, to identify potential costs and benefits associated with the proposed revisions to the electrical standards for metal and nonmetal mines. The Agency has incorporated this analysis into the Regulatory Flexibility Analysis required by the Regulatory Flexibility Act. In the analysis, MSHA has determined that the proposed rule would not result in major cost increases, nor have an economic effect of $100 million or more. The proposed rule does not meet the criteria for a major rule and, therefore, a Regulatory Impact Analysis is not necessary.

The Regulatory Flexibility Act requires that, in developing regulatory proposals, agencies should evaluate and include, wherever possible, compliance alternatives which minimize any adverse impact on small businesses. This proposed rule contains many alternatives to the existing regulations which would especially benefit small mining operations. In addition, the

proposal adopts performance-oriented requirements and clarifies compliance responsibilities.

In the following summary of the Regulatory Flexibility Analysis, MSHA has compared the costs and benefits associated with the proposal with those of the existing requirements. In developing cost estimates, MSHA has taken into consideration industry-wide safety practices. Current compliance costs are related to the following requirements: labor, equipment purchase and maintenance, and recordkeeping. In calculating the costs of the proposed rule, the Agency projected capital expenditures and recurring costs. A copy of the complete analysis is available upon request.

The proposed regulations would affect about 11,700 metal and nonmetal mining operations. MSHA estimates that approximately 9800 (84 percent) of these mines are small businesses. For purposes of the Regulatory Flexibility Act, MSHA has defined small business entities as mines with fewer than 20 employees.

MSHA estimates that the total initial cost of the revised safety standards for electricity is $1.27 million, compared to $1.53 million for the existing standards, representing a cost decrease of $0.3 million, or 17 percent. The total annually recurring costs of the proposed rule is $18.2 million, compared to $14.7 million for the existing standards, representing a cost increase of $3.5 million, or 24 percent. The largest cost decrease is due to the proposed reduction in the frequency of resistance testing, which should reduce costs by $2.5 million annually. This decrease is totally offset, however, by annual cost increases of $2.9 million for qualified electricians and $2.5 million for metallic shielded cables.

MSHA estimates that the total initial cost of the revised standards for electricity at small mines is $0.66 million, compared to $0.82 million for the existing standards, a cost decrease of $0.17 million, representing a cost decrease of 21 percent. The total annually recurring costs of the proposed rule at small mines is $7.9 million, compared to $7.4 million for existing standards, representing a cost increase of $0.48 million, or 7 percent. The proposed rule does not represent a significant economic impact on a substantial number of small businesses under the Regulatory Flexibility Act.

The proposed rule reorganizes, clarifies and upgrades existing provisions. The primary benefit of the proposed rule is the protection that would be provided to the nation's metal and nonmetal miners against electrical hazards. It would allow for advances in mining technology and grandfathering of existing equipment. The proposed rule would increase compliance flexibility, while ensuring the safety of persons who work at the nation's mines. Some costs are reduced because the Agency has eliminated recordkeeping requirements and allowed for increased flexibility through compliance alternatives.

III. Paperwork Reduction Act

There are no paperwork requirements contained in these proposed standards. The paperwork reduction is due to the elimination of the recordkeeping requirement in proposed § 56/57.12506 for resistance testing of safety grounding systems.

List of Subjects in 30 CFR Parts 56 and 57

Mine safety and health, Metal and nonmetal mining, Electricity.

Dated: November 22, 1989.

William J. Tattersall,

Assistant Secretary for Mine Safety and Health.

It is proposed to amend subparts A, C and K of part 56 and subparts A, C and K of part 57, subchapter N, chapter I, title 30 of the Code of Federal Regulations to read as follows:

PART 56—SAFETY AND HEALTH STANDARDS—SURFACE METAL AND NONMETAL MINES

1. The authority citation for part 56 is proposed to be revised to read as follows:

Authority: 30 U.S.C. 811.

Subpart A—General

§ 56.2 [Amended]

2. In § 56.2, the definitions of "distribution box," "electrical grounding," "high potential," "insulation," "low potential," "major electrical installation," and "reverse-current protection" are removed.

Subpart C—Fire Prevention and Control

3. The authority citation for subpart C continues to read as follows:

Authority: Sec. 101, Federal Mine Safety and Health Act of 1977, Pub. L. 91-173, as amended by Pub. L. 95-164, 91 Stat. 1291 (30 U.S.C. 811).

4. Section 56.4011 is removed.

5. Subpart K is revised to read as follows:

Subpart K—Electricity

Subpart K—Electricity

§ 56.12000 Definitions.

The following definitions apply in this subpart.

"Ampacity" means the current-carrying capacity of electric conductors expressed in amperes.

"Branch circuit" means the circuit conductors extending beyond the final short-circuit device protecting the circuit.

"Cable" means an assembly of one or more insulated conductors enclosed by an additional abrasion resistant covering or jacket. A cable may also contain one or more uninsulated equipment safety grounding conductors. A power cable is any cable except communication, instrumentation and control cables.

"Circuit breaker" means a device designed to open and close a circuit by non-automatic means and to open the circuit automatically on a predetermined overcurrent value without damage to the device when operated within its rating.

"Circuit breaker setting" means the value of current or time at which an adjustable circuit breaker is set to trip.

"Conductor" means a bare or insulated wire or combination of wires not insulated from one another, suitable for carrying an electric current.

"Equipment safety grounding conductor" means a conductor used to connect the non-current-carrying metallic parts of electric equipment, raceways and other metallic enclosures to the safety grounding system.

"Feeder-circuit" means the conductors between the power source and the final branch-circuit short-circuit protective device.

"Fuse" means an overcurrent protective device with a circuit opening fusible part that is heated and severed by the passage of overcurrent through it.

"Ground-fault" means an unintentional connection between an electric circuit and the safety grounding system.

"Ground-wire monitor" means a device having the primary function of monitoring the equipment safety grounding conductor of a circuit and causing the affected circuit breaker to trip when a change in the impedance of the grounding circuit presents a potential electrical shock hazard.

"Instantaneous-trip circuit breaker" means a circuit breaker with no intentional time delay designed in its tripping action.

"Insulated" means separated from other conducting surfaces by insulation which is a dielectric substance that offers a high resistance to the passage of current and to a disruptive discharge through the substance.

"Inverse-time circuit breaker" means a circuit breaker with an intentional time delay in its tripping action, which delay decreases as the magnitude of the current increases.

"Jacket" means a continuous nonmetallic protective outer covering provided on cables. The primary function of the covering is to provide protection of the internal components against physical, chemical, and thermal damage, and to exclude moisture.

"Mobile electric equipment" means electric equipment capable of movement from one location to another by power supplied from a source located on the machine or transmitted to the machine by means of a trailing cable.

"Nominal voltage" means the phase-to-phase or line-to-line root-mean-square value assigned to a circuit or system for designation of its voltage class, such as 480 or 4160 volts. Actual voltage at which the circuit or system operates may vary from the nominal voltage within a range that permits satisfactory operation of equipment.

"Overcurrent" means any current in excess of the rated current of equipment or the ampacity of a conductor, which may result from overload, short-circuit, or ground-fault conditions.

"Overload" means operation of equipment in excess of normal full-load rating, or loading of a conductor in excess of rated ampacity, which would cause damage or dangerous overheating if allowed to continue.

"Portable electric equipment" means electric equipment which is designed and constructed to facilitate frequent movement from one location to another and which does not normally remain at a fixed location for extended periods of time.

"Qualified electrician" means an individual who has met the requirements of 30 CFR 56.12100.

"Rated" means marked to certify that according to established test procedures, electric equipment will perform its functions without presenting a burn, fire or shock hazard when applied within the maximum limits of its marked electrical parameters.

"Safety grounding system" means a complete installation consisting of one or more ground electrodes, grids, equipment safety grounding conductors and interconnected grounding connections. The purpose is to provide a low impedance fault current path to the system's protective device for all non-current-carrying metallic parts enclosing electric conductors or circuits.

"Short circuit" means an abnormal connection of relatively low impedance, whether made accidentally or intentionally, between two points of different potential.

"Splice" means the mechanical and electrical connection of one or more severed conductors in a single length of conductor or cable.

"Stationary electric equipment" means electric equipment other than mobile or portable that is fastened, secured or installed such that it cannot be readily moved from one location to another during normal use.

"Surge arrester" means a protective device which is used to provide protection against lightning surges.

"Trailing cable" means a portable cable or flexible cord through which electrical energy is transmitted to any mobile electric equipment, or a portable cable or flexible cord which receives electrical energy from a section power center, section distribution box or section rectifier.

"Undervoltage protection" means the effect of a device which operates on failure of voltage to cause and maintain the interruption of power to a circuit so as to prevent automatic restarting of the equipment.

General

§ 56.12100 Qualified electricians.

(a) Work required by this subpart to be performed by a qualified electrician shall be performed by an individual who has met the requirements of an operator's qualification program.

(b) Operator's programs shall include conducting their own qualification training or testing, or participation in training or testing conducted by MSHA, other Federal agencies, a state, associations of mine operators, other mine operators, national labor organizations, private associations, or educational institutions.

§ 56.12101 Electric equipment and conductors.

(a) Electric equipment and conductors shall be installed, and maintained by a qualified electrician, and used in a manner which prevents shock and burn hazards to persons. Electric equipment and conductors which present a hazard to persons due to improper installation, maintenance, misuse or damage shall be tagged as a hazard until corrected.

(b) All electric equipment and conductors installed after [Insert the effective date of this rule] shall be selected and located in surroundings compatible with their design and intended use.

§ 56.12102 Bare conductors.

The voltage of bare conductors, other than trolley conductors, accessible to inadvertent contact by persons shall not exceed 40 volts.

§ 56.12103 Overcurrent protection.

(a) Electric equipment and conductors, other than trailing cables, shall be protected against overloads and short circuits with fuses or automatic circuit interrupting devices. Such fuses and devices shall be of a type and capacity to safely interrupt the circuit under all overload and short circuit fault conditions.

(b) Motors shall be protected against overload at no more than 125 percent of the full load current of the motors.

(c) Short-circuit protection of motors shall be provided as specified in Tables 56.12103–1 and 56.12103–2.

(d) Where the protection specified in Tables 56.12103–1 and 56.l2103–2 is not sufficient for the starting current of the motor—

(1) A higher rated non-time-delay fuse shall be permitted, but shall in no case exceed 400 percent of the full-load current of the motor or 600 amperes;

(2) A higher rated standard (dual element) fuse shall be permitted, but shall in no case exceed 225 percent of the full-load current of the motor;

(3) A higher rated inverse time circuit breaker shall be permitted, but shall in no case exceed 400 percent of the full-load current of the motor;

(4) A higher rated fuse in the 601–6000 ampere classification shall be permitted, but shall in no case exceed 300 percent of the full-load current of the motor; or

(5) A higher rating or adjustment of an instantaneous trip circuit breaker shall be permitted, but shall in no case exceed 1300 percent of the full-load current of the motor.

(e) All three-phase motors shall be protected with overcurrent devices so that an overcurrent in any phase will deenergize all ungrounded phases.

(f) Transformers shall be protected on the primary side with overcurrent protection rated at no more than 250 percent of their rated full-load current.

(g) When the required rating of a fuse or circuit breaker without an adjustable trip unit does not correspond to a standard rating for a fuse or circuit breaker, the protective device used shall not exceed the next higher standard device rating.

(h) Circuit breakers or fuses providing short-circuit protection shall be installed where the circuit conductors are connected to the supply, except for feeder tap conductors that—

(1) Do not exceed 25 feet in length;

(2) Have ampacities of at least one-third of the ampacity of the feeder conductors; and

(3) Terminate at a circuit breaker or fuse with a current rating that does not exceed the ampacity of the feeder tap conductors.

(i) Wiring shall be protected against overcurrent at no more than the ampacity specified in 30 CFR 56.12601.

(j) Overcurrent protection shall not be required on incandescent lamps supplied from direct-current systems, provided the length of ungrounded conductors does not exceed eight feet.

(k) Where interruption of a circuit presents a hazard to persons, the overload protection requirement of this section does not apply if measures are taken to warn persons when an overload occurs.

(l) Fuses, circuit breakers, or a combination of both shall not be connected in parallel.

TABLE 56.12103–1.—MAXIMUM RATING OR SETTING OF MOTOR BRANCH—CIRCUIT SHORT-CIRCUIT PROTECTIVE DEVICES FOR THREE-PHASE MOTORS

Type of motor	Percent of full-load current			
	Non-time delay fuse	Dual element (time-delay fuse)	Instantaneous trip breaker	Inverse time breaker
Squirrel-cage and synchronous motors with full-voltage, resistor or reactor starting:				
No code letter	300	175	700	250
Code letter F to V	300	175	700	250
Code letter B to E	250	175	700	200
Code letter A	150	150	700	150
All AC squirrel-cage and synchronous motors with autotransformer starting:				
Not more than 30 amps:				
No code letter	250	175	700	200
More than 30 amps:				
No code letter	200	175	700	200
Code letter F to V	250	175	700	200
Code letter B to E	200	175	700	200
Code letter A	150	150	700	150
High-reactance squirrel-cage:				
Not more than 30 amps:				
No code letter	250	175	700	250
More than 30 amps:				
No code letter	200	175	700	200
Wound-rotor—No code letter	150	150	700	150

TABLE 56.12103-2.—MAXIMUM RATING OR SETTING OF MOTOR BRANCH—CIRCUIT SHORT-CIRCUIT PROTECTIVE DEVICES FOR SINGLE-PHASE MOTORS AND DIRECT-CURRENT MOTORS

Type of motor	Percent of full-load current			
	Non-time delay fuse	Dual element (Time-delay) fuse	Instantaneous trip breaker	Inverse time breaker
Single-phase, all types:				
No code letter	300	175	700	250
All AC single-phase with full-voltage, resistor or reactor starting:				
No code letter	300	175	700	250
Code letter F to V	300	175	700	250
Code letter B to E	250	175	700	200
Code letter A	150	150	700	150
Direct-current (constant voltage):				
No more than 50 HP:				
No code letter	150	150	250	150
More than 50 HP:				
No code letter	150	150	250	150

§ 56.12104 Unused Conductors.

Conductors that are not supplying power to electric equipment shall be deenergized and shall—

(a) Be removed from their supply source; or

(b) Have their supply source locked out and any exposed ends insulated.

§ 56.12105 Doors and cover plates.

Doors and cover plates on electric equipment, which allow access to electric connections, shall be closed at all times except during installation, testing and repair.

§ 56.12106 Danger signs.

Visible danger signs shall be posted at all substations, switchyards and control centers to warn persons against entry who have not been specifically assigned to perform duties in those locations.

§ 56.12130 Clearance of equipment.

(a) Bare overhead conductors of more than 650 volts, line-to-line which are installed parallel along a roadway and under which haulage trucks have access shall be suspended at a height at least 10 feet higher than the raised bed of any haulage truck used at the mine.

(b) When equipment is moved or operated near energized bare overhead conductors of less than 69,000 volts (other than trolley conductors) and the clearance is less than 10 feet, the conductors shall be deenergized or other precautionary measures shall be taken to prevent the equipment frames from being energized.

(c) When equipment is moved or operated near energized bare overhead conductors of 69,000 volts or more, the conductors shall be either deenergized or the minimum distance of the conductors from the equipment shall be as in Table 56.12130.

(d) Supplies or materials shall not be stored or stockpiled under bare overhead conductors of more than 650 volts, line-to-line.

TABLE 56.12130 [1]—MINIMUM DISTANCE FROM ENERGIZED CONDUCTORS

Conductor voltage	Distance (in feet)
69 to 114 kV	12
115 to 229 kV	15
230 to 344 kV	20
345 to 499 kV	25
500 kV or more	35

[1] Derived from *National Electrical Safety Code* Table 124-1.

Work on Electric Equipment and Circuits

§ 56.12200 Lockout procedures.

(a) Before electrical or mechanical work is performed on electric circuits or equipment, electric power to the circuits or equipment shall be deenergized except when electric power is a necessary part of the work procedure for accomplishing the mechanical work.

(b) Individual padlocks and identifying tags for each person performing work shall be installed to prevent the power circuit from being energized and the equipment set in motion without the knowledge of persons working on the circuits and equipment. Padlocks and tags shall only be removed by the persons who installed them.

(c) When testing circuits to locate an electrical problem, or adjusting electric circuits, the circuits do not have to be deenergized if—

(1) The circuit voltage is 1040 volts or less;

(2) Testing or adjusting is performed by a qualified electrician in accordance with 30 CFR 56.12100.

(3) The person uses procedures, tools and equipment to assure personal safety when in close proximity to energized parts; and

(4) It would be impractical to deenergize.

§ 56.12201 Plugs and receptacles.

Power cable plugs and receptacles for circuits greater than 150 volts, line-to-ground, shall not be connected or disconnected under load unless they are of the load-break type.

§ 56.12202 Fuses.

Fuses shall be installed or removed using tools or procedures that prevent electric shock or burns.

§ 56.12203 Cable handling.

(a) Power cables energized to a voltage in excess of 150 volts, line-to-ground, shall not be moved by other equipment unless sleds, or slings insulated from that equipment are used. This does not prohibit pulling or dragging of a trailing cable by the equipment it powers.

(b) When power cables energized to a voltage in excess of 150 volts, line-to-ground, are moved manually, insulated hooks, tongs, slings, gloves, mitts, aprons or other insulated personal protective equipment capable of protecting against shock, shall be used.

(c) Insulated handling equipment shall be—

(1) Examined before each use for visible signs of damage or defects; and

(2) Removed from use when damaged or defective.

(d) Surplus trailing cables serving shovels, cranes and similar equipment shall be stored—

(1) In cable boats;

(2) On reels mounted on the equipment; or

(3) In a manner which would protect them from mechanical damage.

§ 56.12204 Access.

(a) For installations and equipment constructed after [Insert the effective date of this rule], working space shall be provided in accordance with Table 56.12204 where access to exposed energized electric equipment is necessary.

(b) For existing installations and equipment, working space in accordance with Table 56.12204 shall be provided where access to exposed energized electric equipment is necessary, unless other precautionary measures are used to protect persons from electric shock or burns.

TABLE 56.12204.[1]—MINIMUM WORKING SPACE

Nominal voltage to ground	Minimum clear distance for condition (ft) [2]		
	(A)	(B)	(C)
0 to 150 V	3	3	3
151 to 600 V	3	3½	4
601 to 2,500 V	3	4	5
2,501 to 9,000 V	4	5	6
9,001 to 25,000 V	5	6	9
25,001 to 75 kV	6	8	10
Above 75 kV	8	10	12

[1] NFPA, 70 E. Tables 110–16A and 110–34A

[2] As used in Table 56.12204, conditions (A), (B), (C) are as follows:

(A) Exposed energized parts on one side and no energized or grounded parts on the other side of the working space, or exposed energized parts on both sides guarded by wood or other insulating materials. Insulated conductors operating at not over 300 volts are not considered energized parts.

(B) Exposed energized parts on one side and grounded parts on the other side. Concrete, brick or rock walls will be considered as grounded surfaces.

(C) Exposed energized parts on both sides of the work space.

Guarding; Insulation; Separation

§ 56.12300 Connections and grids.

Exposed electric connections and resistor grids that are not protected by location shall be insulated. Where this is impractical they shall be guarded to prevent inadvertent contact by persons or equipment.

§ 56.12301 Communication conductors.

(a) Communication conductors shall be isolated or insulated to prevent them from contacting bare energized parts.

(b) Communication conductors carried on poles supporting uninsulated power conductors shall be located below the power conductors.

(c) Communication conductors shall not be attached to a crossarm that carries uninsulated power conductors.

§ 56.12302 Lights, guarding.

(a) Portable extension lights and lights less than 8 feet above travelways and working places shall be guarded to prevent a hazard to persons.

(b) Other lights shall be guarded when they present a hazard.

(c) Lamps shall not contact combustible materials.

§ 56.12330 Transformers.

(a) Transformers shall be—

(1) Totally enclosed;

(2) Installed so exposed energized parts are at least 8 feet above the ground; or

(3) Installed in a transformer house.

(4) Surrounded by a sturdy fence at least 6 feet high and at least 3 feet from any parts, casings or energized conductors.

(b) Gates or doors of transformer enclosures shall be locked to prevent unauthorized access to exposed energized parts which are less than 8 feet above the ground.

(c) Metallic transformer houses and fences shall be connected to the metallic case of the safety grounded transformer.

§ 56.12331 Substations.

Substations containing exposed energized parts that can be inadvertently contacted by persons shall be enclosed. When the enclosure is a metallic structure or fence it shall be connected to the substation's safety grounding system.

Connections; Switches; Controls

§ 56.12400. Identification.

Circuit breakers, trolley taps, fuse switchboxes and other disconnecting devices shall be legibly, durably, and distinctively marked to show which electric equipment they supply, except where the circuit breakers and devices can be identified by their proximity to the equipment.

§ 56.12401 Insulating mats.

Insulating mats shall be provided at all switchboards and power control switches where shock hazards exist due to exposed energized parts.

§ 56.12402 Undervoltage protection.

(a) Electric powered machinery shall include undervoltage protection to prevent shocks, burns, unwanted motion or unintentional starting. When voltage is lost, the equipment shall remain deenergized until manually restarted.

(b) Pumps, level control circuits and other equipment that by their design can automatically start and stop safely are not required to have undervoltage protection.

Safety Grounding

§ 56.12500 Grounding.

(a) All electric circuits shall have a safety grounding system. The system's performance shall limit the voltage on non-current-carrying metallic parts of electric equipment that a person can contact to a value that shall not cause a disabling or fatal shock under the following fault conditions—

(1) Single line-to-ground on grounded power systems; or

(2) Double line-to-ground on ungrounded power systems, with one of the faults at the source.

(b) The voltage on non-current-carrying metallic parts of electric equipment shall be controlled by—

(1) Limiting the magnitude of the voltage;

(2) Limiting the duration of the voltage; or

(3) A combination of these two.

See Appendix I for Subpart K.

§ 56.12501 Alternating-current equipment.

(a) The following equipment shall be connected to the safety grounding system by equipment safety grounding conductors:

(1) Metallic frames, enclosures, and other exposed non-current-carrying metallic parts of electric equipment.

(2) Metallic fences and barriers around high-voltage equipment and installations.

(3) Metallic enclosures of alternating-current conductors.

(4) Metallic battery trays.

(5) Metallic messenger wires.

(6) Metallic structures or racks that support electric equipment or conductors.

(b) Metallic cable shielding shall be connected to the safety grounding system at each termination by equipment safety grounding conductors.

(c) Before batteries on battery-powered equipment are connected to a battery charger, the metallic battery trays shall be connected to the grounded metallic frame of the battery charger, and shall remain connected until the batteries have been disconnected from the charger.

(d) Metallic cable hangers or supporting structures shall either be connected to the safety grounding system or insulated from the cable.

(e) Exposed metallic enclosures or portions of hand-held electric equipment shall be connected to the safety grounding system, except when the equipment is—

(1) Double insulated as determined by an independent testing laboratory and does not present a shock hazard; or

(2) Operated at a maximum of 40 volts.

(f) Generator powered equipment mounted on the same metallic frame as the generator is not required to be

connected to the mine's safety grounding system.

§ 56.12502 Direct-current equipment.

(a) The following shall be connected to the mine safety grounding system by equipment safety grounding conductors

(1) Metallic frames, enclosures, and other exposed non-current-carrying metallic parts of conductors and equipment.

(2) Metallic messenger wires used to support direct-current conductors.

(3) Metallic racks and structures used to support trolley wires and trolley feeder wires.

(4) Metallic overcasts in trolley entries.

(b) Silicon diode grounding systems shall be installed in accordance with 30 CFR 56.12504.

(c) Component parts of complete units of equipment shall be solidly connected to the frames of the equipment.

(d) Exposed metallic enclosures or portions of hand-held electric equipment shall be connected to the safety grounding system, except when the equipment is—

(1) Double insulated as determined by an independent testing laboratory and does not present a shock hazard;

(2) Operated at a maximum of 40 volts; or

(3) Powered by internal batteries which are a integral part of the equipment.

(e) Generator powered equipment mounted on the same metallic frame as the generator is not required to be connected to the mine's safety grounding system.

§ 56.12503 Equipment safety grounding conductors.

(a) Equipment safety grounding conductors for portable and mobile electric equipment shall be one or more stranded copper conductors contained within the cable or flexible cord supplying the equipment.

(b) Equipment safety grounding conductors for stationary equipment shall be—

(1) Contained together with the circuit conductors in the raceways, cables, or cords;

(2) Wrapped around the raceways, cables, or cords containing the circuit conductors; or

(3) A continuous metal conduit or metallic raceway that complies with the voltage exposure requirements of 30 CFR § 56.12500.

(c) The combined cross-sectional area of equipment safety grounding conductors shall be equal to or greater than—

(1) One-half the cross-sectional area of one circuit conductor when the circuit conductor is No. 6 AWG or larger; or

(2) The cross-sectional area of one circuit conductor when the circuit conductor is smaller than No. 6 AWG.

(d) Equipment safety grounding conductors installed outside of raceways, cables, or cords and used to ground stationary equipment shall be No. 6 AWG or larger.

(e) Switches, fuses, circuit breakers, ground-fault devices and overcurrent devices shall not be installed in equipment safety grounding conductors.

(f) Ground-wire devices installed in the equipment safety grounding conductor for the purpose of inter-machine arc suppression or in conjunction with ground-wire monitoring systems shall be designed and constructed to withstand the maximum amount of phase-to-phase fault current to which they may be exposed without creating an electrical shock or fire hazard.

(g) When used, ground-wire devices specified in paragraph (f) of this section shall be connected to the safety grounding system with two separate conductors.

(h) On direct-current powered equipment, the equipment safety grounding conductor and the return power conductor shall be separately connected to the mine track, grounded return-feeder conductor, or metallic frame or enclosure used as the safety grounding system.

(i) Equipment safety grounding conductors for draw-out equipment or plugs and receptacles shall be the first conductors made when making connections and the last conductors broken when breaking connections.

(j) When power is supplied between separate metallic parts of equipment, the parts shall be connected together through an equipment safety grounding conductor.

(k) The frame of a portable or mobile generator supplying remote loads shall have equipment safety grounding conductors connecting the frames of each remote load to the frame of the generator.

(l) Equipment safety grounding conductors shall be bare or shall be properly identified.

§ 56.12504 Silicon diode grounding.

When the metallic frames of off-track equipment are grounded by silicon diodes, the diode grounding system shall meet the following conditions:

(a) The polarity of each grounding diode shall be compatible with the grounded polarity of the direct-current systems.

(b) Each grounding diode shall have a threaded base used to solidly connect the diode to the machine frame.

(c) An overcurrent device shall be installed between the grounding diode(s) and the grounded power conductor, and shall cause the main conductor or the circuit interrupting device to deenergize all circuits on the machine when 50 amperes or more flows through the grounding diode, except that methane monitor circuits may remain energized.

(d) A polarizing diode that prevents the unit of equipment from being operated when the polarity of the supply conductors is reversed shall be installed in the control circuit.

(e) The forward current rating of each grounding diode shall be equal to or greater than 750 amperes when used to ground a continuous mining machine or equal to or greater than 400 amperes when used to ground other equipment.

(f) The peak reverse voltage rating of the grounding and polarizing diodes shall be at least 1,200 volts.

§ 56.12505 Low-resistance ground fields.

(a) Low-resistance ground fields used in the safety grounding system shall be designed and installed in a manner which assures that the maximum exposure voltage under fault conditions does not create hazardous step and touch potentials. The following parameters shall be considered in evaluating ground field safety—

(1) Soil resistivity;

(2) Available fault current;

(3) Ground field construction; and

(4) Operating times of protective devices.

(b) Low-resistance ground fields used in the safety grounding system shall be maintained at 25 ohms or less unless an evaluation of the system in accordance with paragraph (a) indicates that—

(1) a lower value of resistance is necessary; or

(2) a higher value of resistance can be used.

(c) Materials used for ground fields shall have at least four square feet of surface area in contact with soil.

§ 56.12506 Testing.

(a) On all installations made after [Insert the effective date of this rule], and when repairs or modifications are made to the safety grounding system, continuity tests shall be made to assure the integrity of the system.

(b) The safety grounding system shall be reviewed at intervals not to exceed twelve months to assure that the maximum voltage exposure under fault conditions complies with requirements of this subpart.

(c) For mine power systems utilizing an alternating-current voltage of less than 650 volts, line-to-line, the resistance to earth of the safety grounding system's connection to earth shall be maintained at 25 ohms or less and be physically separated from the substation grounding system. This separation shall be either 25 feet or 5 times the largest dimension of the safety grounding system's connection to earth, whichever is larger. When 25 ohms or less cannot be obtained, the operator shall assure that the system complies with 30 CFR 56.12505.

(d) When reviewing a mine power system utilizing an alternating-current voltage greater than 650 volts, line-to-line, the review shall include determinations of the—

(1) Safety grounding system's resistance to earth at its connection to earth;

(2) Maximum fault current that can flow into the safety grounding system at electric loads or sources of 500 kVA or larger; and

(3) Impedance of the safety grounding system at electric loads or sources of 500 kVA or larger.

(e) A weekly check of continuity shall be made of all mobile equipment safety grounding conductors, except when they are continuously monitored with an MSHA tested ground-wire monitoring device.

Power Cables and Conductors

§ 56.12600 Installation.

(a) Cables and insulated conductors shall be installed so that they are protected against physical damage, adverse ambient conditions and failure of adjacent mechanical systems.

(b) Cables and insulated conductors shall not be supported from pipelines.

(c) Insulated conductors shall not contact pipelines.

(d) When cables and pipelines are supported from the same supports, clearance to prevent shock hazards during maintenance to pipelines shall be provided.

56.12601 Ampacity.

(a) Electric conductors shall be of a size and currentcarrying capacity to assure that a rise in temperature resulting from normal operating conditions does not exceed the rating of the insulation and conductors.

(b) Branch circuit conductors supplying electric equipment shall have ampacities of at least 125 percent of the full-load current rating of the equipment.

(c) Feeder circuit conductors supplying multiple loads shall have ampacities of at least the sum of the full-load current ratings of each load plus 25 percent of the highest full load current rating of the largest load.

(d) The size of conductors for electric equipment shall be at least that specified in ampacity Tables 56.12601–1 through 56.12601–10 below, or other tables that are appropriate for the conditions under which the conductors are used.

(e) Ampacity of conductors shall be corrected according to Table 56.12601–11, if the ambient temperature is other than the temperature at which the conductor was rated.

(f) When four or more conductors are contained in the same raceway, conduit or cable, the maximum allowable load current shall be reduced according to Table 56.12601–12.

TABLE 56.12601–1. ALLOWABLE AMPACITIES OF 300- AND 600-VOLT FLEXIBLE CORDS; COPPER CONDUCTORS

Conductor size AWG	Types S, SO, SJO ST, STO, SJT, SJTO, SOO, SJOO, STOO, SJTOO—Current-carrying conductors		Types AFS, AFSJ, HSJ, HSJO, HS, MSO—Current-carrying conductors
	2	3	3
14	18	15	20
12	25	20	30
10	30	25	35
8		35	

TABLE 56.12601–2—ALLOWABLE AMPACITIES OF SHIELDED AND UNSHIELDED 0- TO 2000-VOLT PORTABLE POWER CABLES; COPPER CONDUCTORS (BASED ON AMBIENT AIR TEMPERATURE OF 20.C (68.F))

Conductor size AWG Or MCM	Ampacities—Number of Current-Carrying Conductors in Cable Or Raceway						
	1		2		3		
	75 °C [1]	90 °C [1]	75 °C [1]	90 °C [1]	75 °C [1]	90 °C [1]	90 °C [2]
8	75	98	63	85	63	70	
6	106	128	81	112	81	93	110
4	138	171	113	150	106	123	144
3	163	197	131	171	125	142	165
2	188	227	150	197	144	163	188
1	213	263	175	225	163	190	217
1/0	250	304	213	256	181	219	249
2/0	294	352	244	295	213	254	287
3/0	344	407	281	337	244	294	329
4/0	394	472	325	387	275	339	379
250	438	525	356	428	306	378	419
300	494	590	388	472	344	421	470
350	556	651	419	514	381	465	513
400	600	708	450	555	406	507	555
500	681	820	519	618	469	575	632

[1] 0–2000 Volt Insulation, Unshielded Portable Power Cable.
[2] 0–2000 Volt Insulation, Shielded Portable Power Cable.

TABLE 56.12601-3.—ALLOWABLE AMPACITIES OF INSULATED CONDUCTORS RATED 0 TO 2000 VOLTS, 60 °C TO 90 °C, NOT MORE THAN THREE CURRENT-CARRYING CONDUCTORS IN RACEWAY OR CABLE (BASED ON AMBIENT AIR TEMPERATURE OF 20 °C (68 °F))

Conductor size AWG or MCM	Copper				Aluminum or copper-clad aluminum				Conductor size AWG or MCM
	Insulation temperature rating				Insulation temperature rating				
	60°	75°	85°	90°	60°	75°	85°	90°	
18				15					
16			20	19					
14	20	20	27	25					
12	25	25	33	30	20	20	27	25	12
10	35	35	43	40	29	30	33	35	10
8	46	55	60	59	35	44	43	49	8
6	64	72	76	81	46	55	60	65	6
4	81	94	103	103	64	72	82	81	4
3	98	111	120	119	75	83	92	92	3
2	110	127	136	140	87	99	109	108	2
1	127	144	158	162	98	111	120	124	1
0	144	166	179	184	116	133	141	146	0
00	167	193	207	211	133	149	158	162	00
000	191	221	234	243	150	171	185	189	000
0000	225	254	272	281	173	199	212	221	0000
250	248	282	299	313	196	227	239	248	250
300	277	315	337	346	219	254	272	275	300
350	299	343	370	378	243	276	294	302	350
400	323	370	397	410	260	298	321	329	400
500	370	420	451	464	300	343	364	378	500
600	410	464	500	513	329	376	402	416	600
700	445	508	544	562	358	414	440	454	700
750	462	525	560	578	370	425	457	470	750
800	474	541	582	599	381	436	467	486	800
900	502	575	614	632	410	470	506	518	900
1000	526	602	641	664	433	492	527	540	1000
1250	572	652	696	718	468	536	571	589	1250
1500	601	691	739	761	502	575	614	632	1500
1750	629	718	766	794	526	602	647	664	1750
2000	647	735	788	810	543	619	663	680	2000

TABLE 56.12601-4— ALLOWABLE AMPACITIES OF SINGLE CONDUCTORS RATED 0 TO 2000 VOLTS (BASED ON AMBIENT AIR TEMPERATURE OF 20° C (68° F))

Conductor size AWG or MCM	Copper				Aluminum or copper-clad aluminum				Conductor size AWG or MCM
	Insulation temperature rating				Insulation temperature rating				
	60°	75°	85°	90°	60°	75°	85°	90°	
18				19					
16			25	26					
14	25	30	33	35					
12	30	35	43	40	25	30	33	35	12
10	40	50	60	55	35	40	43	40	10
8	69	77	82	86	52	61	65	65	8
6	92	105	109	113	69	83	87	86	6
4	121	138	147	151	92	111	114	119	4
3	139	160	174	178	110	127	136	140	3
2	162	188	201	205	127	149	158	162	2
1	191	215	234	238	150	171	179	189	1
0	225	254	272	281	173	199	212	221	0
00	260	293	315	324	202	232	245	254	00
000	300	343	364	378	231	265	288	297	000
0000	347	398	424	437	271	309	332	340	0000
250	393	448	478	491	306	348	375	383	250
300	433	492	527	545	335	387	413	427	300
350	485	558	598	616	381	436	467	481	350
400	526	602	647	664	410	470	505	518	400
500	595	685	734	756	468	536	571	589	500
600	664	762	815	842	526	597	647	664	600
700	728	834	897	923	578	657	707	729	700
750	757	867	929	956	595	685	734	756	750
800	785	901	962	994	618	713	761	783	800
900	843	961	1033	1064	670	774	826	848	900
1000	901	1033	1109	1139	722	829	886	913	1000
1250	1028	1177	1261	1296	820	945	1011	1037	1250
1500	1132	1298	1386	1431	918	1050	1125	1161	1500
1750	1236	1414	1516	1561	1010	1160	1245	1280	1750
2000	1334	1531	1636	1685	1109	1271	1359	1442	2000

TABLE 56.12601-5—ALLOWABLE AMPACITIES OF SHIELDED, THREE CONDUCTOR, 2,001-15,000 VOLT, MINE POWER CABLE; COPPER CONDUCTORS

[Based on Ambient Temperature of 20 °C]

Ampacities	Conductor size (AWG or MCM)			
	2,001-8,000 volts		8,001-15,000 volts	
	75 °C	90 °C	75 °C	90 °C
6	99	110	.....	.....
4	130	144	.....	.....
2	170	188	175	194
1	196	217	200	221
1/0	226	249	230	254
2/0	260	287	263	290
3/0	299	329	301	334
4/0	343	379	346	384
250	379	419	383	424
300	423	470	426	473
350	465	513	468	517
400	500	555	501	558
500	571	632	571	632

TABLE 56.12601-6—ALLOWABLE AMPACITIES OF SHIELDED, THREE CONDUCTOR, 2,001-15,000 VOLT MINE POWER CABLES; ALUMINUM CONDUCTORS

[Based on Ambient Temperature of 20 °C]

Ampacities	Conductor size (AWG or MCM)			
	2,001-8,000 volts		8,001-15,000 volts	
	75 °C	90 °C	75 °C	90 °C
4	101	112	.....	.....
2	133	146	136	.....
1	153	.....	156	.....
1/0	176	195	179	198
2/0	203	223	205	227
3/0	234	257	236	261
4/0	269	296	271	300
250	298	328	300	332
350	366	404	367	406
400	396	425	397	433
500	458	502	453	500

TABLE 56.12601-7—AMPACITY OVERHEAD COPPER CONDUCTORS

Conductor AWG [1]	CM [2]	Copper, ampacity in amperes
.....	6,400	51
10	10,380	68
.....	10,820	71
9	13,090	79
8	16,510	92
6	26,240	124
4	41,740	166
3	52,620	193
2	66,360	223
1	83,700	260
1/0	105,600	301
2/0	133,100	350
3/0	167,800	406
4/0	211,680	472
	250,000	547
	300,000	615
	350,000	680
	400,000	730
	450,000	787
	500,000	842
	600,000	945
	700,000	1042
	750,000	1087
	800,000	1131

TABLE 56.12601-7—AMPACITY OVERHEAD COPPER CONDUCTORS—Continued

Conductor AWG [1]	CM [2]	Copper, ampacity in amperes
	1,000,000	1295

[1] AWG means American Wire Gage.
[2] CM means Circular Mils.

TABLE 56.12601-8—AMPACITY OVERHEAD ACSR [1] CONDUCTORS

Conductor Size AWG [2]	CM [3]	ACSR, ampacity in amperes
6	.....	104
4	.....	139
2	.....	184
1	.....	210
1/0	.....	240
2/0	.....	275
3/0	.....	316
4/0	.....	360
	266,800	452
	300,000	492
	336,400	534

TABLE 56.12601-8—AMPACITY OVERHEAD ACSR [1] CONDUCTORS—Continued

Conductor Size AWG [2]	CM [3]	ACSR, ampacity in amperes
	397,500	593
	477,000	665
	556,500	732
	605,000	772
	636,000	797
	666,600	805
	715,500	858
	795,000	881
	874,500	935
	900,000	926
	954,000	960
	1,033,500	1010
	1,113,000	1060
	1,182,500	1099
	1,192,500	1108
	1,272,000	1148
	1,351,500	1198
	1,431,000	1237
	1,510,500	1278
	1,590,000	1313
	1,780,000	1434

[1] Aluminum Cable Steel Reinforced.
[2] AWB means American Wire Gage.

[3] CM means Circular Mils.

TABLE 56.12601-9—ALLOWABLE AMPACITIES OF INSULATED CONDUCTORS RATED 0 TO 2000 VOLTS, 60 °C TO 90 °C, NOT MORE THAN THREE CURRENT-CARRYING CONDUCTORS IN RACEWAY OR CABLE

[Based on Ambient Air Temperatures of 30 °C (86 °F)]

Conductor size AWB or MCM	Copper				Aluminum or copper-clad aluminum				Conductor size AWG or MCM
	Insulation temperature rating				Insulation temperature rating				
	60°	75°	85°	90°	60°	75°	85°	90°	
18				14					
16			18	18					
14	20	20	25	25					
12	25	25	30	30	20	20	25	25	12
10	30	35	40	40	25	30	30	35	10
8	40	50	55	55	30	40	40	45	8
6	55	65	70	75	40	50	55	60	6
4	70	85	95	95	55	65	75	75	4
3	85	100	110	110	65	75	85	85	3
2	95	115	125	130	75	90	100	100	2
1	110	130	145	150	85	100	110	115	1
1/0	125	150	165	170	100	120	130	135	1/0
2/0	145	175	190	195	115	135	145	150	2/0
3/0	165	200	215	225	130	155	170	175	3/0
4/0	195	230	250	260	150	180	195	205	4/0
250	215	255	275	290	170	205	220	230	250
300	240	285	310	320	190	230	250	255	300
350	260	310	340	350	210	250	270	280	350
400	280	335	365	380	225	270	295	305	400
500	320	380	415	430	260	310	335	350	500
600	355	420	460	475	285	340	370	385	600
700	385	460	500	520	310	375	405	420	700
750	400	475	515	535	320	385	420	435	750
800	410	490	535	555	330	395	430	450	800
900	435	520	565	585	355	425	465	480	900
1000	455	545	590	615	375	445	485	500	1000
1250	495	590	640	665	405	485	525	545	1250
1500	520	625	680	705	435	520	565	585	1500
1750	545	650	705	735	455	545	595	615	1750
2000	560	665	725	750	470	560	610	630	2000

TABLE 56.12601-10—ALLOWABLE AMPACITIES OF SINGLE CONDUCTORS RATED 0 TO 2000 VOLTS

[Based on Ambient Air Temperatures of 30 °C (86 °F)]

Conductor size AWG or MCM	Copper				Aluminum or copper-clad aluminum				Conductor size AWG or MCM
	Insulation temperature rating				Insulation temperature rating				
	60°	75°	85°	90°	60°	75°	85°	90°	
18				18					
16			23	24					
14	25	30	30	35					
12	30	35	40	40	25	30	30	35	12
10	40	50	55	55	35	40	40	40	10
8	60	70	75	80	45	55	60	60	8
6	80	95	100	105	60	75	80	80	6
4	105	125	135	140	80	100	105	110	4
3	120	145	160	165	95	115	125	130	3
2	140	170	185	190	110	135	145	150	2
1	165	195	215	220	130	155	165	175	1
1/0	195	230	250	260	150	180	195	205	1/0
2/0	225	265	290	300	175	210	225	235	2/0
3/0	260	310	335	350	200	240	265	275	3/0
4/0	300	360	390	405	235	280	305	315	4/0
250	340	405	440	455	265	315	345	355	250
300	375	445	485	505	290	350	380	395	300
350	420	505	550	570	330	395	430	445	350
400	455	545	595	615	355	425	465	480	400
500	515	620	675	700	405	485	525	545	500
600	575	690	750	780	455	540	595	615	600
700	630	755	825	855	500	595	650	675	700
750	655	785	855	885	515	620	675	700	750
800	680	815	885	920	535	645	700	725	800
900	730	870	950	985	580	700	760	785	900
1000	780	935	1020	1055	625	750	815	845	1000
1250	890	1065	1160	1200	710	855	930	960	1250
1500	980	1175	1275	1325	795	950	1035	1075	1500
1750	1070	1280	1395	1445	875	1050	1145	1185	1750

TABLE 56.12601-10—ALLOWABLE AMPACITIES OF SINGLE CONDUCTORS RATED 0 TO 2000 VOLTS—Continued

[Based on Ambient Air Temperatures of 30 °C (86 °F)]

Conductor size AWG or MCM	Copper				Aluminum or copper-clad aluminum				Conductor size AWG or MCM
	Insulation temperature rating				Insulation temperature rating				
	60°	75°	85°	90°	60°	75°	85°	90°	
2000	1155	1385	1505	1560	960	1150	1250	1335	2000

TABLE 56.12601-11.—AMPACITY CORRECTION FACTORS

[For Ambient Temperatures other than 20 °C, Multiply the Ampacities from Tables 56.12601-2 Through 56.12601-6 by the Appropriate Factor Shown Below]

Ambient temperature °C	Correction factor				Ambient temperature °F
	60°	75°	85°	90°	
21-25	.91	.94	.95	.96	70-77
26-30	.82	.88	.90	.91	79-86
31-35	.71	.82	.85	.87	88-95
36-40	.58	.75	.80	.82	97-104
41-45	.41	.67	.74	.76	106-113

[For Ambient Temperatures other than 30 °C, Multiply the Ampacities from Tables 56.12601-1, 56.12601-11 and 56.12601-12 by the Appropriate Factor Shown Below]

Ambient temperature °C	Correction factor				Ambient temperature °F
	60°	75°	85°	90°	
21-25	1.08	1.05	1.04	1.04	70-77
26-30	1.00	1.00	1.00	1.00	79-86
31-35	.91	.94	.95	.96	88-95
36-40	.82	.88	.90	.91	97-104
41-45	.71	.82	.85	.87	106-113

TABLE 56.12601-12.—AMPACITY DERATING FACTORS

Number of conductors	Percent of ampacity value
4 through 6	80
7 through 24	70
25 through 42	60
43 and above	50

Derived from notes to NEC Tables 310-16 through 310-19.

§ 56.12602 Insulation, termination and shielding.

(a) Power cables and conductors, other than trolley wires and uninsulated surface overhead conductors of more than 650 volts, line-to-line, shall have insulation rated for at least the voltage of the circuit in which the cable or conductor is applied.

(b) Power cables and conductors installed on the surface in circuits with line-to-line voltages above 2,000 volts and subject to contact by persons shall have metallic shielding around each power conductor.

(c) Metallic enclosed power cables and conductors are not required to be shielded provided the enclosure is continuous and connected to the safety grounding system.

(d) Except as provided in paragraph (f) of this section, cables shall enter metallic frames of electric enclosures through fittings sized for the cables which prevent damage to the cable jackets and the insulation of the internal conductors.

(e) Except as provided in paragraph (f) of this section, conductors shall enter metallic frames of electric enclosures through fittings with insulated bushings sized for the conductors.

(f) Cables and conductors in conduit that enter metallic frames of electric enclosures need not be equipped with fittings or bushings when protection against damage by sharp edges is otherwise provided.

(g) Cables and conductors shall be secured to prevent mechanical strain on electrical connections.

§ 56.12603 Splices, repairs and terminations of conductors and cables.

(a) Cables shall be spliced, terminated, or repaired by a qualified electrician.

(b) A splice in a trailing cable shall contain only one connection point in each conductor.

(c) Terminations of shields in cables shall be connected to equipment safety grounding conductors at each splice and termination.

(d) Except as provided in paragraph (e) of this section, each splice and repair shall have—

(1) Conductivity and current-carrying capacity that prevents insulation damage due to heating of conductors;

(2) The severed conductors joined by welding or compression-type connectors;

(3) Each power, control, and ground check conductor individually reinsulated with insulation having a thickness, temperature rating, and dielectric strength of at least that of the original insulation;

(4) Semiconducting tape replaced over the insulation of each power conductor within shielded cables;

(5) Metallic shielding in the form of metallic braid or serving (wrap), or metallic tape replaced over each power conductor and applied in half-lapped layers, on shielded cables;

(6) The outer jacket replaced to provide at least the same thickness and protection as that of the original jacket; and

(7) The outer jacket sealed, vulcanized, molded, or fused to the cable's original jacket to exclude moisture.

(e) One trailing cable splice which does not meet the requirements of paragraph (d) of this section shall be permitted for the time period necessary to move the equipment for repair of the cable, provided the splice is mechanically strong and insulated to prevent shock.

§ 56.12604 Lightning protection.

(a) Surge arresters shall be provided for exposed ungrounded power conductors and telephone wires.

(b) Power conductors and telephone wires that are buried, installed beneath a protective metallic covering, or enclosed within grounded metallic shields, coverings, or enclosures, throughout their entire length need not be equipped with surge arresters.

(c) Surge arresters shall be rated for the voltage and current of the circuit they protect.

§ 56.12630 Support structures and guy wires.

Guy wires attached to structures supporting uninsulated overhead power conductors, other than telephone wires, shall be—

(a) Electrically connected to the equipment safety grounding conductor at the supporting structure end of the guy wire; or

(b) Provided with one or more insulators which have a dry flashover voltage at least double the nominal voltage and a wet flashover voltage at least as high as the nominal voltage. The insulators shall be at least 8 feet from the ground.

Trailing Cables

§ 56.12700 Insulation; shielding.

Trailing cables used in mine electrical systems shall have—

(a) Conductor insulation rated for at least the line-to-line voltage; and

(b) Shielding for the purpose of confining the voltage stresses when used to supply equipment at over 2,000 volts line-to-line.

§ 56.12701 Overcurrent protection.

(a) Each trailing cable of portable and mobile equipment shall have short-circuit and ground-fault protection for each ungrounded conductor that shall safely interrupt all ungrounded conductors under fault conditions.

(b) Ungrounded conductors of trailing cables energized at voltages of 1040 volts or less shall be protected by one of the following—

(1) An inverse-time circuit breaker with a maximum current rating as specified in Table 56.12701–1.

(2) An instantaneous-trip or short-time delay electronic circuit breaker having a time delay not to exceed 0.1 seconds with a maximum instantaneous setting not more than—

(i) The values listed in Table 56.12701–2 for 480-, 600-, and 1040-volt trailing cables; or

(ii) The values listed in Table 56.12701–3 for 300- and 600-volt direct-current trailing cables.

(3) An instantaneous-trip or short-time delay electronic circuit breaker having a time delay not to exceed 0.1 seconds with a setting that does not exceed the lower value of either 115 percent of the maximum starting current for the unit of electric equipment or 60 percent of the lowest value of bolted phase-to-phase short-circuit current at any point in the circuit when—

(i) The circuit to be protected does not function properly using values listed in the tables; and

(ii) A circuit analysis assures that the circuit does not present a hazard to the miners.

(4) Fuses which provide no less protection than that specified above.

(c) Ungrounded conductors of trailing cables energized at voltages greater than 1040 volts shall be provided with instantaneous short-circuit protection with a setting that does not exceed the lower value of either 175 percent of the maximum starting current for the unit of electric equipment or 75 percent of the minimum phase-to-phase short-circuit current available at any point in the circuit.

TABLE 56.12701–1.—MAXIMUM RATINGS OF FUSES PROTECTING DIRECT-CURRENT TRAILING CABLES AND INVERSE-TIME CIRCUIT BREAKERS PROTECTING ALTERNATING-CURRENT TRAILING CABLES

[Maximum Inverse-Time Circuit Breaker or Fuse Rating (Amperes)]

Conductor size (AWG or MCM)	1 Ungrounded power conductor	2 Ungrounded power conductors	3 Ungrounded power conductors
14	15	15	15
12	20	20	20
10	30	30	25
8	60	50	50
6	90	70	70
4	110	110	110
3	150	150	150
2	150	175	175
1	175	200	200
1/0	200	225	225
2/0	250	250	250
4/0	350	350	350
250	350	350	350
300	400	350	350
350	450	350	350
400	500	400	400
500	600	450	400

TABLE 56.12701–2.—Maximum Settings of Instantaneous and Electronic Circuit Breakers Protection 480, 600, and 1040–Volt Alternating Current Trailing Cables

Conductor size (AWG or MCM)	Cable length (feet)	Maximum circuit breaker setting (amperes)		
		480V	600V	1040V
14	0–500	75	100	.....
	501–750	50	75	.....
12	0–500	125	175	.....
	501–750	100	125	.....
10	0–500	200	250	.....
	501–750	150	200	.....
8	0–500	300	400	.....
	501–750	200	300	.....
6	0–550	450	550	850
	501–750	350	450	700
4	0–500	750	900	1250

TABLE 56.12701-2.—Maximum Settings of Instantaneous and Electronic Circuit Breakers Protection 480, 600, and 1040-Volt Alternating Current Trailing Cables—Continued

Conductor size (AWG or MCM)	Cable length (feet)	Maximum circuit breaker setting (amperes)		
		480V	600V	1040V
	501-600	650	800	1100
	601-750	550	650	1000
3	0-500	900	1100	1400
	501-650	700	900	1200
	651-750	650	800	1100
2	0-500	1100	1250	1500
	501-600	950	1100	1400
	601-750	800	950	1250
1	0-500	1300	1450	1650
	501-600	1100	1300	1550
	601-750	950	1100	1400
1/0	0-500	1500	1650	1750
	501-600	1300	1500	1650
	601-750	1100	1300	1500
	751-800	1050	1250	1500
2/0	0-500	1700	1800	1850
	501-600	1500	1650	1750
	601-750	1350	1450	1650
	751-850	1200	1350	1550
3/0	0-500	1900	1950	1900
	501-600	1700	1800	1800
	601-750	1500	1650	1700
	751-900	1300	1450	1650
4/0	0-500	2100	2100	1950
	501-600	1900	1950	1900
	601-750	1700	1800	1800
	751-1000	1400	1550	1650
250	0-500	2150	2150	2000
	501-600	2000	2050	1900
	601-750	1750	1850	1850
	751-1000	1500	1650	1700
300	0-500	2300	2250	2000
	501-600	2100	2100	1950
	600-750	1900	1950	1900
	751-1000	1600	1750	1750
350	0-500	2350	2300	2050
	601-750	2000	2000	1900
	751-1000	1700	1800	1800
400	0-500	2450	2350	2100
	501-600	2250	2250	2000
	601-750	2050	2100	1950
	751-1000	1800	1850	1850
500	0-500	2500	2400	2100
	501-600	2350	2300	2050
	601-750	2150	2150	1950
	751-1000	1900	1950	1850

TABLE 56.12701-3—MAXIMUM SETTINGS OF INSTANTANEOUS CIRCUIT BREAKERS PROTECTING 300- AND 600-VOLT DIRECT CURRENT TRAILING CABLES

Conductor size (AWG or MCM)	Cable length (feet)	300VDC Maximum instantaneous circuit breaker setting (amperes)		600 VDC Maximum instantaneous circuit breaker setting (amperes)	
		Line-line [1]	Line-ground [2]	Line-line [1]	Line-ground [2]
14	0-500	50	50	50	50
12	0-500	75	75	125	125
10	0-500	75	75	200	200
8	0-500	100	100	300	300
6	0-500	200	100	450	300
4	0-500	450	250	600	500
	501-600	350	200	550	400
3	0-500	450	350	700	550
	501-650	400	250	600	450
2	0-500	600	450	750	600
	501-600	550	400	700	550
	601-700	450	300	650	500
1	0-500	900	600	1400	1050
	501-600	750	500	1250	950
	601-750	600	400	1050	800
1/0	0-500	1100	750	1600	1250
	501-600	950	650	1450	1100
	601-750	750	550	1250	950
	751-800	700	500	1200	900

TABLE 56.12701-3—MAXIMUM SETTINGS OF INSTANTANEOUS CIRCUIT BREAKERS PROTECTING 300- AND 600-VOLT DIRECT CURRENT TRAILING CABLES—Continued

Conductor size (AWG or MCM)	Cable length (feet)	300VDC Maximum instantaneous circuit breaker setting (amperes)		600 VDC Maximum instantaneous circuit breaker setting (amperes)	
		Line-line [1]	Line-ground [2]	Line-line [1]	Line-ground [2]
2/0	0-500	1350	950	1800	1450
	501-600	1150	800	1650	1300
	601-750	950	650	1450	1100
	751-850	850	600	1350	1050
3/0	0-500	1550	1150	2000	1650
	501-600	1400	1000	1850	1500
	601-750	1150	800	1650	1300
	751-900	1000	700	1500	1150
4/0	0-500	1850	1400	2200	1850
	501-600	1600	1200	2050	1700
	601-750	1400	1000	1850	1500
250	0-500	2050	1550	2350	2000
	501-600	1800	1350	2200	1850
	601-750	1550	1150	2000	1650
	751-1000	1250	900	1750	1400
300	0-500	2300	1750	2450	2150
	501-600	2050	1550	2350	2000
	601-750	1750	1300	2150	1800
	751-1000	1450	1050	1900	1550
350	0-500	2550	1950	2600	2300
	501-600	2250	1700	2450	2150
	601-750	1950	1500	2300	1950
	751-1000	1600	1200	2050	1700
400	0-500	2750	2150	2650	2400
	501-600	2450	1900	2550	2250
	601-750	2150	1600	2400	2050
	751-1000	1750	1350	2150	1800
500	0-500	3050	2450	2800	2550
	501-600	2800	2200	2700	2400
	601-750	2450	1900	2550	2250
	751-1000	2050	1550	2350	2000
600	0-500	3250	2650	2850	2650
	501-600	3000	2400	2750	2500
	601-750	2650	2050	2650	2350
	751-1000	2250	1700	2400	2100
700	0-500	3500	2900	2950	2750
	501-600	3250	2600	2850	2600
	601-750	2900	2300	2750	2450
	751-1000	2450	1900	2550	2250
800	0-500	3700	3100	3000	2800
	501-600	3450	2800	2900	2700
	601-750	3100	2500	2800	2500
	751-1000	2650	2050	2650	2350
900	0-500	3900	3300	3050	2850
	501-600	3650	3000	3000	2850
	601-750	3300	2650	2850	2650
	751-1000	2850	2250	2700	2450
1000	0-500	4050	3450	3100	2900
	501-600	3800	3150	3000	2850
	601-750	3450	2800	2900	2700
	751-1000	3000	2400	2750	2500

[1] The line-to-line instantaneous circuit breaker settings shall be used for trailing cables supplying power to diode grounded equipment and for trailing cables containing a separate equipment safety grounding conductor if the circuit is provided with separate ground-fault protection.

[2] The line-to-ground instantaneous circuit breaker settings shall be used for trailing cables containing a separate equipment safety grounding conductor when the circuit is not provided with separate ground-fault protection.

§ 56.12702 Attachment.

Trailing cables shall be attached to equipment so that functional damage to the cable jacket and damage to the insulation of the internal conductors is prevented, and strain does not occur on electric connections.

§ 56.12703 Portable distribution boxes.

Portable distribution boxes shall have—

(a) A disconnecting device for each branch circuit and a means to clearly show that each circuit has been physically disconnected;

(b) A means which identifies each disconnecting device and cable with its related load; and

(c) A means to prevent connecting a cable to the wrong protective device when two or more cables connect to the same distribution box.

§ 56.12704 Guarding.

Trailing cables and power conductors shall be protected against physical damage from mobile equipment by bridges, trenches, suspension, or by location.

§ 56.12705 Disconnecting devices.

Disconnecting devices for trailing cables shall be equipped with a means for installing a padlock.

Trolley Circuits for Track Haulage

§ 56.12800 Installation and Maintenance.

Trolley wires and exposed trolley-feeder wires shall be—

(a) Installed opposite the clearance side of haulageways, except where such installation creates a greater hazard;

(b) Suspended at least 7 feet above the track; and

(c) Aligned and maintained to provide for smooth tracking of trolley collectors on trolley wires.

§ 56.12801 Circuit protection and isolation.

(a) Trolley wires and trolley-feeder wires shall be protected against overcurrent by an automatic circuit interrupting device which deenergizes the affected circuit if a short circuit occurs at any point in the system.

(b) The trip setting of the device required by paragraph (a) of this section shall not exceed 50 percent of the minimum available bolted short-circuit current when that current is less than 800 amperes; or 75 percent of the minimum available bolted short-circuit current when that current is 800 amperes or more.

(c) Trolley wires and trolley-feeder wires shall be provided with a means of isolation at intervals of not more than 2,000 feet and near the beginning of all branch lines.

§ 56.12802 Track bonding.

(a) Track serving as the trolley circuit return shall be bonded or welded at every joint and crossbonded at intervals not exceeding 200 feet.

(b) Metallic pipelines and structures installed less than 10 feet from track serving as the trolley circuit return shall be insulated or guarded, or bonded to the track at intervals not exceeding 1000 feet to prevent shock hazards.

(c) When rails are moved or replaced, or when broken bonds are discovered, they shall be rebonded within three working shifts.

§ 56.12803 Guarding.

(a) Energized trolley wires and bare trolley-feeder wires shall be guarded where accidental contact with them is possible, including:

(1) Where supplies are stored, loaded, or unloaded.

(2) At mantrip stations.

(3) On each side of all doors and stoppings through which wires pass.

(4) Where a person works within three feet of the trolley wire except for a person operating rail-mounted haulage equipment.

(5) At track switches.

(6) Where persons regularly pass under the wires.

(b) Trolley wires and trolley feeder wires shall be deenergized when guarding is installed or removed, unless the guarding is temporary guarding designed to minimize shock hazards while work is being conducted in the area.

§ 56.12804 Circuits powered from trolley wires.

The return wire of all circuits powered from the trolley wires shall be connected to the trolley wire return circuit to assure continuity and prevent arcing.

Appendix I for Subpart K-Electricity

Mine operators seeking further information may consult the following national consensus standards:

MSHA Standard	National Consensus Standard
56/57.12101 56/57.12103 56/57.12130 56/57.12204 56/57.12301 56/57.12400	NFPA 70 (NEC)
56/57.12500 [1] to 56/57.12506	NFPA 70 (NEC), IEEE Stds. 80-1976, 81-1983, 277-1983 142-1982, UL-943 and ANSI C-2 (NESC).
56/57.12600	IEEE Std. 242
56/57.12601	NEC, ICEA P-50-431, S-19-81 and P-48-426
56/57.12602	IEEE Std. 141-1976 and NEC
56/57.12604	IEEE Std. 142-1982
56/57.12630	NESC
57.12660	NEC
56/57.12700	NEC

[1] A method that may be used for protection of persons from disabling or fatal electric shock, under ground-fault conditions, is to limit voltage exposure. The term voltage exposure refers to a combination of voltage and the length of time that the voltage exists.

Voltage exposure should not exceed

$V^2t = 30375$

where v = voltage in volts

t = time in seconds

This equation is based on IEEE Std. 80-1976 using 1500 ohms as a person's body resistance. This would allow a combination of system grounding, ground-fault protection and overcurrent protection to be used to provide protection from disabling or fatal shocks.

PART 57—SAFETY AND HEALTH STANDARDS-UNDERGROUND METAL AND NONMETAL MINES

6. The authority citation for part 57 continues to read as follows:

Authority: 30 U.S.C. 811.

Subpart A—General

§ 56.2 [Amended]

7. In § 57.2, the definitions of "distribution box," "electrical grounding," "high potential," "insulation," "low potential," "major electrical installation," and "reverse-current protection" are removed.

Subpart C—Fire Prevention and Control

8. The authority citation for subpart C continues to read as follows:

Authority: Sec. 101, Federal Mine Safety and Health Act of 1977, Pub. L. 91-173 as amended by Pub. L. 95-164, 91 Stat. 1291 (300.S.C.811).

9. Sections 57.4011 and 57.4057 are §§ 57.4011 and 57.4057 [Removed] removed.

10. Subpart K is revised to read as follows:

Subpart K—Electricity

Sec.

57.12000 Definitions.

General

57.12100 Qualified electricians.
57.12101 Electric equipment and conductors
57.12102 Bare conductors.
57.12103 Overcurrent protection.
57.12104 Unused conductors.
57.12105 Doors and cover plates.
57.12106 Danger signs.
57.12130 Clearance of equipment.

WORK ON ELECTRIC EQUIPMENT AND CIRCUITS

57.12200 Lockout procedures.
57.12201 Plugs and receptacles.
57.12202 Fuses.
57.12203 Cable handling.
57.12204 Access.

GUARDING; INSULATION; SEPARATION

57.12300 Connections and grids.
57.12301 Communication conductors.
57.12302 Lights, guarding.
57.12330 Transformers.
57.12331 Substations.

CONNECTIONS; SWITCHES; CONTROLS

57.12400 Identification.
57.12401 Insulating mats.
57.12402 Undervoltage protection.
57.12460 Branch Circuit Disconnecting Devices

SAFETY GROUNDING

57.12500 Grounding.
57.12501 Alternating-current equipment.
57.12502 Direct-current equipment.
57.12503 Equipment safety grounding conductors.
57.12504 Silicon diode grounding.
57.12505 Low-resistance ground fields.
57.12506 Testing.

POWER CABLES AND CONDUCTORS

57.12600 Installation.
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TRAILING CABLES

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§ 57.12000 Definitions.

The following definitions apply in this subpart.

"Ampacity" means the current-carrying capacity of electric conductors expressed in amperes.

"Branch circuit" means the circuit conductors extending beyond the final short-circuit device protecting the circuit.

"Cable" means an assembly of one or more insulated conductors enclosed by an additional abrasion resistant covering or jacket. A cable may also contain one or more uninsulated equipment safety grounding conductors. A power cable is any cable except communication, instrumentation and control cables.

"Circuit breaker" means a device designed to open and close a circuit by non-automatic means and to open the circuit automatically on a predetermined overcurrent value without damage to the device when operated within its rating.

"Circuit breaker setting" means the value of current or time at which an adjustable circuit breaker is set to trip.

"Conductor" means a bare or insulated wire or combination of wires not insulated from one another, suitable for carrying an electric current.

"Equipment safety grounding conductor" means a conductor used to connect the non-current-carrying metallic parts of electric equipment, raceways and other metallic enclosures to the safety grounding system.

"Feeder-circuit" means the conductors between the power source and the final branch-circuit short-circuit protective device.

"Fuse" means an overcurrent protective device with a circuit opening fusible part that is heated and severed by the passage of overcurrent through it.

"Ground-fault" means an unintentional connection between an electric circuit and the safety grounding system.

"Ground-wire monitor" means a device having the primary function of monitoring the equipment safety grounding conductor of a circuit and causing the affected circuit breaker to trip when a change in the impedance of the grounding circuit presents a potential electrical shock hazard.

"Instantaneous-trip circuit breaker" means a circuit breaker with no intentional time delay designed in its tripping action.

"Insulated" means separated from other conducting surfaces by insulation which is a dielectric substance that offers a high resistance to the passage of current and to a disruptive discharge through the substance.

"Inverse-time circuit breaker" means a circuit breaker with an intentional time delay in its tripping action, which delay decreases as the magnitude of the current increases.

"Jacket" means a continuous nonmetallic protective outer covering provided on cables. The primary function of the covering is to provide protection of the internal components against physical, chemical, and thermal damage, and to exclude moisture.

"Mobile electric equipment" means electric equipment capable of movement from one location to another by power supplied from a source located on the machine or transmitted to the machine by means of a trailing cable.

"Nominal voltage" means the phase-to-phase or line-to-line root-mean-square value assigned to a circuit or system for designation of its voltage class, such as 480 or 4160 volts. Actual voltage at which the circuit or system operates may vary from the nominal voltage within a range that permits satisfactory operation of equipment.

"Overcurrent" means any current in excess of the rated current of equipment or the ampacity of a conductor, which may result from overload, short-circuit, or ground-fault conditions.

"Overload" means operation of equipment in excess of normal full-load rating, or loading of a conductor in excess of rated ampacity, which would cause damage or dangerous overheating if allowed to continue.

"Portable electric equipment" means electric equipment which is designed and constructed to facilitate frequent movement from one location to another and which does not normally remain at a fixed location for extended periods of time.

"Qualified electrician" means an individual who has met the requirements of 30 CFR 57.12100.

"Rated" means marked to certify that according to established test procedures, electric equipment will perform its functions without presenting a burn, fire or shock hazard when applied within the maximum limits of its marked electrical parameters.

"Safety grounding system" means a complete installation consisting of one or more ground electrodes, grids, equipment safety grounding conductors and interconnected grounding connections. The purpose is to provide a low impedance fault current path to the system's protective device for all non-current-carrying metallic parts enclosing electric conductors or circuits.

"Short circuit" means an abnormal connection of relatively low impedance, whether made accidentally or intentionally, between two points of different potential.

"Splice" means the mechanical and electrical connection of one or more severed conductors in a single length of conductor or cable.

"Stationary electric equipment" means electric equipment other than mobile or portable that is fastened, secured or installed such that it cannot be readily moved from one location to another during normal use.

"Surge arrester" means a protective device which is used to provide protection against lightning surges.

"Trailing cable" means a portable cable or flexible cord through which electrical energy is transmitted to any mobile electric equipment, or a portable cable or flexible cord which receives electrical energy from a section power center, section distribution box or section rectifier.

"Undervoltage protection" means the effect of a device which operates on failure of voltage to cause and maintain the interruption of power to a circuit so as to prevent automatic restarting of the equipment.

General

§ 57.12100 Qualified electricians.

(a) Work required by this subpart to be performed by a qualified electrician shall be performed by an individual who has met the requirements of an operator's qualification program.

(b) Operator's programs shall include conducting their own qualification training or testing, or participation in training or testing conducted by MSHA, other Federal agencies, a state, associations of mine operators, other mine operators, national labor organizations, private associations, or educational institutions.

§ 57.12101 Electric equipment and conductors.

(a) Electric equipment and conductors shall be installed, and maintained by a

qualified electrician, and used in a manner which prevents shock and burn hazards to persons. Electric equipment and conductors which present a hazard to persons due to improper installation, maintenance, misuse or damage shall be tagged as a hazard until corrected.

(b) All electric equipment and conductors installed after [Insert the effective date of this rule] shall be selected and located in surroundings compatible with their design and intended use.

§ 57.12102 Bare conductors.

The voltage of bare conductors, other than trolley conductors, accessible to inadvertent contact by persons shall not exceed 40 volts.

§ 57.12103 Overcurrent protection.

(a) Electric equipment and conductors, other than trailing cables, shall be protected against overloads and short circuits with fuses or automatic circuit interrupting devices. Such fuses and devices shall be of a type and capacity to safely interrupt the circuit under all overload and short circuit fault conditions.

(b) Motors shall be protected against overload at no more than 125 percent of the full-load current of the motors.

(c) Short-circuit protection of motors shall be provided as specified in Tables 57.12103–1 and 57.12103–2.

(d) Where the protection specified in Tables 57.12103–1 and 57.12103–2 is not sufficient for the starting current of the motor—

(1) A higher rated non-time-delay fuse shall be permitted, but shall in no case exceed 400 percent of the full-load current of the motor or 600 amperes;

(2) A higher rated standard (dual element) fuse shall be permitted, but shall in no case exceed 225 percent of the full-load current of the motor;

(3) A higher rated inverse time circuit breaker shall be permitted, but shall in no case exceed 400 percent of the full-load current of the motor;

(4) A higher rated fuse in the 601–6000 ampere classification shall be permitted, but shall in no case exceed 300 percent of the full-load current of the motor; or

(5) A higher rating or adjustment of an instantaneous trip circuit breaker shall be permitted, but shall in no case exceed 1300 percent of the full-load current of the motor.

(e) All three-phase motors shall be protected with overcurrent devices so that an overcurrent in any phase will deenergize all ungrounded phases.

(f) Transformers shall be protected on the primary side with overcurrent protection rated at no more than 250 percent of their rated full-load current.

(g) When the required rating of a fuse or circuit breaker without an adjustable trip unit does not correspond to a standard rating for a fuse or circuit breaker, the protective device used shall not exceed the next higher standard device rating.

(h) Circuit breakers or fuses providing short-circuit protection shall be installed where the circuit conductors are connected to the supply, except for feeder tap conductors that—

(1) Do not exceed 25 feet in length;

(2) Have ampacities of at least one-third of the ampacity of the feeder conductors; and

(3) Terminate at a circuit breaker or fuse with a current rating that does not exceed the ampacity of the feeder tap conductors.

(i) Wiring shall be protected against overcurrent at no more than the ampacity specified in 30 CFR 57.12601.

(j) Overcurrent protection shall not be required on incandescent lamps supplied from direct-current systems, provided the length of ungrounded conductors does not exceed eight feet.

(k) Where interruption of a circuit presents a hazard to persons, the overload protection requirement of this section does not apply if measures are taken to warn persons when an overload occurs.

(l) Fuses, circuit breakers, or a combination of both shall not be connected in parallel.

TABLE 57.12103–1.—MAXIMUM RATING OR SETTING OF MOTOR BRANCH-CIRCUIT SHORT-CIRCUIT PROTECTIVE DEVICES FOR THREE-PHASE MOTORS

Type of motor	Percent of full-load current			
	Non-time delay fuse	Dual element (time delay) fuse	Instantaneous trip breaker	Inverse time breaker
Squirrel-cage and synchronous motors with full-voltage, resistor or reactor starting:				
No code letter	300	175	700	250
Code letter F to V	300	175	700	250
Code letter B to E	250	175	700	200
Code letter A	150	150	700	150
All AC squirrel-cage and synchronous motors with autotransformer starting:				
Not more than 30 Amps—No code letter	250	175	700	200
More than 30 Amps—No code letter	200	175	700	200
Code letter F to V	250	175	700	200
Code letter B to E	200	175	700	200
Code letter A	150	150	700	150
High-reactance squirrel cage:				
Not more than 30 amps—No code letter	250	175	700	250
More than 30 amps—No code letter	200	175	700	200
Wound-Rotor—No code letter	150	150	700	150

TABLE 57.12103–2.—MAXIMUM RATING OR SETTING OF MOTOR BRANCH-CIRCUIT SHORT-CIRCUIT PROTECTIVE DEVICES FOR SINGLE-PHASE MOTORS AND DIRECT-CURRENT MOTORS

Type of motor	Percent of full-load current			
	Non-time delay fuse	Dual element (time delay) fuse	Instantaneous trip breaker	Inverse time breaker
Single-Phase, All Types—No Code Letter	300	175	700	250
All AC Single-Phase with Full-Voltage, Resistor or Reactor Starting:				
No Code Letter	300	175	700	250
Code Letter F to V	300	175	700	250
Code Letter B to E	250	175	700	200
Code Letter A	150	150	700	150
Direct-Current (Constant Voltage):				
No More than 50—HP No Code Letter	150	150	250	150
More than 50 HP—No Code Letter	150	150	250	150

§ 57.12104 Unused conductors.

Conductors that are not supplying power to electric equipment shall be deenergized and shall—

(a) Be removed from their supply source; or

(b) Have their supply source locked out and any exposed ends insulated.

§ 57.12105 Doors and cover plates.

Doors and cover plates on electric equipment, which allow access to electric connections, shall be closed at all times except during installation, testing and repair.

§ 57.12106 Danger signs.

Visible danger signs shall be posted at all substations, switchyards and control centers to warn persons against entry who have not been specifically assigned to perform duties in those locations.

§ 57.12130 Clearance of equipment.

(a) Bare overhead conductors of more than 650 volts, line-to-line which are installed parallel along a roadway and under which haulage trucks have access shall be suspended at a height at least 10 feet higher than the raised bed of any haulage truck used at the mine.

(b) When equipment is moved or operated near energized bare overhead conductors of less than 69,000 volts, other than trolley conductors, and the clearance is less than 10 feet, the conductors shall be deenergized or other precautionary measures shall be taken to prevent the equipment frames from being energized.

(c) When equipment is moved or operated near energized bare overhead conductors of 69,000 volts or more, the conductors shall be either deenergized or the minimum distance of the conductors from the equipment shall be as in Table 57.12130.

(d) Supplies or materials shall not be stored or stockpiled under bare overhead conductors of more than 650 volts, line-to-line.

TABLE 57.12130 [1] MINIMUM DISTANCE FROM ENERGIZED CONDUCTORS

Conductor voltage	Distance
69–114 kV	12
115–229 kV	15
230–344 kV	20
345–499 kV	25
500 kV or more	35 ft.

[1] Derived from National Electrical Safety Code Table 124–1.

Work on Electric Equipment and Circuits

§ 57.12200

Lockout procedures.

(a) Before electrical or mechanical work is performed on electric circuits or equipment, electric power to the circuits or equipment shall be deenergized except when electric power is a necessary part of the work procedure needed for accomplishing the mechanical work.

(b) Individual padlocks and identifying tags for each person performing work shall be installed to prevent the power circuit from being energized and the equipment set in motion without the knowledge of persons working on the circuits and equipment. Padlocks and tags shall only be removed by the persons who installed them.

(c) When testing circuits to locate an electrical problem, or adjusting electric circuits, the circuits do not have to be deenergized if

(1) The circuit voltage is 1040 volts or less;

(2) Testing or adjusting is performed by a qualified electrician in accordance with 30 CFR 57.12100.

(3) The person uses procedures, tools and equipment to assure personal safety when in close proximity to energized parts; and

(4) It would be impractical to deenergize.

§ 57.12201 Plugs and receptacles.

Power cable plugs and receptacles for circuits greater than 150 volts, line-to-ground, shall not be connected or disconnected under load unless they are of the load-break type.

§ 57.12202 Fuses.

Fuses shall be installed or removed using tools or procedures that prevent electric shock or burns.

§ 57.12203 Cable handling.

(a) Power cables energized to a voltage in excess of 150 volts, line-to-ground, shall not be moved by other equipment unless sleds, or slings insulated from that equipment are used. This does not prohibit pulling or dragging of a trailing cable by the equipment it powers.

(b) When power cables energized to a voltage in excess of I50 volts, line-to-ground, are moved manually, insulated hooks, tongs, slings, gloves, mitts, aprons or other insulated personal protective equipment capable of protecting against shock, shall be used.

(c) Insulated handling equipment shall be

(1) Examined before each use for visible signs of damage or defects; and

(2) Removed from use when damaged or defective.

(d) Surplus trailing cables serving shovels, cranes and similar equipment shall be stored—

(1) In cable boats;

(2) On reels mounted on the equipment; or

(3) In a manner which would protect them from mechanical damage.

§ 57.12204 Access.

(a) For installations and equipment constructed after [Insert the effective date of this rule], working space shall be

provided in accordance with Table 57.12204 where access to exposed energized electric equipment is necessary.

(b) For existing installations and equipment, working space in accordance with Table 57.12204 shall be provided where access to exposed energized electric equipment is necessary, unless other precautionary measures are used to protect persons from electric shock or burns.

TABLE 57.12204 [1]—MINIMUM WORKING SPACE

	Minimum clear distance for condition (ft)		
Nominal voltage to ground	(A)	(B)	(C)
0–150 V	3	3	3
151–600 V	3	3½	4
601–2,500 V	3	4	5
2,501–9,000 V	4	5	6
9,001–25,000 V	5	6	9
25,001–75 kV	6	8	10
Above 75 kV	8	10	12

[1] NFPA, 70 E. Tables 110–16A and 110–34A.

As used in Table 57.12204, conditions (A), (B), (C) are as follows:

(A) Exposed energized parts on one side and no energized or grounded parts on the other side of the working space, or exposed energized parts on both sides guarded by wood or other insulating materials. Insulated conductors operating at not over 300 volts are not considered energized parts.

(B) Exposed energized parts on one side and grounded parts on the other side. Concrete, brick or rock walls will be considered to be grounded surfaces.

(C) Exposed energized parts on both sides of the work space.

Guarding; Insulation; Separation

§ 57.12300 Connections and grids.

Exposed electric connections and resistor grids that are not protected by location shall be insulated. Where this is impractical they shall be guarded to prevent inadvertent contact by persons or equipment.

§ 57.12301 Communication conductors.

(a) Communication conductors shall be isolated or insulated to prevent them from contacting bare energized parts.

(b) Communication conductors carried on poles supporting uninsulated power conductors shall be located below the power conductors.

(c) Communication conductors shall not be attached to a crossarm that carries uninsulated power conductors.

§ 57.12302 Lights, guarding.

(a) Portable extension lights and lights less than 8 feet above travelways and working places shall be guarded to prevent a hazard to persons.

(b) Other lights shall be guarded when they present a hazard.

(c) Lamps shall not contact combustible materials.

§ 57.12330 Transformers.

(a) Transformers shall be—

(1) Totally enclosed;

(2) Installed so exposed energized parts are at least 8 feet above the ground; or

(3) Installed in a transformer house.

(4) Surrounded by a sturdy fence at least 6 feet high and at least 3 feet from any parts, casings or energized conductors.

(b) Gates or doors of transformer enclosures shall be locked to prevent unauthorized access to exposed energized parts which are less than 8 feet above the ground.

(c) Metallic transformer houses and fences shall be connected to the metallic case of the safety grounded transformer.

§ 57.12331 Substations.

Substations containing exposed energized parts that can be inadvertently contacted by persons shall be enclosed. When the enclosure is a metallic structure or fence it shall be connected to the substation's safety grounding system.

Connections; Switches; Controls

§ 57.12400 Identification.

Circuit breakers, trolley taps, fuse switchboxes and other disconnecting devices shall be legibly, durably, and distinctively marked to show which electric equipment they supply, except where the circuit breakers and devices can be identified by their proximity to the equipment.

§ 57.12401 Insulating mats.

Insulating mats shall be provided at all switchboards and power control switches where shock hazards exist due to exposed energized parts.

§ 57.12402 Undervoltage protection.

(a) Electric powered machinery shall include undervoltage protection to prevent shocks, burns, unwanted motion or unintentional starting. When voltage is lost, the equipment shall remain deenergized until manually restarted.

(b) Pumps, level control circuits and other equipment that by its design can automatically start and stop safely are not required to have undervoltage protection.

§ 57.12460 Branch circuit disconnecting devices.

Disconnecting devices shall be provided underground at all branch circuits extending from primary power circuits and shall be—

(a) Designed to be opened under load without hazard to persons;

(b) As close as practical to shafts, adits, levels and boreholes; and

(c) Provided with means to visually show that the branch circuit is disconnected when the device is open.

Safety Grounding

§ 57.12500 Grounding.

(a) All electric circuits shall have a safety grounding system. The system's performance shall limit the voltage on non-current-carrying metallic parts of electric equipment that a person can contact to a value that shall not cause a disabling or fatal shock under the following fault conditions—

(1) Single line-to-ground on grounded power systems; or

(2) Double line-to-ground on ungrounded power systems, with one of the faults at the source.

(b) The voltage on non-current-carrying metallic parts of electric equipment shall be controlled by—

(1) Limiting the magnitude of the voltage;

(2) Limiting the duration of the voltage; or

(3) A combination of these two.

See Appendix I to Subpart K.

§ 57.12501 Alternating-current equipment.

(a) The following equipment shall be connected to the safety grounding system by equipment safety grounding conductors:

(1) Metallic frames, enclosures, and other exposed non-current-carrying metallic parts of electric equipment.

(2) Metallic fences and barriers around high-voltage equipment and installations.

(3) Metallic enclosures of alternating-current conductors.

(4) Metallic battery trays.

(5) Metallic messenger wires.

(6) Metallic structures or racks that support electric equipment or conductors.

(b) Metallic cable shielding shall be connected to the safety grounding system at each termination by equipment safety grounding conductors.

(c) Before batteries on battery-powered equipment are connected to a battery charger, the metallic battery trays shall be connected to the grounded metallic frame of the battery charger, and shall remain connected until the

batteries have been disconnected from the charger.

(d) Metallic cable hangers or supporting structures shall either be connected to the safety grounding system or insulated from the cable.

(e) Exposed metallic enclosures or portions of hand-held electric equipment shall be connected to the safety grounding system, except when the equipment is—

(1) Double insulated as determined by an independent testing laboratory and does not present a shock hazard; or

(2) Operated at a maximum of 40 volts.

(f) Generator powered equipment mounted on the same metallic frame as the generator is not required to be connected to the mine's safety grounding system.

§ 57.12502 Direct-current equipment.

(a) The following shall be connected to the mine safety grounding system by equipment safety grounding conductors—

(1) Metallic frames, enclosures, and other exposed non-current-carrying metallic parts of conductors and equipment.

(2) Metallic messenger wires used to support direct-current conductors.

(3) Metallic racks and structures used to support trolley wires and trolley feeder wires.

(4) Metallic overcasts in trolley entries.

(b) Silicon diode grounding systems shall be installed in accordance with 30 CFR 57.12504.

(c) Component parts of complete units of equipment shall be solidly connected to the frames of the equipment.

(d) Exposed metallic enclosures or portions of hand-held electric equipment shall be connected to the safety grounding system, except when the equipment is—

(1) Double insulated as determined by an independent testing laboratory and does not present a shock hazard;

(2) Operated at a maximum of 40 volts; or

(3) Powered by internal batteries which are an integral part of the equipment.

(e) Generator powered equipment mounted on the same metallic frame as the generator is not required to be connected to the mine's safety grounding system.

§ 57.12503 Equipment safety grounding conductors.

(a) Equipment safety grounding conductors for portable and mobile electric equipment shall be one or more stranded copper conductors contained within the cable or flexible cord supplying the equipment.

(b) Equipment safety grounding conductors for stationary equipment shall be—

(1) Contained together with the circuit conductors in the raceways, cables, or cords;

(2) Wrapped around the raceways, cables, or cords containing the circuit conductors; or

(3) A continuous metal conduit or metallic raceway that complies with the voltage exposure requirements of 30 CFR 57.12500.

(c) The combined cross-sectional area of equipment safety grounding conductors shall be equal to or greater than—

(1) One-half the cross-sectional area of one circuit conductor when the circuit conductor is No. 6 AWG or larger; or

(2) The cross-sectional area of one circuit conductor when the circuit conductor is smaller than No. 6 AWG.

(d) Equipment safety grounding conductors installed outside of raceways, cables, or cords and used to ground stationary equipment shall be No. 6 AWG or larger.

(e) Switches, fuses, circuit breakers, ground-fault devices and overcurrent devices shall not be installed in equipment safety grounding conductors.

(f) Ground-wire devices installed in the equipment safety grounding conductor for the purpose of inter-machine arc suppression or in conjunction with ground-wire monitoring systems shall be designed and constructed to withstand the maximum amount of phase-to-phase fault current to which they may be exposed without creating an electrical shock or fire hazard.

(g) When used, ground-wire devices specified in paragraph (f) of this section shall be connected to the safety grounding system with two separate conductors.

(h) On direct-current powered equipment, the equipment safety grounding conductor and the return power conductor shall be separately connected to the mine track, grounded return-feeder conductor, or metallic frame or enclosure used as the safety grounding system.

(i) Equipment safety grounding conductors for draw-out equipment or plugs and receptacles shall be the first conductors made when making connections and the last conductors broken when breaking connections.

(j) When power is supplied between separate metallic parts of equipment, the parts shall be connected together through an equipment safety grounding conductor.

(k) The frame of a portable or mobile generator supplying remote loads shall have equipment safety grounding conductors connecting the frames of each remote load to the frame of the generator.

(l) Equipment safety grounding conductors shall be bare or shall be properly identified.

§ 57.12504 Silicon diode grounding.

When the metallic frames of off-track equipment are grounded by silicon diodes, the diode grounding system shall meet the following conditions:

(a) The polarity of each grounding diode shall be compatible with the grounded polarity of the direct-current systems.

(b) Each grounding diode shall have a threaded base used to solidly connect the diode to the machine frame.

(c) An overcurrent device shall be installed between the grounding diode(s) and the grounded power conductor, and shall cause the main conductor or the circuit interrupting device to deenergize all circuits on the machine when 50 amperes or more flows through the grounding diode, except that methane monitor circuits may remain energized.

(d) A polarizing diode that prevents the unit of equipment from being operated when the polarity of the supply conductors is reversed shall be installed in the control circuit.

(e) The forward current rating of each grounding diode shall be equal to or greater than 750 amperes when used to ground a continuous mining machine or equal to or greater than 400 amperes when used to ground other equipment.

(f) The peak reverse voltage rating of the grounding and polarizing diodes shall be at least 1,200 volts.

§ 57.12505 Low-resistance ground fields.

(a) Low-resistance ground fields used in the safety grounding system shall be designed and installed in a manner which assures that the maximum exposure voltage under fault conditions does not create hazardous step and touch potentials. The following parameters shall be considered in evaluating ground field safety—

(1) Soil resistivity;

(2) Available fault current;

(3) Ground field construction; and

(4) Operating times of protective devices.

(b) Low-resistance ground fields used in the safety grounding system shall be maintained at 25 ohms or less unless an evaluation of the system in accordance with paragraph (a) indicates that—

(1) a lower value of resistance is necessary; or

(2) a higher value of resistance can be used.

(c) Materials used for ground fields shall have at least four square feet of surface area in contact with soil.

§ 57.12506 Testing.

(a) On all installations after [Insert the effective date of this rule], and when repairs or modifications are made to the safety grounding system, continuity tests shall be made to assure the integrity of the system.

(b) The safety grounding system shall be reviewed at intervals not to exceed twelve months to assure that the maximum voltage exposure under fault conditions complies with requirements of this subpart.

(c) For mine power systems utilizing an alternating-current voltage of less than 650 volts, line-to-line, the resistance to earth of the safety grounding system's connection to earth shall be maintained at 25 ohms or less and be physically separated from the substation grounding system. This separation shall be either 25 feet or 5 times the largest dimension of the safety grounding system's connection to earth, whichever is larger. When 25 ohms or less cannot be obtained, the operator shall assure that the system complies with 30 CFR 57.12505.

(d) When reviewing a mine power system utilizing an alternating-current voltage greater than 650 volts, line-to-line, the review shall include determinations of the—

(1) Safety grounding system's resistance to earth at its connection to earth;

(2) Maximum fault current that can flow into the safety grounding system at electric loads or sources of 500 kVA or larger; and

(3) Impedance of the safety grounding system at electric loads or sources of 500 kVA or larger.

(e) A weekly check of continuity shall be made of all mobile equipment safety grounding conductors, except when they are continuously monitored with an MSHA tested ground-wire monitoring device.

Power Cables and Conductors

§ 57.12600 Installation.

(a) Cables and insulated conductors shall be installed so that they are protected against physical damage, adverse ambient conditions and failure of adjacent mechanical systems.

(b) Cables and insulated conductors shall not be supported from pipelines.

(c) Insulated conductors shall not contact pipelines.

(d) When cables and pipelines are supported from the same supports, clearance to prevent shock hazards during maintenance to pipelines shall be provided.

§ 57.12601 Ampacity.

(a) Electric conductors shall be of a size and current-carrying capacity to assure that a rise in temperature resulting from normal operating conditions does not exceed the rating of the insulation and conductors.

(b) Branch circuit conductors supplying electric equipment shall have ampacities of at least 125 percent of the full-load current rating of the equipment.

(c) Feeder circuit conductors supplying multiple loads shall have ampacities of at least the sum of the full-load current ratings of each load plus 25 percent of the highest full load current rating of the largest load.

(d) The size of conductors for electric equipment shall be at least that specified in ampacity Tables 57.12601–1 through 57.12601–10 below, or other tables that are appropriate for the conditions under which the conductors are used.

(e) Ampacity of conductors shall be corrected according to Table 57.12601–11, if the ambient temperature is other than the temperature at which the conductor was rated.

(f) When four or more conductors are contained in the same raceway, conduit or cable, the maximum allowable load current shall be reduced according to Table 57.12601–12.

TABLE 57.12601–1.—ALLOWABLE AMPACITIES OF 300- AND 600-VOLT FLEXIBLE CORDS; COPPER CONDUCTORS

Conductor Size AWG	Types S, SO, SJO, ST, STO, SJT, SJTO, SOO, SJOO, STOO, SJTOO		Types AFS, AFSJ, HSJ, HSJO, HS, HSO
	Current-Carrying Conductors		Current-Carrying Conductors
	2	3	3
14	18	15	20
12	25	20	30
10	30	25	35
8		35	

TABLE 57,12601–2—ALLOWABLE AMPACITIES OF SHIELDED AND UNSHIELDED 0- TO 2000-VOLT PORTABLE POWER CABLES; COPPER CONDUCTORS (BASED ON AMBIENT AIR TEMPERATURE OF 20 °C (68 °F))

Ampacities	Conductor Size AWG or MCM						
	Number of Current-Carrying Conductors in Cable or Raceway						
	1		2		3		
	75 °C [1]	90 °C [1]	75 °C [1]	90 °C [1]	75 °C [1]	90 °C [1]	90 °C [2]
8	75	98	63	85	63	70	
6	106	12	81	112	81	93	110
4	138	171	113	150	106	123	144
3	163	197	131	171	125	142	165
2	188	227	150	197	144	163	188
1	213	263	175	225	163	190	217
1/0	250	304	213	256	181	219	249
2/0	294	352	244	295	213	254	287
3/0	344	407	281	337	244	294	329
4/0	394	472	325	387	275	339	379
250	438	525	356	428	306	378	419
300	494	590	388	472	344	421	470
350	556	651	419	514	381	465	513
400	600	708	450	555	406	507	555
500	681	820	519	618	469	575	632

[1] 0–2000 Volt Insulation, Unshielded Portable Power Cable.
[2] 0–2000 Volt Insulation, Shielded Portable Power Cable.

TABLE 57.12601-3—ALLOWABLE AMPACITIES OF INSULATED CONDUCTORS RATED 0 TO 2000 VOLTS, 60 °C TO 90 °C, NOT MORE THAN THREE CURRENT-CARRYING CONDUCTORS IN RACEWAY OR CABLE (BASED ON AMBIENT AIR TEMPERATURE OF 20 °C (68 °F))

Copper					Aluminum or copper- clad aluminum				
Conductor size AWG or MCM	Insulation temperature rating				Insulation temperature rating		Conductor size AWG or MCM		
	60°	75°	85°	90°	60°	75°	85°	90°	
18				15					
16			20	19					
14	20	20	27	25					
12	25	25	33	30	20	20	27	25	12
10	35	35	43	40	29	30	33	35	10
8	46	55	60	59	35	44	43	49	8
6	64	72	76	81	46	55	60	65	6
4	81	94	103	103	64	72	82	81	4
3	98	111	120	119	75	83	92	92	3
2	110	127	136	140	87	99	109	108	2
1	127	144	158	162	98	111	120	124	1
0	144	166	179	184	116	133	141	146	0
00	167	193	207	211	133	149	158	162	00
000	191	221	234	243	150	171	185	189	000
0000	225	254	272	281	173	199	212	221	0000
250	248	282	299	313	196	227	239	248	250
300	277	315	337	346	219	254	272	275	300
350	299	343	370	378	243	276	294	302	350
400	323	370	397	410	260	298	321	329	400
500	370	420	451	464	300	343	364	378	500
600	410	464	500	513	329	376	402	416	600
700	445	508	544	562	358	414	440	454	700
750	462	525	560	578	370	425	457	470	750
800	474	541	582	599	381	436	467	486	800
900	502	575	614	632	410	470	506	518	900
1000	526	602	641	664	433	492	527	540	1000
1250	572	652	696	718	468	536	571	589	1250
1500	601	691	739	761	502	575	614	632	1500
1750	629	718	766	794	526	602	647	664	1750
2000	647	735	788	810	543	619	663	680	2000

TABLE 57.12601-4.—ALLOWABLE AMPACITIES OF SINGLE CONDUCTORS RATED 0 TO 2000 VOLTS

[Based on Ambient Air Temperature of 20 °C (68 °F)]

Copper					Aluminum or copper-clad aluminum				
Conductor size AWG or MCM	Insulation temperature rating				Insulation temperature rating				Conductor size AWG or MCM
	60°	75°	85°	90°	60°	75°	85°	90°	
18				19					
16			25	26					
14	25	30	33	35					
12	30	35	43	40	25	30	33	35	12
10	40	50	60	55	35	40	43	40	10
8	69	77	82	86	52	61	65	65	8
6	92	105	109	113	69	83	87	86	6
4	121	138	147	151	92	111	114	119	4
3	139	160	174	178	110	127	136	140	3
2	162	188	201	205	127	149	158	162	2
1	191	215	234	238	150	171	179	189	1
0	225	254	272	281	173	199	212	221	0
00	260	293	315	324	202	232	245	254	00
000	300	343	364	378	231	265	288	297	000
0000	347	398	424	437	271	309	332	340	0000
250	393	448	478	491	306	348	375	383	250
300	433	492	527	545	335	387	413	427	300
350	485	558	598	616	381	436	467	481	350
400	526	602	647	664	410	470	505	518	400
500	595	685	734	756	468	536	571	589	500
600	664	762	815	842	526	597	647	664	600
700	728	834	897	923	578	657	707	729	700
750	757	867	929	956	595	685	734	756	750
800	785	901	962	994	618	713	761	783	800
900	843	961	1033	1064	670	774	826	848	900
1000	901	1033	1109	1139	722	829	886	913	1000
1250	1028	1177	1261	1296	820	945	1011	1037	1250
1500	1132	1298	1386	1431	918	1050	1125	1161	1500
1750	1236	1414	1516	1561	1010	1160	1245	1280	1750

TABLE 57.12601-4.—ALLOWABLE AMPACITIES OF SINGLE CONDUCTORS RATED 0 TO 2000 VOLTS—Continued

[Based on Ambient Air Temperature of 20 °C (68 °F)]

Copper					Aluminum or copper-clad aluminum				
Conductor size AWG or MCM	Insulation temperature rating				Insulation temperature rating				Conductor size AWG or MCM
	60°	75°	85°	90°	60°	75°	85°	90°	
2000	1334	1531	1636	1685	1109	1271	1359	1442	2000

TABLE 57.12601-5—Allowable Ampacities of Shielded, Three Conductor, 2,001-15,000 VOLT, MINE POWER CABLE; COPPER CONDUCTORS (BASED ON AMBIENT TEMPERATURE OF 20 °C)

	Conductor size (AWG or MCM)		Ampacities	
	2,001-8,000 volts		8,001-15,000 volts	
	75 °C	90 °C	75 °C	90 °C
6	99	110		
4	130	144		
2	170	188	175	194
1	196	217	200	221
1/0	226	249	230	254
2/0	260	287	263	290
3/0	299	329	301	334
4/0	343	379	346	384
250	379	419	383	424
300	423	470	426	473
350	465	513	468	517
400	500	555	501	558
500	571	632	571	632

TABLE 57.1260l-6.—ALLOWABLE AMPACITIES OF SHIELDED, THREE CONDUCTOR, 2,001-15,000 VOLT MINE POWER CABLES; ALUMINUM CONDUCTORS (BASED ON AMBIENT TEMPERATURE OF 20 °C)

	Conductor size (AWG or MCM)		Ampacities	
	2,001-8,000 volts		8,001-15,000 volts	
	75 °C	90 °C	75 °C	90 °C
4	101	112		
2	133	146	136	
I	153		156	
1/0	176	195	179	198
2/0	203	223	205	227
3/0	234	257	236	261
4/0	269	296	271	300
250	298	328	300	332
350	366	404	367	406
400	396	425	397	433
500	458	502	453	500

TABLE 57.12601-7.—AMPACITY OVERHEAD COPPER CONDUCTORS

Conductor size AWG [1]	CM [2]	Copper, ampacity in amperes
—	6,400	51
10	10,380	68
—	10,820	71
9	13,090	79
8	16,510	92
6	26,240	124
4	41,740	166
3	52,620	193
2	66,360	223
1	83,700	260
1/0	105,600	301
2/0	133,100	350
3/0	167,800	406
4/0	211,680	472

TABLE 57.12601-7.—AMPACITY OVERHEAD COPPER CONDUCTORS—Continued

Conductor size AWG [1]	CM [2]	Copper, ampacity in amperes
	250,000	547
	300,000	615
	350,000	680
	400,000	730
	450,000	787
	500,000	842
	600,000	945
	700,000	1042
	750,000	1087
	800,000	1131
	1,000,000	295

[1] AWG means American Wire Gage.
[2] CM means Circular Mils.

TABLE 57.12601-8.—AMPACITY OVERHEAD ACSR [1] Conductors

Conductor size AWG [2]	CM [3]	ACSR, ampacity in amperes
6		104
4		139
2		184
1		210
1/0		240
2/0		275
3/0		316
4/0		360
	266,800	452
	300,000	492
	336,400	534
	397,500	593
	477,000	665
	556,500	732
	605,000	772

TABLE 57.12601-8.—AMPACITY OVERHEAD ACSR [1] Conductors—Continued

Conductor size AWG [2]	CM [3]	ACSR, ampacity in amperes
	636,000	797
	666,600	805
	715,500	858
	795,000	891
	874,500	935
	900,000	926
	954,000	960

TABLE 57.12601-8.—AMPACITY OVERHEAD ACSR [1] Conductors—Continued

Conductor size AWG [2]	CM [3]	ACSR, ampacity in amperes
	1,033,500	1010
	1,113,000	1060
	1,182,500	1099
	1,192,500	1106
	1,272,000	1148
	1,351,500	1198
	1,431,000	1237

TABLE 57.12601-8.—AMPACITY OVERHEAD ACSR [1] Conductors—Continued

Conductor size AWG [2]	CM [3]	ACSR, ampacity in amperes
	1,510,500	1278
	1,590,000	1313
	1,780,000	1434

[1] Aluminum Cable Steel Reinforced.
[2] AWG means American Wire Gage.
[3] CM means Circular Mils.

TABLE 57.12601-9—ALLOWABLE AMPACITIES OF INSULATED CONDUCTORS RATED 0 TO 2000 VOLTS, 60°C TO 90°C, NOT MORE THAN THREE CURRENT-CARRYING CONDUCTORS IN RACEWAY OR CABLE

[Based on Ambient Air Temperatures of 30 °C (86 °F)]

Conductor size AWG or MCM	Copper				Aluminum or copper-clad aluminum				Conductor size AWG or MCM
	Insulation temperature rating				Insulation temperature rating				
	60°	75°	85°	90°	60°	75°	85°	90°	
18				14					
16			18	18					
14	20	20	25	25					
12	25	25	30	30	20	20	25	25	12
10	30	35	40	40	25	30	30	35	10
8	40	50	55	55	30	40	40	45	8
6	55	65	70	75	40	50	55	60	6
4	70	85	95	95	55	65	75	75	4
3	85	100	110	110	65	75	85	85	3
2	95	115	125	130	75	90	100	100	2
1	110	130	145	150	85	100	110	115	1
1/0	125	150	165	170	100	120	130	135	1/0
2/0	145	175	190	195	115	135	145	150	2/0
3/0	165	200	215	225	130	155	170	175	3/0
4/0	195	230	250	260	150	180	195	205	4/0
250	215	255	275	290	170	205	220	230	250
300	240	285	310	320	190	230	250	255	300
350	260	310	340	350	210	250	270	280	350
400	280	335	365	380	225	270	295	305	400
500	320	380	415	430	260	310	335	350	500
600	355	420	460	475	285	340	370	385	600
700	385	460	500	520	310	375	405	420	700
750	400	475	515	535	320	385	420	435	750
800	410	490	535	555	330	395	430	450	800
900	435	520	565	585	355	425	465	480	900
1000	455	545	590	615	375	445	485	500	1000
1250	495	590	640	665	405	485	525	545	1250
1500	520	625	680	705	435	520	565	585	1500
1750	545	650	705	735	455	545	595	615	1750
2000	560	665	725	750	470	560	610	630	2000

TABLE 57.12601-10.—ALLOWABLE AMPACITIES OF SINGLE CONDUCTORS RATED 0 TO 2,000 Volts (Based on Ambient Air Temperature of 30°C (86°F))

Conductor size AWG or MCM	Copper				Aluminum or Copper-Clad Aluminum				Conductor size AWG or MCM
	Insulation temperature rating				Insulation temperature rating				
	60°	75°	85°	90°	60°	75°	85°	90°	
18				18					
16			23	24					
14	25	30	30	35					
12	30	35	40	40	25	30	30	35	12
10	40	50	55	55	35	40	40	40	10
8	60	70	75	80	45	55	60	60	8
6	80	95	100	105	60	75	80	80	6
4	105	125	135	140	80	100	105	110	4
3	120	145	160	165	95	115	125	130	3
2	140	170	185	190	110	135	145	150	2
1	165	195	215	220	130	155	165	175	1
1/0	195	230	250	260	150	180	195	205	1/0
2/0	225	265	290	300	175	210	225	235	2/0
3/0	260	310	335	350	200	240	265	275	3/0

TABLE 57.12601-10.—ALLOWABLE AMPACITIES OF SINGLE CONDUCTORS RATED 0 TO 2,000 Volts (Based on Ambient Air Temperature of 30°C (86°F))—Continued

Conductor size AWG or MCM	Copper				Aluminum or Copper-Clad Aluminum				Conductor size AWG or MCM
	Insulation temperature rating				Insulation temperature rating				
	60°	75°	85°	90°	60°	75°	85°	90°	
4/0	300	360	390	405	235	280	305	315	4/0
250	340	405	440	455	265	315	345	355	250
300	375	445	485	505	290	350	380	395	300
350	420	505	550	570	330	395	430	445	350
400	455	545	595	615	355	425	465	480	400
500	515	620	675	700	405	485	525	545	500
600	575	690	750	780	455	540	595	615	600
700	630	755	825	855	500	595	650	675	700
750	655	785	855	885	515	620	675	700	750
800	680	815	885	920	535	645	700	725	800
900	730	870	950	985	580	700	760	785	900
1000	780	935	1020	1055	625	750	815	845	1000
1250	890	1065	1160	1200	710	855	930	960	1250
1500	980	1175	1275	1325	795	950	1035	1075	1500
1750	1070	1280	1395	1445	875	1050	1145	1185	1750
2000	1155	1385	1505	1560	960	1150	1250	1335	2000

TABLE 57.12601-11.—AMPACITY CORRECTION FACTORS

[For Ambient Temperatures other than 20 °C, Multiply the Ampacities from Tables 57.12601-2 Through 57.12601-6 by the Appropriate Factor Shown Below]

Ambient temperature °C	Correction Factor				Ambient temperature °F
	60°	75°	85°	90°	
21-25	.91	.94	.95	.96	70-77
26-30	.82	.88	.90	.91	79-86
31-35	.71	.82	.85	.87	88-95
36-40	.58	.75	.80	.82	97-104
41-45	.41	.67	.74	.76	106-113

[For Ambient Temperatures other than 30 °C, Multiply the Ampacities from Tables 57.12601-1, 57.12601-11, and 57.12601-12 by the Appropriate Factor Shown Below]

Ambient temperature °C	Correction factor				Ambient temperature °F
	60°	75°	85°	90°	
21-25	1.08	1.05	1.04	1.04	70-77
26-30	1.00	1.00	1.00	1.00	79-86
31-35	.91	.94	.95	.96	88-95
36-40	.82	.88	.90	.91	97-104
41-45	.71	.82	.85	.87	106-113

TABLE 57.12601-12.—AMPACITY DERATING FACTORS

Number of conductors	Percent of ampacity value
4 through 6	80
7 through 24	70
25 through 42	60
43 and above	50

Derived from notes to NEC tables 310-16 through 310-19.

§ 57.12602 Insulation, termination and shielding.

(a) Power cables and conductors, other than trolley wires and uninsulated surface overhead conductors of more than 650 volts, line-to-line, shall have insulation rated for at least the voltage of the circuit in which the cable or conductor is applied.

(b) Power cables and conductors:

(1) Installed on the surface in circuits with line-to-line voltages above 2,000 volts and subject to contact by persons shall have metallic shielding around each power conductor.

(2) Installed underground in circuits with line-to-line voltage above 2,000 volts shall have insulation and metallic shielding around each power conductor.

(c) Metallic enclosed power cables and conductors are not required to be shielded provided the enclosure is continuous and connected to the safety grounding system.

(d) Except as provided in paragraph (f) of this section, cables shall enter metallic frames of electric enclosures through fittings sized for the cables which prevent damage to the cable jackets and the insulation of the internal conductors.

(e) Except as provided in paragraph (f) of this section, conductors shall enter metallic frames of electric enclosures through fittings with insulated bushings sized for the conductors.

(f) Cables and conductors in conduit that enter metallic frames of electric enclosures need not be equipped with fittings or bushings when protection against damage by sharp edges is otherwise provided.

(g) Cables and conductors shall be secured to prevent mechanical strain on electrical connections.

§ 57.12603 Splices, repairs and terminations of conductors and cables.

(a) Cables shall be spliced, terminated, or repaired by a qualified electrician.

(b) A splice in a trailing cable shall contain only one connection point in each conductor.

(c) Terminations of shields in cables shall be connected to equipment safety grounding conductors at each splice and termination.

(d) Except as specified in paragraph (e) of this section, each splice and repair shall have—

(1) Conductivity and current-carrying capacity that prevents insulation damage due to heating of conductors;

(2) The severed conductors joined by welding or compression-type connectors;

(3) Each power, control, and ground check conductor individually reinsulated with insulation having a thickness, temperature rating, and dielectric strength of at least that of the original insulation;

(4) Semiconducting tape replaced over the insulation of each power conductor within shielded cables;

(5) Metallic shielding in the form of metallic braid or serving (wrap), or metallic tape replaced over each power conductor and applied in half-lapped layers, on shielded cables;

(6) The outer jacket replaced to provide at least the same thickness and protection as that of the original jacket; and

(7) The outer jacket sealed, vulcanized, molded, or fused to the cable's original jacket to exclude moisture.

(e) One trailing cable splice which does not meet the requirements of paragraph (d) of this section shall be permitted for the time period necessary to move the equipment for repair of the cable, provided the splice is mechanically strong and insulated to prevent shock.

(f) Splices and repairs in trailing cables used underground shall be made with splice and repair kits that meet the flame-resistance tests in 30 CFR 18.64.

§ 57.12604 Lightning protection.

(a) Surge arresters shall be provided for exposed ungrounded power conductors and telephone wires.

(b) Power conductors and telephone wires that are buried, installed beneath a protective metallic covering, or enclosed within grounded metallic shields, coverings, or enclosures, throughout their entire length need not be equipped with surge arresters.

(c) Surge arresters for conductors that enter an underground mine shall be located on the surface within 100 feet of the point where the conductors—

(1) Enter the mine;

(2) Are buried;

(3) Are installed beneath a protective metallic covering;

(4) Are enclosed within grounded metallic shields, coverings, or enclosures; or

(5) Are supported by grounded metallic messenger wires.

(d) Surge arresters shall be rated for the voltage and current of the circuit they protect.

(e) Surge arresters for conductors that extend underground shall be connected to a low-resistance ground field that is separated from neutral ground fields by a distance of not less than 25 feet.

§ 57.12630 Support structures and guy wires.

Guy wires attached to structures supporting uninsulated overhead power conductors, other than telephone wires shall be—

(a) Electrically connected to the equipment safety grounding conductor at the supporting structure end of the guy wire; or

(b) Provided with one or more insulators which have a dry flashover voltage at least double the nominal voltage and a wet flashover voltage at least as high as the nominal voltage. The insulators shall be at least 8 feet from the ground.

§ 57.12660 Support in shafts and boreholes.

(a) Power cables and insulated conductors in shafts and boreholes shall be supported by clamping or strain relief devices which prevent strain on the conductors and functional damage to the jacket and insulation;

(b) A clamp or strain relief device shall be installed as close to the top of the cable or conductor run as practical; and

(c) In vertical shafts and boreholes, additional support devices shall be installed along the cable or conductor run at distances not greater than the values specified in Table 57.12660 unless the cable is a self-supporting type.

Table 57.12660—Spacing for Conductor Supports

Conductor size [1]	Aluminum or copper-clad aluminum, feet	Copper, feet
No. 18 through No. 8	100	100
No. 6 through No. 0	200	100
No. 00 through No. 0000	180	80
211,601 through 350,000 CM	135	60
350,001 through 500,000 CM	120	50
500,001 through 750,000 CM	95	40
Above 750,000 CM	85	35

Derived from NEC Table 300-19(a).

[1] American wire gage or circular mils.

Trailing Cables

§ 57.12700 Insulation; flame resistance; shielding.

Trailing cables used in mine electrical systems shall have—

(a) Conductor insulation rated for at least the line-to-line voltage;

(b) Shielding for the purpose of confining the voltage stresses when used to supply equipment at over 2,000 volts line-to-line; and

(c) Flame resistance qualities in accordance with 30 CFR 18.64 when used underground.

§ 57.12701 Overcurrent protection.

(a) Each trailing cable of portable and mobile equipment shall have short-circuit and ground-fault protection for each ungrounded conductor that shall safely interrupt all ungrounded conductors under fault conditions.

(b) Ungrounded conductors of trailing cables energized at voltages of 1040 volts or less shall be protected by one of the following—

(1) An inverse-time circuit breaker with a maximum current rating as specified in Table 57.12701–1.

(2) An instantaneous-trip or short-time delay electronic circuit breaker having a time delay not to exceed 0.1 seconds with a maximum instantaneous setting not more than—

(i) The values listed in Table 57.12701–2 for 480-, 600-, and 1040-volt trailing cables; or

(ii) The values listed in Table 57.12701–3 for 300- and 600-volt direct-current trailing cables.

(3) An instantaneous trip or short-time delay electronic circuit breaker having a time delay not to exceed 0.1 seconds with a setting that does not exceed the lower value of either 115 percent of the maximum starting current for the unit of electric equipment or 60 percent of the lowest value of bolted phase-to-phase short-circuit current at any point in the circuit when—

(i) The circuit to be protected does not function properly using values listed in the tables; and

(ii) A circuit analysis assures that the circuit does not present a hazard to the miners.

(4) Fuses which provide no less protection than that specified above.

(c) Ungrounded conductors of trailing cables energized at voltages greater than 1040 volts shall be provided with instantaneous short-circuit protection with a setting that does not exceed the lower value of either 175 percent of the maximum starting current for the unit of electric equipment or 75 percent of the minimum phase-to-phase short-circuit current available at any point in the circuit.

TABLE 57.12701-1.—MAXIMUM RATINGS OF FUSES PROTECTING DIRECT CURRENT TRAILING CABLES AND INVERSE-TIME CIRCUIT BREAKERS PROTECTING ALTERNATING CURRENT TRAILING CABLES

[Maximum Inverse-Time Circuit Breaker or Fuse Rating (Amperes)]

Conductor Size (AWG or MCM)	1 Ungrounded power conductor	2 Ungrounded power conductors	3 Ungrounded power conductors
14	15	15	15
12	20	20	20
10	30	30	25
8	60	50	50
6	90	70	70
4	110	110	110
3	150	150	150
2	150	175	175
1	175	200	200
1/0	200	225	225
2/0	250	250	250
3/0	300	300	300
4/0	350	350	350
250	350	350	350
300	400	350	350
350	450	350	350
400	500	400	400
500	600	450	400

TABLE 57.12701-2.—MAXIMUM SETTINGS OF INSTANTANEOUS AND ELECTRONIC CIRCUIT BREAKERS PROTECTION 480, 600, AND 1040- VOLT ALTERNATING-CURRENT TRAILING CABLES

Conductor size (AWG or MCM)	Cable length (feet)	Maximum circuit-breaker setting (amperes)		
		480V	6000	1040V
14	0-500	75	100	.....
	501-750	50	75	.....
12	0-500	125	175	.....
	501-750	100	125	.....
10	0-500	200	250	.....
	501-750	150	200	.....
8	0-500	300	400	.....
	501-750	200	300	.....
6	0-550	450	550	850
	501-750	350	450	700
4	0-500	750	900	1250
	501-600	650	800	1100
	601-750	550	650	1000
3	0-500	900	1100	1400
	501-650	700	900	1200
	651-750	650	800	1100
2	0-500	1100	1250	1500
	501-600	950	1100	1400
	601-750	800	950	1250
1	0-500	1300	1450	1650
	501-600	1100	1300	1550
	601-750	950	1100	1400
1/0	0-500	1500	1650	1750
	501-600	1300	1500	1650
	601-750	1100	1300	1500
	751-800	1050	1250	1500
2/0	0-500	1700	1800	1850
	501-600	1500	1650	1750
	601-750	1350	1450	1650
	751-850	1200	1350	1550
3/0	0-500	1900	1950	1900
	501-600	1700	1800	1800
	601-750	1500	1650	1700
	751-900	1300	1450	1650

TABLE 57.12701-2.—MAXIMUM SETTINGS OF INSTANTANEOUS AND ELECTRONIC CIRCUIT BREAKERS PROTECTION 480, 600, AND 1040- VOLT ALTERNATING-CURRENT TRAILING CABLES

Conductor size (AWG or MCM)	Cable length (feet)	Maximum circuit breaker setting (amperes)		
		480V	600V	1040V
4/0	0-500	2100	2100	1950
	501-600	1900	1950	1900
	601-750	1700	1800	1800
	751-1000	1400	1550	1650

TABLE 57.12701-2.—MAXIMUM SETTINGS OF INSTANTANEOUS AND ELECTRONIC CIRCUIT BREAKERS PROTECTION 480, 600, AND 1040- VOLT ALTERNATING-CURRENT TRAILING CABLES—Continued

Conductor size (AWG or MCM)	Cable length (feet)	Maximum circuit breaker setting (amperes)		
		480V	600V	1040V
250	0–500	2150	2150	2000
	501–600	2000	2050	1900
	601–750	1750	1850	1850
	751–1000	1500	1650	1700
300	0–500	2300	2250	2000
	501–600	2100	2100	1950
	600–750	1900	1950	1900
	751–1000	1600	1750	1750
350	0–500	2350	2300	2050
	501–600	2200	2200	2000
	601–750	2000	2000	1900
	751–1000	1700	1800	1800
400	0–500	2450	2350	2100
	501–600	2250	2250	2000
	601–750	2050	2100	1950
	751–1000	1800	1850	1850
500	0–500	2500	2400	2100
	501–600	2350	2300	2050
	601–750	2150	2150	1950
	751–1000	1900	1950	1850

TABLE 57.12701-3.—MAXIMUM SETTINGS OF INSTANTANEOUS CIRCUIT BREAKERS PROTECTING 300- AND 600-VOLT DIRECT-CURRENT TRAILING CABLES

Conductor size (AWG or MCM)	Cable length (feet)	300VDC Maximum instantaneous circuit breaker setting (amperes)		600VDC Maximum instantaneous circuit breaker setting (amperes)	
		Line-line [1]	Line-ground [2]	Line—line [1]	Line—ground [2]
14	0–500	50	50	50	50
12	0–500	75	75	125	125
10	0–500	75	75	200	200
8	0–500	100	100	300	300
6	0–500	200	100	450	300
4	0–500	450	250	600	500
	501–600	350	200	550	400
3	0–500	450	350	700	550
	501–650	400	250	600	450
2	0–500	600	450	750	600
	501–600	550	400	700	550
	601–700	450	300	650	500
1	0–500	900	600	1400	1050
	501–600	750	500	1250	950
	601–750	600	400	1050	800
1/0	0–500	1100	750	1600	1250
	501–600	950	650	1450	1100
	601–750	750	550	1250	950
	751–800	700	500	1200	900
2/0	0–500	1350	950	1800	1450
	501–600	1150	800	1650	1300
	601–750	950	650	1450	1100
	751–850	850	600	1350	1050
3/0	0–500	1550	1150	2000	1650
	501–600	1400	1000	1850	1500
	601–750	1150	800	1650	1300
	751–900	1000	700	1500	1150
4/0	0–500	1850	1400	2200	1850
	501–600	1600	1200	2050	1700
	601–750	1400	1000	1850	1500
250	0–500	2050	1550	2350	2000
	501–600	1800	1350	2200	1850
	601–750	1550	1150	2000	1650
	751–1000	1250	900	1750	1400
	751–1000	1100	750	1600	1250
300	0–500	2300	1750	2450	2150
	501–600	2050	1550	2350	2000
	601–750	1750	1300	2150	1800
	751–1000	1450	1050	1900	1550
350	0–500	2550	1950	2600	2300
	501–600	2250	1700	2450	2150
	601–750	1950	1500	2300	1950
	751–1000	1600	1200	2050	1700
400	0–500	2750	2150	2650	2400

TABLE 57.12701-3.—MAXIMUM SETTINGS OF INSTANTANEOUS CIRCUIT BREAKERS PROTECTING 300- AND 600-VOLT DIRECT-CURRENT TRAILING CABLES—Continued

Conductor size (AWG or MCM)	Cable length (feet)	300VDC Maximum instantaneous circuit breaker setting (amperes)		600VDC Maximum instantaneous circuit breaker setting (amperes)	
		Line-line [1]	Line-ground [2]	Line—line [1]	Line—ground [2]
	501-600	2450	1900	2550	2250
	601-750	2150	1600	2400	2050
	751-1000	1750	1350	2150	1800
500	0-500	3050	2450	2800	2550
	501-600	2800	2200	2700	2400
	601-750	2450	1900	2550	2250
	751-1000	2050	1550	2350	2000
600	0-500	3250	2650	2850	2650
	501-600	3000	2400	2750	2500
	601-750	2650	2050	2650	2350
	751-1000	2250	1700	2400	2100
700	0-500	3500	2900	2950	2750
	501-600	3250	2600	2850	2600
	601-750	2900	2300	2750	2450
	751-1000	2450	1900	2550	2250
800	0-500	3700	3100	3000	2800
	501-600	3450	2800	2900	2700
	601-750	3100	2500	2800	2500
	751-1000	2650	2050	2650	2350
900	0-500	3900	3300	3050	2850
	501-600	3650	3000	3000	2850
	601-750	3300	2650	2850	2650
	751-1000	2850	2250	2700	2450
1000	0-500	4050	3450	3100	2900
	501-600	3800	3150	3000	2850
	601-750	3450	2800	2900	2700
	751-1000	3000	2400	2750	2500

[1] The line-to-line instantaneous circuit breaker settings shall be used for trailing cables supplying power to diode grounded equipment and for trailing cables containing a separate equipment safety grounding conductor if the circuit is provided with separate ground-fault protection.

[2] The line-to-ground instantaneous circuit breaker settings shall be used for trailing cables containing a separate equipment safety grounding conductor when the circuit is not provided with separate ground-fault protection.

§ 57.12702 Attachment.

Trailing cables shall be attached to equipment so that functional damage to the cable jacket and damage to the insulation of the internal conductors is prevented, and strain does not occur on electric connections.

§ 57.12703 Portable distribution boxes.

Portable distribution boxes shall have—

(a) A disconnecting device for each branch circuit and a means to clearly show that each circuit has been physically disconnected;

(b) A means which identifies each disconnecting device and cable with its related load; and

(c) A means to prevent connecting a cable to the wrong protective device when two or more cables connect to the same distribution box.

§ 57.12704 Guarding.

Trailing cables and power conductors shall be protected against physical damage from mobile equipment by bridges, trenches, suspension from the mine roof or rib, or by location.

§ 57.12705 Disconnecting devices.

Disconnecting devices for trailing cables shall be equipped with a means for installing a padlock.

Trolley Circuits for Track Haulage

§ 57.12800 Installation and maintenance.

Trolley wires and exposed trolley-feeder wires shall be—

(a) Installed opposite the clearance side of haulageways, except where such installation creates a greater hazard;

(b) Suspended at least 7 feet above the track; and

(c) Aligned and maintained to provide for smooth tracking of trolley collectors on trolley wires.

§ 57.12801 Circuit protection and isolation.

(a) Trolley wires and trolley-feeder wires shall be protected against overcurrent by an automatic circuit interrupting device which deenergizes the affected circuit if a short circuit occurs at any point in the system.

(b) The trip setting of the device required by paragraph (a) of this section shall not exceed 50 percent of the minimum available bolted short-circuit current when that current is less than 800 amperes; or 75 percent of the minimum available bolted short-circuit current when that current is 800 amperes or more.

(c) Trolley wires and trolley-feeder wires shall be provided with a means of isolation at intervals of not more than 2,000 feet and near the beginning of all branch lines.

§ 57.12802 Track bonding.

(a) Track serving as the trolley circuit return shall be bonded or welded at every joint and crossbonded at intervals not exceeding 200 feet.

(b) Metallic pipelines and structures installed less than 10 feet from track serving as the trolley circuit return shall be insulated or guarded, or bonded to the track at intervals not exceeding 1000 feet to prevent shock hazards.

(c) When rails are moved, or replaced, or when broken bonds are discovered, they shall be rebonded within three working shifts.

§ 57.12803 Guarding.

(a) Energized trolley wires and bare trolley-feeder wires shall be guarded where accidental contact with them is possible, including:

(1) Where supplies are stored, loaded, or unloaded.

(2) At mantrip stations.

(3) On each side of all doors and stoppings through which wires pass.

(4) Where a person works within three feet of the trolley wire except for a person operating rail-mounted haulage equipment.

(5) At track switches.

(6) Where persons regularly pass under the wires.

(b) Trolley wires and trolley feeder wires shall be deenergized when guarding is installed or removed, unless the guarding is temporary guarding designed to minimize shock hazards while work is being conducted in the area.

§ 57.12804 Circuits powered from trolley wires.

The return wire of all circuits powered from the trolley wires shall be connected to the trolley wire return circuit to assure continuity and prevent arcing.

Appendix I to Subpart K—Electricity

Mine operators seeking further information may consult the following national consensus standards:

MSHA standard	National consensus standard
56/57.12101; 56/57.12103, 56/57.12130, 56/57.12204, 56/57.12301, 56/57.12400.	NFPA 70 (NEC).
56/57.12500[1] to 56/57.12506.	NFPA 70 (NEC), IEEE Stds. 80-1976, 81-1983, 277-1983, 142-1982, UL-943 and ANSI C-2 (NESC).
56/57.12600	IEEE Std. 242.
56/57.12601	NEC, ICEA P-50-431, S-19-81 and P-48-426.
56/57.12602	IEEE Std. 141-1976 and NEC.
56/57.12604	IEEE Std. 142-1982.
56/57.12630	NESC.
57.12660	NEC.
56/57.12700	NEC.

[1] A method that may be used for protection of persons from disabling or fatal electric shock, under ground-fault conditions, is to limit voltage exposure. The term voltage exposure refers to a combination of voltage and the length of time that the voltage exists.

Voltage exposure should not exceed

$V^2t=30375$

where v = voltage in volts

t = time in seconds

This equation is based on IEEE Std. 80-1976 using 1500 ohms as a person's body resistance. This would allow a combination of system grounding, ground-fault protection and overcurrent protection to be used to provide protection from disabling or fatal shocks.

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BILLING CODE 4510-43-M

30 CFR Parts 56, 57, 70, and 71

RIN 1219-AA53

Noise

AGENCY: Mine Safety and Health Administration, Labor.

ACTION: Advance notice of proposed rulemaking.

SUMMARY: The Mine Safety and Health Administration (MSHA) is proposing to revise its standards for coal and metal/nonmetal mines to reduce the incidence of noise-induced hearing loss among miners.

Members of the mining community have asked MSHA to revise its standards to provide one noise standard covering all mines, citing the differences among MSHA's standards for coal and metal/nonmetal mines, and between MSHA's standards and those set by the Occupational Safety and Health Administration (OSHA). This notice seeks comments on various aspects of the issues that the Agency will review in developing a proposed rule. In revising its standards, MSHA will consider the requirements of the Federal Mine Safety and Health Act of 1977 (Mine Act), the comments received in response to this notice, OSHA's standards, the uniqueness of the mining industry, and recent technological developments.

DATE: Submit comments and information by March 5, 1990.

ADDRESS: Submit comments to Office of Standards, Regulations, and Variances, MSHA; 4015 Wilson Boulevard, Room 631; Arlington, Virginia 22203.

FOR FURTHER INFORMATION CONTACT: Patricia W. Silvey, Director, Office of Standards, Regulations, and Variances, MSHA; (703) 235-1910.

SUPPLEMENTARY INFORMATION:

I. Background

Permanent hearing loss can result from overexposure to many sources of noise in mining. To prevent such loss, MSHA has standards for noise exposure in coal mines (30 CFR 70.500 and 71.800) and metal/nonmetal mines (30 CFR 56.5050 and 57.5050). Despite MSHA's efforts, hearings loss among miners continues to be a problem. Workers' compensation awards for hearing loss among miners have increased over the past 10 years. In addition, since 1981, mine operators have reported to MSHA 1216 hearing loss cases among miners. Among these, 424 have received all their noise exposure since MSHA implemented its noise standards. The Agency is reassessing whether its noise standards provide adequate protection to miners.

Although MSHA's noise standards are based on a 90 decibels, A-weighting (dBA), 8-hour permissible exposure limit (PEL), and require engineering or administrative controls to reduce the miner's exposure to within the PEL, substantial differences exist among the other provisions in MSHA's standards for coal and metal/nonmetal mines. Under MSHA's standards for coal mines, for example, such controls may include hearing protection devices (HPDs). MSHA standards also require coal mine operators to monitor miners' noise exposure. In determining whether a miner's exposure exceeds the PEL, coal mine inspectors make allowances for attenuation provided by HPDs. When a miner's exposure exceeds the PEL, coal mine operators must implement a hearing conservation plan. The plan must include provisions for instituting engineering or administrative controls to reduce noise levels. Such controls may include personal HPDs. Coal operators also must implement preemployment and periodic audiograms. MSHA's standards for metal/nonmetal mines do not permit the use of HPDs instead of feasible engineering or administrative controls, nor do they contain provisions for a hearing conservation program (HCP).

MSHA's standards also differ from the OSHA noise standard (29 CFR 1910.95). In 1983, OSHA revised its noise standard to include requirements for an HCP to reduce the incidence of hearing loss in general industry. OSHA's HCP provisions reflect more recent developments in hearing conservation than MSHA's hearing conservation plan for coal mines.

II. Specific Issues

Because an MSHA standard would affect all of the mining industry, commenters should provide specific rationale to support their positions based upon particular mining methods, practices, and conditions. Mine operators should identify and discuss both the quantifiable and non-quantifiable benefits and costs of compliance. Economic information should include capital, maintenance, and on-going costs. While MSHA requests comments on all relevant noise standard issues, the Agency is interested particularly in comments on the following specific issues.

A. Definition of Problem

(1) Definition of Hearing Loss

MSHA's noise standards and reporting requirements do not define noise induced hearing loss or the

amount of loss that is reportable. Under 30 CFR part 50, MSHA currently requires mine operators to report hearing loss if a miner is awarded workers' compensation for such loss under a State compensation program or if a physician determines the hearing loss to be occupationally related. MSHA, however, is in the process of revising its reporting requirements for occupational illness under 30 CFR part 50 (53 FR 45878, November 14, 1988).

OSHA considers a confirmed "Standard Threshold Shift" (STS) as providing an early indication of noise-induced hearing loss. OSHA defines an STS as a change in hearing threshold of an average of 10 dB or more at 2000, 3000, and 4000 Hz in either ear relative to the baseline audiogram.

—MSHA is considering, and is interested in suggestions on, an appropriate definition of hearing impairment. How many current miners would have a hearing loss based on the suggested criteria? Include any information relating noise exposure to such loss. What are the number of State compensation awards to miners for hearing loss; what are the costs for these awards; and what are the ages, occupations, and degree of loss of these miners?

(2) Non-occupational Hearing Loss

Off-the-job exposure to loud noise sources may be significant.

—MSHA requests data on methods to differentiate accurately and reliably between occupational and non-occupational noise-induced hearing loss.

B. Hazard Assessment

(1) Permissible Exposure Limit (PEL)

Under MSHA and OSHA noise standards, the PEL is an employee's maximum allowable daily noise exposure. Both Agencies base their PEL on a 90 dBA, 8-hour time-weighted average (TWA) exposure. OSHA uses an 85 dBA, 8-hour TWA, however, as the action level to trigger the provisions of their HCP. NIOSH recommended 85 dBA as a PEL in their criteria for a recommended standard for occupational exposure to noise (1972). The Ontario Government and the U.S. Air Force also use an 85 dBA PEL.

—What PEL and action level are appropriate for mining and what action should be triggered at each? How many miners are exposed at each of these levels? What are the costs and benefits with the various PEL and action levels?

(2) Threshold Level

The threshold is the level below which no noise is integrated into the noise dose computation. MSHA uses a threshold equal to the PEL (90 dBA). OSHA requires a threshold of 90 dBA when sampling for compliance with their PEL and 80 dBA when sampling for inclusion in an HCP.

—What threshold levels should MSHA use?

(3) Exchange Rate

The exchange rate is the amount of increase in sound pressure level (in decibels) which would require halving of the allowable exposure time to maintain the same noise dose. MSHA and OSHA use a 5-dBA exchange rate, which is based on the assumption that there is intermittency (7 cycles per day) in the daily exposure and that the ear has time to recover during the quiet periods. Several European countries and the U.S. Air Force use a 3-dBA exchange rate which is based on the theory that the hazard to hearing is determined by the total energy entering the ear on a daily basis.

—Which exchange rate should be used? What is the amount of hearing impairment that would be expected when a 5-dBA or 3-dBA exchange rate is used at the suggested PEL or action level? What would be the costs and benefits with the various exchange rates?

(4) Impulse/Impact Noise

MSHA's standards for metal/nonmetal mines require that impulse/impact noise not exceed 140 dB peak sound pressure level; however, they do not define such noise. MSHA does not have a separate provision addressing impulse/impact noise in coal mines. OSHA's limit for impulse/impact noise is identical to MSHA's for metal/nonmetal mines. Although OSHA does not define such noise specifically, it defines continuous noise as occurring when noise level variations peak at intervals of 1 second or less. OSHA considers all noise which is not continuous to be impulse/impact noise.

MSHA does not know of any currently manufactured personal noise dosimeters capable of separating impulse/impact noise from continuous noise. The American National Standards Institute's (ANSI) S12.7–1986, "Standard Method for Measuring Impulse Noise," presents a method for measuring impulse/impact noise; but, it is not based on dosimetry.

—How much impulse/impact noise is there in the mining environment? Should MSHA distinguish between impulse/impact noise and continuous noise? If so, how should impulse/impact noise be defined and measured?

C. Exposure Monitoring

(1) Monitoring Requirements

Section 101(a)(7) of the Mine Act requires health standards, where appropriate, to provide for monitoring miner's exposure in a manner that assures miners maximum protection. Currently, coal mine operators must monitor miner's noise exposure twice a year and certify the results to MSHA. MSHA standards for coal mines also specify when to sample, how to sample, who is qualified to sample, and reporting requirements. MSHA noise standards for metal/nonmetal mines do not require operator monitoring. MSHA recently proposed to require operator monitoring for exposure to airborne contaminants in its Air Quality proposed rule (54 FR 35760, August 29, 1989). OSHA requires employers to develop and implement a monitoring program designed to identify employees for inclusion in the HCP, but does not specify a sampling methodology.

—Should operator monitoring be specification or performance oriented? Should the results be used both for determining a miner's noise exposure, as well as for identifying miners for inclusion in an HCP? How often should miners be monitored? What would be the costs for mine operators to conduct monitoring?

(2) Sampling Strategy

MSHA standards for coal mines require personal sampling when exposure measurements are made with a noise dosimeter. Noise exposure measurements made with a sound level meter (SLM) are required to be made at locations where the noise is typical of that entering the miner's ear. MSHA's recently proposed Air Quality proposal would require operator monitoring to be representative of the affected miner's exposure and would not specify personal or area sampling. MSHA currently bases enforcement actions on individual personal samples taken by an inspector.

OSHA allows employers to use representative personal or area sampling; however, in areas with significant variations in sound level or high worker mobility, the employer would have to show that area sampling produces results equivalent to personal sampling.

—Should MSHA require a specific sampling method for operator monitoring? Should MSHA allow representative sampling to characterize the exposure of a similarly exposed group or should each miner be sampled?

(3) Sampling Duration

In conducting noise surveys, MSHA and OSHA require that noise levels be integrated over the entire work shift, regardless of its duration. Neither Agency specifically address novel work schedules. A significant number of miners work a schedule different than a 40-hour, 5-day work week.

—Should MSHA adjust exposure results to account for work shifts different than 8 hours? If so, how should they be adjusted?

(4) Survey Instruments

MSHA and OSHA permit the use of either an SLM or a personal noise dosimeter for measuring noise exposure.

—Should MSHA specify the type of instrument for operator sampling?

(5) Instrumentation Standards

MSHA currently requires that SLMs meet ANSI S1.4–1971, "Specifications for Sound Level Meters," and that personal noise dosimeters comply with the "MSHA Test Procedures and Acceptability Criteria for Noise Dosimeters," IR–1072, 1978. MSHA requires Agency testing of personal noise dosimeters for use in coal mines. Instruments used by MSHA inspectors in metal/nonmetal mines also undergo such testing. In addition, all instruments used in gassy metal/nonmetal mines and underground coal mines must meet the permissibility requirements in 30 CFR part 18. OSHA's standards do not contain specifications for instruments used for employee monitoring.

—Should MSHA's standard include instrument specifications for operator sampling? If so, should they be based on ANSI standards for SLMs, ANSI S1.4–1983; personal noise dosimeters, ANSI S1.25–1978 (being revised); and acoustical calibrators, ANSI S1.40–1984?

(6) Instrument Availability

If different thresholds were to be set for the PEL and hearing conservation purposes, monitoring at both thresholds would require the use of an instrument with dual threshold settings or two separate instruments. Some instruments used by mine operators might not be capable of measuring at dual thresholds or of adjusting the threshold setting. In addition, instruments currently in use might not meet recent ANSI standards for SLMs, acoustical calibrators, and ANSI's proposed standard for personal noise dosimeters.

—What specific instruments do mine operators use to conduct noise exposure monitoring? If dual thresholds are proposed, would operator monitoring at both threshold settings be necessary?

(7) Instrument Calibration

MSHA's standards for coal mines require annual calibration of personal noise dosimeters and acoustical calibrators used by operators. They also specify minimum requirements for conducting these calibrations. MSHA has no such requirements for metal/nonmetal mines. OSHA requires calibration of noise survey instruments, but does not specify a methodology.

—How often should MSHA require calibration of noise survey instruments? What calibration procedures should MSHA specify?

D. Methods of Compliance

(1) Selection of Controls

MSHA requires coal mine operators to institute administrative or engineering controls to achieve compliance. Such controls may include hearing protective devices (HPDs). Upon finding a violation, MSHA also requires the coal mine operator to implement an HCP. MSHA requires metal/nonmetal mines to use feasible administrative or engineering controls and, if such controls do not reduce exposure to within the PEL, to provide and use HPDs.

OSHA's noise standard requires employers to provide and employees to use HPDs whenever administrative and engineering controls cannot reduce an employee's exposure to the PEL. OSHA further requires that employers make HPDs available to all employees with an 8-hour TWA exposure of 85 dBA or greater, at no cost to the employee, and that these employees use the HPDs, if they have not had a baseline audiogram within 6 months of their first exposure at or above the action level, or if they have experienced an STS.

—What are the appropriateness, effectiveness, costs, benefits, and feasibility of these compliance methods or of alternative methods to protect miners' hearing? How effective are HPDs in comparison with engineering or administrative controls? Can the use of HPDs alone provide sufficient protection, or are the other elements in an HCP, such as training and audiometric testing, needed to offer effective protection? What are the costs to mine operators for providing HPDs alone?

(2) Engineering Controls

Engineering controls may include interrupting the path of the noise, retrofitting noise controls, and changes in machine design or mining process. In some situations, engineering controls may not be technologically or economically feasible.

—How available are engineering noise controls for mining equipment and processes? Provide examples describing the problem, the engineering control, and the amount of reduction achieved. Information also should address costs, benefits, long-term durability, and degree of acceptance by the miners. Are retrofit noise controls as feasible as engineering design changes? Provide specific examples of equipment for which engineering noise controls or retrofit controls are not available or feasible.

(3) Administrative Controls

Administrative controls involve changing the work shift, such as moving the miner to an area or task with lower noise levels in order to limit total exposure.

—Provide information describing the types of administrative controls in use, along with their costs and benefits.

E. Hearing Conservation Program (HCP)

(1) Elements of an HCP

MSHA's standards for coal mines require that the coal mine operator submit to MSHA, within 60 days of the issuance of a citation, a written plan for an HCP to assure compliance. The plan must include provisions for reducing ambient noise levels, the administrative and engineering controls used to assure compliance, personal HPDs, and pre-employment and periodic audiograms. The MSHA District Manager must approve the plan. MSHA's standards for metal/nonmetal mines do not require an HCP.

OSHA requires all employers to implement an HCP when a worker's exposure exceeds an 85 dBA 8-hour TWA. OSHA's HCP requires employer monitoring, audiometric testing and evaluation, fitting and availability of HPDs, employee training, employee notification, and recordkeeping.

—What elements are appropriate for an effective HCP for the mining industry? What are the costs, benefits, and concerns with implementing such requirements? How effective are existing programs? Should an HCP be mandatory for all mines or should it be triggered on the basis of a violation or an action level?

(2) Audiometric Testing

Audiometric testing measures a person's hearing threshold. MSHA requires audiometric testing as part of hearing conservation plans for coal mines, but does not specify how such testing is to be conducted. Under the Mine Act, mine operators must provide required medical monitoring at no cost

to the miners. OSHA's standard includes detailed requirements for audiometric testing, to be provided at no cost to employees, when an employee's exposure equals or exceeds an 8-hour TWA of 85 dBA.

—Who conducts audiometric testing for miners under existing HCPs—mine personnel or outside contract personnel? How many audiograms are conducted on each miner annually? What are the costs involved? What types of audiometers are used?

(3) Qualifications for Conducting Audiograms

MSHA does not address qualifications of persons conducting audiometric testing; whereas OSHA does.

—Should MSHA require audiometric testing to be done by a physician, an audiologist, or other medical personnel competent in administering audiograms?

(4) Audiometer Specifications

Audiometers are designed according to ANSI S3.6–1969 (R1986), "Specifications for Audiometers". OSHA and ANSI both specify procedures and instruments for audiometer calibration. OSHA requires a daily functional check (biological calibration) of the audiometer, an annual acoustic calibration, and an exhaustive calibration of the audiometer every 2 years.

—Should MSHA specify requirements for audiometers, including calibration? If so, should MSHA base these requirements on ANSI standards or appropriate sections from OSHA's standard?

(5) Background Noise Levels

Both ANSI S3.1–1977 (R1986), "Criteria for Permissible Maximum Abient Noise During Audiometric Testing," and OSHA limit the background noise permitted in an audiometric test toom.

—What background noise limits should MSHA require in audiometric test rooms?

(6) Baseline Audiograms

MSHA does not address baseline audiograms. OSHA defines a baseline audiogram as the one indicating the least hearing loss after correction for presbycusis (loss of hearing due to aging). Future audiograms are compared to this baseline to determine the presence of an STS. The baseline audiogram can be the first one taken at the onset of employment or it can be a pre-existing audiogram. OSHA permits the substitution of an annual audiogram for a baseline audiogram when the threshold shift is persistent or indicates significant improvement in hearing. OSHA requires that the employee avoid high noise levels for 14 hours prior to an audiometric test. OSHA allows employees to wear HPDs as a substitute for this 14-hour quiet period.

—Should MSHA require baseline audiograms? If so, should existing audiograms be used? Should baseline audiograms be replaced if subsequent testing shows an improvement in the hearing threshold? How soon after a miner is included in an HCP should audiometric testing be conducted? What is a suitable quiet period prior to the performance of an audiometric test? Can HPDs be substituted for the noise-free period?

(7) Presbycusis

In its 1972 noise criteria document, NIOSH recommended one set of presbycusis correcitons and there are others in the scientific literature. The American Medical Association makes no provision for correction of audiometric data for presbycusis in its 1959 and 1979 hearing impairment criteria. MSHA does not address presbycusis. OSHA allows for the correction of audiograms for presbycusis according to criteria specified in their standard.

—Should audiometric data be corrected for presbycusis? If so, what criteria should be used?

(8) Confirmation of Standard Threshold Shift (STS)

Once an STS is found, OSHA permits a hearing retest within 30 days to confirm the STS. If confirmed, OSHA would consider the results of the retest to be the employee's annual audiogram. If not confirmed, OSHA requires that qualified personnel review the problem audiogram and determine whether there is a need for further evaluation. Possible reasons for a non-cnfirmed STS are: improper wearing of an HPD; inadequate protection from the HPD; a medical condition, such as a cold; non-occupational noise exposure; or a highly susceptible individual.

—What criteria should MSHA use to confirm a significant hearing loss, including the time limit and conditions under which such confirmation should be obtained?

(9) Follow-up Procedures

Under OSHA's standard, an employee's annual audiogram is compared to the baseline audiogram. OSHA requires a physician, audiologist, or otolaryngologist to review the audiogram to confirm an STS and to determine if there is a need for further medical treatment. Other follow-up procedures required by OSHA include: notifying the employee; providing HPDs offering greater attenuation, if necessary; requiring HPD fitting and use: and training employees in HPD use. If subsequent testing does not indicate a persistent threshold shift, the use of HPDs may be discontinued.

—Are such follow-up procedures appropriate in an MSHA standard? If not, are other procedures necessary and effective? What follow-up procedures do mine operators currently use and what are the costs of such procedures? Should MSHA include criteria for directing miners for further medical follow-up? Should MSHA require a physician, an audiologist, or other qualified medical personnel to evaluate audiograms?

(10) Miner Transfer

The Mine Act requires health standards to include, as appropriate, provisions for removing a miner from hazardous exposure where that miner may suffer material impairment of health or functional capacity. Such provisions currently exist for respirable coal mine dust (part 90 Miner Program). MSHA also recently proposed miner transfer provisions under certain circumstances in its Air Quality proposal. MSHA has no similar transfer program for miners with a work-related hearing loss. OSHA has no requirement for transferring employees who have demonstrated hearing loss due to occupational noise exposure.

—Is a transfer provision appropriate for hearing loss? If so, what conditions should trigger transfer of miners with hearing loss? Should the miner be allowed to refuse a transfer? Under what conditions could the miner be returned to the original area or job assignment? What are the costs and benefits of such provisions?

(11) Training

Neither MSHA's hearing conservation plan requirements for coal mines nor MSHA's noise standard for metal/nonmetal mines specifically require miner training on the hazards of noise or on the proper fitting and wearing of HPDs. MSHA's generic training standards at 30 CFR Part 48, however, do require some training in health areas.

OSHA requires employers to provide annual training to all employees covered by an HCP. OSHA's required training includes the effects of noise on hearing; the advantages and limitations of HPDs; the purpose and operation of the audiometric testing program; and the fitting, care, and use of HPDs.

—What specific training requirements should be included as part of an HCP? What would be the costs of conducting such training?

(12) HCP Evaluation

The ANSI S12–12 working group is developing recommended guidelines for analyzing audiometric testing data to evaluate HCPs.

—Should MSHA specify criteria and procedures to be used to evaluate the effectiveness of HCPs? If so, what methods or techniques can be used? Describe the suggested methodology, actual instances where it was used, and the results of the evaluation.

F. Hearing Protection Devices (HPD)

(1) HPD Usage Problems

The use of HPDs may mask warning signals and make it difficult to localize sound. If the miner has a hearing impairment, it may interfere with speech communication. In addition, adjustment, removal, and maintenance of ear plugs and ear muffs in dirty, unsanitary environments may lead to personal hygiene problems.

—What other problems or concerns are associated with the use of HPDs in the mining environment?

(2) HPD Fitting

To encourage their use, OSHA requires HPDs to be fitted to provide maximum attenuation and comfort.

—What criteria should MSHA use to evaluate the proper fitting of an HPD? Should MSHA require mine operators to make available a selection of HPDs?

(3) HPD Ratings

Manufacturers of HPDs voluntarily rate them according to a method proposed by the Environmental Protection Agency (42 FR 31730, June 22, 1977) which results in a Noise Reduction Rating (NRR). MSHA field studies and various other studies, including "A Field Investigation of Noise Reduction Afforded by Insert-Type Hearing Protectors," [DHEW (NIOSH) Publication No. 79–115], suggest that the NRR significantly overestimates the amount of attenuation provided by HPDs in actual use. MSHA has not determined an appropriate amount to derate the HPD to account for field usage at this time. MSHA inspection policy uses the NRR to estimate the effectiveness of HPDs. In the case where dual HPDs are used (an earplug worn under an earmuff), MSHA policy for metal/nonmetal mines is to add 6 dBA to the higher NRR of the two protectors.

—How should MSHA calculate HPD attenuation to reflect field usage in mining?

(4) Credit for Personal Protection

MSHA accepts the attenuation of HPDs worn by miners for determining compliance in coal mines, but not in metal/nonmetal mines.

—What consideration should MSHA give to the attenuation of HPDs in its enforcement strategy?

G. Recordkeeping

(1) Required Records

MSHA requires coal mine operators to maintain a record containing the name, date, and organization providing the annual calibration for each acoustical calibrator and personal noise dosimeter used to conduct noise surveys. Although these operators also are required to submit the results of noise exposure surveys, there is no requirement to keep a record of these surveys. MSHA has no noise recordkeeping requirements for metal/nonmetal mines.

OSHA requires records of exposure measurements, audiometric testing, and instrument calibration. OSHA requires retention of exposure records for 2 years and audiometric test records for the duration of the affected worker's employment. OSHA also provides for employee access to records and transfer of records to a successor employer when the employer ceases to do business.

At this time, MSHA believes that any improved noise standard should contain recordkeeping and access requirements. Please provide suggestions for these requirements.

—What records should be required and where and how long should they be maintained? What would be the costs and benefits of such provisions?

(2) Notification

MSHA's noise standards for coal mines do not contain miner notification requirements either for exposure survey or audiometric testing results. MSHA is considering a requirement that mine operators notify miners (1) when their exposure exceeds allowable limits, (2) when they have a significant hearing loss, and (3), if appropriate, when the operator obtains results of further audiological evaluation.

OSHA requires the employer to notify each employee of survey results if they are exposed at or above an 8-hour TWA of 85 dBA, but does not specify time frames or mode of communication. In addition, OSHA requires affected employees to be informed, in writing within 21 days, when the results of audiometric testing indicate an STS. Other notifications are required based on the results of subsequent audiological examination and testing.

—What should be the format and time frames for notifications? What would be the costs and benefits of such notification requirements in mining?

(3) Warning Signs

MSHA does not specifically require posting of warning signs in high noise areas, as required for other mining hazards, such as unsupported roof, high voltage, and blasting agents. OSHA does not require posting high noise areas.

—Should MSHA require posting of warning signs for areas exeeding a specified noise level? What noise level?

Dated: November 22, 1989.

William J. Tattersall,

Assistant Secretary for Mine Safety and Health.

[FR Doc. 89–27817 Filed 11–28–89; 8:45 am]

BILLING CODE 4510–43–M

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30 CFR Part 16

RIN 1219–AA64

Approval Requirements for Electric Detonators

AGENCY: Mine Safety and Health Administration, Labor.

ACTION: Advance notice of proposed rulemaking.

SUMMARY: The Mine Safety and Health Administration (MSHA) is in the process of revising the underground coal mine safety standards for explosives and blasting and related requirements for equipment and products which are approved by MSHA for use in blasting operations. MSHA has already issued final rules for the approval and use of explosives. The final rule for approval of blasting units is also being prepared by the Agency. MSHA is seeking comment on the need to develop approval requirements for detonators.

DATE: All comments and information should be submitted by February 2, 1990.

ADDRESS: Comments should be sent to Patricia W. Silvey, Director, Office of Standards, Regulations and Variances, MSHA, Room 631, Ballston Tower #3, 4015 Wilson Boulevard, Arlington, Virginia 22203.

FOR FURTHER INFORMATION CONTACT: Patricia W. Silvey, Director, Office of Standards, Regulations and Variances, MSHA, phone (703) 235–1910.

SUPPLEMENTARY INFORMATION: On May 8, 1984, MSHA published a notice of availability of a preproposal draft of approval regulations for explosives and related blasting equipment in underground coal mines (49 FR 19601),

including one for approval of electric detonators. On November 18, 1988, MSHA issued final rules for the approval and use of explosives (53 FR 46748, 53 FR 46768). A final rule addressing the approval of blasting units also will soon be issued. However, the Agency has not further addressed approval of detonators.

Foreign detonators have entered the market since 1987 which require an initiating current exceeding the tested capacity of blasting units approved under 30 CFR part 25. Tests conducted in 1985 by the Bureau of Mines identified a domestic detonator with a no-fire current level characteristic below that which is commonly accepted as safe in the explosives industry. A lowered no-fire characteristic creates the possibility of premature detonation of explosives during circuit testing or a greater sensitivity to stray electrical currents. Because some detonators currently available on the market are incompatible with approved blasting units and explosives, MSHA believes that it is appropriate to reassess the need for approval requirements for electric detonators.

Specific Issues Identified for Comment

There are three elements present in an electric blasting system: the explosive, the blasting unit and the electric detonator.

Degraded performance, incompatibility or improper functioning of any of these elements has the potential to contribute to a blasting accident caused by incomplete or premature detonation or misfired explosives. Because of the difficulty inherent in isolating causal factors after explosives accidents occur, little data exist to indicate and identify specific performance problems. Although there is an absence of specific data, the Agency's field and technical experience indicate that the potential exists for fault in all portions of a blasting system including the detonator.

In this advance notice of proposed rulemaking, MSHA is seeking comments and information on a number of issues including the need for detonator approval regulations and the economic impact such regulations would have on detonator manufacturers and the mining industry. Commenters should provide detailed rationale to support their positions based upon particular experiences, technical factors, data and industry circumstances. MSHA particularly requests comments on the following specific issues:

1. *Firing current.* To ensure compatibility and proper functioning of detonators with MSHA approved blasting units, the required firing current characteristics of detonators should be defined and assessed. MSHA is aware of detonators that require a firing current that exceeds the tested capacity of approved blasting units.

—What firing current parameters should be addressed to ensure reliable firing in a blasting circuit containing multiple detonators and to ensure compatibility with MSHA approved blasting units?

—What testing procedure or means to assess firing current characteristics should be considered?

2. *Initiating strength.* To ensure that detonators possess sufficient strength to initiate all types of MSHA approved explosives, the initiating strength should be defined and evaluated.

—What limits should be established and what methods or tests should be considered?

3. *No-fire/all-fire current.* To protect detonators against sources of extraneous electrical current or energy, a minimum no-fire current level should be established for detonators. Tests of some detonators by the Bureau of Mines show reduced no-fire current levels which could lead to detonation of explosives during circuit testing or greater sensitivity to detonation from stray electrical currents.

—What no-fire current level should be established and what methods should be used to determine the no-fire current level of a detonator.

4. *Firing time accuracy.* One characteristic of a detonator is the accuracy of its firing time relative to its designated delay period. If the range of firing time of one designated delay period detonator overlaps the range of firing time of a different designated delay period detonator, then loaded boreholes will fire out of sequence and a blown out shot can result.

—What firing time accuracy criteria should be considered for delay detonators and what methods should be used to determine this parameter?

5. *Arching.* An arching malfunction may occur when the magnitude and duration of the firing current are of such value that the energy delivered to a detonator cannot be easily dissipated. This can cause erratic firing time, shell rupture or ejection of the sealing plug. These malfunctions can cause misfiring of explosives.

—What limits should be considered to prevent arcing of detonators when used with approved blasting units?

—What tests or methods should be utilized to evaluate a detonator's resistance to arcing?

6. *Electrostatic resistance and shunting.* Extraneous electrical energy can cause unplanned initiation of a detonator.

—What tests or methods should be used to evaluate and prevent initiation of a detonator from electrostatic discharge generated from a static charge and to determine electrical resistance and adequate shunting of detonators?

7. *Leg wire insulation.* Detonator leg wires must be properly insulated to prevent exposure of wire and potential shorting.

—What means or test should be utilized to evaluate leg wire insulation?

List of Subjects in 30 CFR Part 16

Explosives, Mine safety and health, Reporting and recordkeeping requirements, Research and underground mining.

Dated: November 5, 1989.

William J. Tattersall,

Assistant Secretary for Mine Safety and Health.

[FR Doc. 89-27818 Filed 11-28-89; 8:45 am]

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federal register

Monday
December 4, 1989

Part III

Environmental Protection Agency

40 CFR Part 136

Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act; Proposed Rule With Request for Comments

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 136

[FRL-3495-5]

RIN 2040-AB58

Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act

AGENCY: U.S. Environmental Protection Agency (EPA).

ACTION: Proposed rule with request for comments.

SUMMARY: This proposed rule would amend 40 CFR part 136 by adding new biological measurements and test procedures for the analysis of pollutants under 304(h) of the Clean Water Act (CWA) and by updating others. Table IA, "List of Approved Biological Test Methods" would be amended by (1) adding methods to measure the toxicity of pollutants in effluents and receiving waters (including short-term methods for estimating the acute and chronic toxicity to freshwater and marine organisms); (2) adding methods to measure mutagenicity; (3) adding methods for monitoring viruses in wastewaters and sludges; and (4) updating citations to microbiological methods. Under the national policy for development of water quality-based permit limits, toxicity tests play an important role in the issuance of National Pollutant Discharge Elimination System (NPDES) permits. This proposal will promote uniformity in the test methods used to estimate the potential toxicity of discharged pollutants to aquatic life and the risk to human health.

DATE: Comments on this proposal must be submitted on or before February 2, 1990.

ADDRESS: Comments on this proposal should be labeled as "section 304(h): Comments on Proposed Rules" and submitted to: Mr. James J. Lichtenberg, Environmental Monitoring Systems Laboratory—Cincinnati, U.S. Environmental Protection Agency, 26 West Martin Luther King Drive, Cincinnati, Ohio 45268.

That portion of the public docket proposed for incorporation by reference into 40 CFR part 136 is available upon request during this comment period from Mrs. Betty Thomas, Environmental Monitoring Systems Laboratory—Cincinnati, U.S. Environmental Protection Agency, 26 West Martin Luther King Drive, Cincinnati, Ohio 45268. Telephone Number: (513) 569-7302.

The entire public docket will be available for inspection from 8:00 a.m. to 4:00 p.m. in EPA's Public Information Reference Unit, Room M2904 (rear of the EPA Library), PM-211D, 401 M Street, Southwest, Washington, DC 20460, and at the Environmental Monitoring Systems Laboratory—Cincinnati, at the Andrew W. Breidenbach Environmental Research Center, 26 West Martin Luther King Drive, Cincinnati, Ohio 45268, from 8:00 a.m. to 4:30 p.m., Monday through Friday. The EPA information regulation (40 CFR part 2) allows the Agency to charge a reasonable fee for copying.

FOR FURTHER INFORMATION CONTACT: Mr. James J. Lichtenberg at the address listed above, or call (513) 569-7306.

I. Authority

Today's proposal is pursuant to the authority of sections 301, 304(h), and 501(a) of the CWA, U.S.C. 1251 *et seq.* Section 301 forbids anyone to discharge any pollutant into navigable waters unless the discharge complies with a NPDES permit, issued under section 402 of the CWA. Subsection 304(h) requires the Administrator to "promulgate guidelines establishing test procedures for the analysis of pollutants that shall include the factors which must be provided in any certification pursuant to section 401 of the Act or permit applications pursuant to section 402 of the CWA." Section 501(a) authorizes the Administrator "to prescribe such regulations as are necessary to carry out his function under the Act."

The Administrator has also made these tests methods applicable to monitoring and reporting of NPDES permits (40 CFR part 122, subsections 122.21, 122.41, 122.44, and 123.25), and implementation of the pretreatment standards issued under section 307 of the CWA (40 CFR part 403, subsections 403.10 and 403.12).

II. Background

A. Analytical Methods Under Part 136

The CWA establishes two principal bases for effluent limitations. First, existing discharges are required to meet technology-based effluent limitations that reflect the best available technology economically achievable. New source discharges must meet the best demonstrated technology-based controls. Second, where necessary, additional requirements are imposed to assure attainment and maintenance of water quality standards established by the States under section 303 of the CWA. In establishing or reviewing NPDES permit limits, EPA must ensure that the limits will result in the attainment of water quality standards and protect designated water uses, including an adequate margin of safety.

To ensure compliance with these effluent limitations, EPA has promulgated regulations providing nationally-approved testing procedures in 40 CFR part 136. Test procedures have previously been approved for 262 different parameters. Those procedures apply to the analysis of inorganic (metal, non-metal, mineral), nutrient, demand, residue, radiological, organic, bacteriological, and physical parameters. Today's proposal would add methods to the list of nationally-approved methods.

An equivalency program is also provided in 40 CFR part 136. Under this program the Administrator may approve alternative test procedures developed and proposed by dischargers or other persons. If discharges or other persons wish to use such alternate test procedures, they must apply to the State or Regional EPA permitting office (for limited approval) and to the Director or the Environmental Monitoring and Support Laboratory (now the Environmental Monitoring Systems Laboratory) in Cincinnati (for nationwide approval).

Finally, there may be discharges from some particular industries which need to be regulated on the basis of parameters or test procedures which have not been proposed and approved within the scope of the test procedures guidelines under 40 CFR part 136. EPA may include such parameters and alternate test procedures within the rule-making for these industries in accordance with the provisions prescribed at 40 CFR 401.13, "Test Procedures for Measurements."

B. Toxicity Testing

Until recently, Agency programs for the control of toxic discharges were based largely on effluent limitations for individual chemicals. Chemical-specific measurements involve the use of laboratory-generated water quality criteria or State standards to limit specific toxicants directly. The analysis of those chemicals is done in a comprehensive testing program that, unlike whole-effluent testing, attempts to consider a range of toxic endpoints including human health impact and bioaccumulation. Once a criterion is developed, the number is applied as a permit limit to ensure that the level of that toxicant is not exceeded in the discharge.

Data on the toxicity of substances to aquatic organisms, however, are available for only a limited number of elements and compounds. Effluent limitations on specific compounds,

therefore, do not necessarily provide adequate protection for aquatic life when the toxicity of effluent components is not known, effects of effluent components are additive, synergistic, or antagonistic, and/or when an effluent has not been chemically characterized. In such situations, it is often more feasible to examine the whole effluent toxicity and instream impacts using biological methods rather than attempt to identify all toxic pollutants, determine the effects of each a pollutant individually, and then attempt to assess their collective effect.

In whole effluent toxicity testing, toxicity itself can be used as the effluent parameter. The toxicants creating that toxicity need not be specifically identified or controlled where the effluent's toxicity is limited. An analogy between effluent toxicity and biochemical oxygen demand (BOD) can be drawn. Both are measurements of a biological effect. Both can be qualified. In neither case are the causative agents of the biological effect specifically identified. Thus, whole effluent toxicity is like BOD in that it is a useful parameter for reducing an undesirable effect caused by the discharge of a complex mixture of waste materials.

The Declaration of Goals and Policy at section 101(a)(3) of the Act states that "it is the national goal that the discharge of toxic pollutants in toxic amounts be prohibited." Section 502 (13), describes toxic pollutants as "* * * those pollutants, or combinations of pollutants, including disease-causing agents, which after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will, on the basis of information available to the Administrator, cause death, disease, physiological malfunctions, behavioral abnormalities, physical deformation, birth defects, genetic mutations, and cancer." Today's proposed rule would establish procedures to measure some of these effects. Owners or operators of NPDES facilities may be required to perform one or more of these tests to assure compliance with relevant water quality standards. Both the DC and Ninth Circuit Courts of Appeals have recently upheld EPA's authority to set and measure limits on toxicity without regulating specific toxic pollutants (NRDC v. EPA No. 86–1607 Slip Op., D.C. Cir. Sept. 20, 1988; NRDC et al. v. EPA No. 86–7390 Slip Op., 9th Cir., Dec. 5, 1988).

C. EPA's Policy on Effluent Toxicity Testing

To achieve the goals of the Federal water pollution control legislation, extensive effluent toxicity screening programs were conducted during the 1970s by the EPA regional and state programs and permittees. Acute toxicity tests (USEPA, 1975, Methods for Acute Toxicity Tests with Fish, Macroinvertebrates, and Amphibians, National Water Quality Research Laboratory, Duluth, Minnesota; Peltier, 1978, Environmental Monitoring Systems Laboratory, USEPA, Cincinnati, Ohio, EPA/600/4–78/012) were used to measure effluent toxicity and to estimate the effects of toxic effluents on aquatic life in receiving waters. During this period, short-term inexpensive methods were not available to detect the more subtle, low-level, long-term (chronic), adverse effects (such as reduction in growth and reproduction, and occurrence of terata) of effluents on aquatic organisms. Rapid developments in toxicity test methods during the past five years, however, have resulted in the availability of several methods that permit detection of the low-level, adverse effects (chronic toxicity) of effluents to freshwater and marine organisms in nine days or less.

As a result of the increased awareness of the value of effluent toxicity test data for toxics control in the water quality program and the NPDES permit program, the EPA issued a national policy statement entitled, "Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants," in the **Federal Register** Vol. 49, No. 48, Friday, March 9, 1984 (p. 9016).

This new Agency policy recommends the use of toxicity data to assess and control the discharge of toxic pollutants to the nation's waters through the NPDES permits program. The policy states: "Biological testing of effluents is an important aspect of the water quality-based approach for controlling toxic pollutants. Effluent toxicity data, in conjunction with other data, can be used to establish control priorities, assess compliance with state water quality standards, and set permit limitations to achieve those standards."

The 1984 Agency policy also addresses the technical approach for assessing and controlling the discharge of toxic pollutants to the nation's waters through the NPDES permit program. Application of chemical and biological methods for assuring that effluent discharges are regulated in accordance with federal and state requirements was discussed. The policy further stated that "EPA will use an integrated strategy consisting of both biological and chemical methods to address toxic and non-conventional pollutants from industrial and municipal sources. In addition to enforcing specific discharge limits for toxic pollutants, EPA and the States will use biological techniques and available data on the biological effects of chemicals to assess toxicity impacts and human health hazards based on the general standards of 'no toxic materials in toxic amounts'."

To provide additional guidance on the implementation of the biomonitoring policy, a technical support document on the use of effluent and receiving water toxicity data was published in September 1985 by the Office of Water Enforcement and Permits (OWEP) and the Office of Water Regulations and Standards (OWRS) ("Technical Support Document for Water Quality-Based Toxics Control," Office of Water Enforcement and Permits, USEPA, Washington, DC, Sept. 1985). The "Permit Writer's Guide to Water Quality-Based Permitting for Toxic Pollutants (EPA–440/4–87/005)," also provides important background information on the use of part 136 methods.

Because of the new Agency policy, the use of effluent toxicity tests has increased steadily within the EPA and state NPDES programs to identify toxic discharges, and by permittees as a self-monitoring tool (USEPA, 1979, Interim NPDES Compliance Biomonitoring Inspection Manual, Washington, DC). To meet USEPA program needs, the Environmental Monitoring Systems Laboratory—Cincinnati (EMSL-Cincinnati) prepared standardized acute and chronic toxicity methods to minimize intralaboratory and interlaboratory variability in toxicity tests conducted by USEPA regional and state programs and NPDES permittees.

D. Related Rulemaking to Measure the Acute Toxicity of Drilling Fluids to Marine Organisms

On August 26, 1985, EPA proposed at 50 FR 34592, effluent limitations guidelines and new source performance standards applicable to the Oil and Gas Extraction Point Source Category, Offshore Category. That notice included a proposed test method to determine the acute toxicity of the suspended particulate phase (SPP) of drilling fluids using *Mysidopsis bahia*. In a notice of data availability published at 53 FR 41356 (October 21, 1988), the Agency stated that it is conducting a further evaluation of the proposed test method as part of the offshore subcategory

rulemaking. The proposed test method would be applicable to the measurement of the toxicity of laboratory-formulated drilling fluids, and drilling fluids that have been used in bore holes. EPA intends to codify the final test methods at 40 CFR part 136 at a later date.

E. Precision and Accuracy of the Proposed Test Methods

In approving prior part 136 methods, EPA characterized the precision and accuracy of the methods. Information on the single laboratory precision of each of the proposed tests is included with the method in the respective toxicity test manual provided in the rulemaking docket. The methods in this proposal have precision profiles comparable to previously established part 136 methods. Accordingly, EPA believes the precision profiles are acceptable. The precision profiles have no further regulatory impact than data by which testers can compare their own results.

When measuring the amount of a specific chemical analyte, it is possible to prepare samples with a known concentration. From these samples one can test for the bias of a method by determining deviations from the true value. The biological methods in this proposal cannot be characterized in a similar fashion because there is no way of measuring a certain amount of toxicity, for example, and mixing it in a solution to create a sample with a true reference toxicity value. Our knowledge of the toxic effects of chemicals, complex mixtures in effluents, and surface waters, is gained from the biological test itself, and is dependent upon the nature of the test organisms. While test results can be compared, there is no true value from which to measure deviations and to determine bias or accuracy.

III. Methods for Measuring the Toxicity of Effluents and Surface Waters to Aquatic Organisms

A. Methods to Measure the Acute Toxicity of Effluents to Freshwater and Marine Organisms

EPA is today proposing methods to measure the acute toxicity of effluents to five freshwater and marine organisms, including three invertebrates and two fish, as described in the Agency methods manual (EPA/600/4–85/013): (1) a 24–48 hour acute toxicity test for the daphnids, *Daphnia pulex* and *D. magna*, (2) a 96 hour acute toxicity test for the mysid, *Mysidopsis bahia*, and (3) a 96 hour acute toxicity test for fathead minnows, *Pimephales promelas*, and the Atlantic silverside, *Menidia menidia*. This document is in the rulemaking record.

The first toxicity test methods developed specifically for effluents were published by EMSL-Cincinnati in 1978 (EPA/600/4–78/012). The methods, developed by the Bioassay Subcommittee of the Biological Advisory Committee sponsored by EMSL-Cincinnati, were updated, expanded, and republished in 1985 (EPA/600/4–85/013).

The 1985 manual includes a preliminary range-finding test, a screening test, and definitive, multi-concentration, static and flow-through toxicity tests. Also included are guidelines on laboratory safety, quality assurance, facilities and equipment, effluent sampling and holding times, dilution water, test species selection and handling, data interpretation and utilization, report preparation, organism culturing, and dilutor and mobile bioassay laboratory design.

Prior to publication, the 1985 test methods received extensive Agency and public review. Copies of the draft 1985 methods manual were sent to approximately 300 persons representing a broad cross-section of public and private agencies, including major trade organizations, large industries, large environmental consulting firms, universities, state and interstate water pollution control agencies, and other Federal agencies.

The acute toxicity tests in the manual involve exposure of 20 test organisms to each of five effluent concentrations and a control water. The test duration depends on the test species, and ranges from a few hours for screening tests to 96 hours for definitive tests with fish and some invertebrates. The manual includes a list of recommended freshwater and marine test organisms, and provides summaries of test conditions for five of the most commonly used organisms—*Daphnia, Ceriodaphnia*, fathead minnows, mysids, and silversides.

The tests described in this manual are based on the cumulative experience of USEPA regional and state effluent toxicity monitoring programs acquired during the past decade. The tests are used to determine the effluent concentration, expressed as a percent volume, that causes the death of 50% of the organisms (LC50) within the prescribed test period. Where death is not easily detected, such as with some invertebrates, immobilization is considered equivalent to death (EC50). Methods for determining the LC50 (or EC50) include graphical and Probit analyses.

The data are used to predict potential acute and chronic toxicity in the receiving water, based on the LC50 (or EC50) and appropriate dilution, application, and persistence factors. The tests are conducted as a part of NPDES applications, compliance biomonitoring inspections, performance audit inspections, and special investigations. The tests are performed in a central test laboratory or are conducted on-site by the regulatory agency or the permittee. Acute toxicity tests can be used in toxicity reduction evaluations to identify toxic waste streams within plants, to aid in the development and implementation of toxicity reduction plans, and also can be used to compare and control the effectiveness of various treatment technologies for a given type of industry, irrespective of the receiving water (**Federal Register** Vol. 49, No. 48, Friday, March 9, 1984, p. 9016).

Two types of acute toxicity tests, static and flow-through, are described. The selection of the test type will depend upon the objectives of the test, available resources, requirements of the test organisms, and effluent characteristics, such as fluctuations in effluent toxicity. Special environmental requirements of some organisms (such as flowing water, or fluctuating water levels) may preclude the use of static tests.

Static tests include: (1) Non-renewal tests in which the test organisms are exposed to the same effluent solution for the duration of the test, and, (2) renewal tests in which the test organisms are exposed to a fresh solution of the same concentration of effluent every 24 hours or other prescribed interval, either by transferring the test organisms from one test chamber to another or by replacing all or a portion of the effluent solution in the test chambers. The renewal system is preferred because interfering factors such as toxicant adsorption on the walls of the test chambers, volatilization, uptake by test organisms and metabolism may affect toxicity.

Two types of flow-through tests are described: (1) Effluent is pumped continuously from the sampling point directly to the dilutor system; and (2) effluent grab or composite samples are collected periodically, placed in a tank adjacent to the test laboratory, and pumped continuously from the tank to the dilutor system. The flow-through method employing continuous effluent sampling is the preferred method for on-site tests. Because of the large volume (often 400 L/day) of effluent normally required, flow-through tests are generally considered too costly and

impractical to conduct at off-site laboratories.

Parameters and Units

The results of the test are reported as acute toxicity (LC50 or EC50; Lethal Concentration—50, or Effective Concentration—50) expressed in percent effluent, which is the concentration of effluent causing death (or immobilization, or other adverse effect) in 50% of the test organisms.

Precision

Data on single laboratory precision from 92 reference toxicant tests with three species are provided in the manual (EPA/600/4–85/013).

Data on multi-laboratory precision from 153 reference toxicant tests with six species are also provided in the manual.

Comments

EPA solicits comments on the acute toxicity tests for such factors as the recommended species, dilution water, effluent sampling methods, test conditions (age of organisms, number of test organisms per treatment, effluent concentration interval, temperature, food and feeding regime, etc.), data analysis techniques, and data interpretation.

B. Short-Term Methods to Estimate the Chronic Toxicity of Effluents and Surface Waters to Freshwater, Estuarine, and Marine Organisms

EPA today is proposing two sets of short-term chronic toxicity test methods: (1) Four methods for freshwater organisms and (2) six methods for estuarine and marine organisms, found in the USEPA methods manuals, "Short-term Methods for Estimating the Chronic Toxicity of Effluents and Surface Waters to Freshwater Organisms Second Edition" (EPA/600/4–89/001), and "Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Estuarine and Marine Organisms" (EPA/600/4–87/028), respectively. The tests are used to estimate one or more of the following: (1) The chronic toxicity of effluents collected at the end of the discharge pipe and tested with a standard dilution water; (2) the chronic toxicity of effluents collected at the end of the discharge pipe and tested with dilution water consisting of non-toxic receiving water collected upstream or beyond the influence of the outfall, or with other uncontaminated surface water or standard dilution water having approximately the same hardness or salinity as the receiving water, depending on the nature of the receiving water (fresh or saline) and test organisms; (3) the toxicity of diluted effluent in the receiving water downstream or at increasing distance from the outfall; and (4) the effects of mulitiple discharges on the quality of the receiving water. The tests may also be useful in developing site-specific water quality criteria.

The use of short-term, subchronic and chronic toxicity tests in the NPDES Program is recommended in the 1984 USEPA policy on water-quality based permit limits. The short-term chronic methods are more effective analytical tools because they provide a more direct estimate of the effects of toxic effluents in receiving waters than was provided by acute toxicity tests, at a greatly reduced level of effort compared to earlier chronic toxicity test methods (i.e. fish full-life-cycle chronic and 30-day early life-stage tests, and the 21- to 28-day invertebrate life-cycle tests). The endpoints generally used in chronic tests are growth and reproduction. The effects include the synergistic, antagonistic, and additive effects of all the chemical, physical, and biological components that adversely affect the physiological and biochemical functions of the test organisms.

1. Short-Term Chronic Toxicity Test Methods for Freshwater Organisms

The proposed toxicity test methods for freshwater organisms are found in the manual, "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Surface Waters to Freshwater Organisms, Second Edition (EPA/600/4–89/001)." This manual describes four- to seven-day methods for estimating the chronic toxicity of effluents and receiving waters to three species: (1) The fathead minnow, *Pimephales promelus*; (2) the cladoceran, *Ceriodaphnia dubia*; and (3) the alga, *Selenastrum capricornutum*. Guidelines are also included on laboratory safety, quality assurance, facilities and equipment, dilution water, effluent sampling and holding, data analysis, report preparation, and organism culturing and handling. Listings and machine-readable copies of computer programs for statistical analysis of the data referred to in the manual are available from EMSL–Cincinnati.

a. *The proposed short-term chronic tests are:*

(1) *Method 1000.0:* Fathead Minnow (*Pimephales promelas*) Larval Survival and Growth Test. Larvae (perferrably less than 24 hours old) are exposed to a control water and at least five concentrations of effluent, or to receiving water for seven days. Test results are based on the survival and weight of the larvae in test solutions, compared to the controls.

(2) *Method 1001.0:* Fathead Minnow (*Pimephales promelas*) Embryo-larval Survival and Teratogenicity Test. Fathead minnow embryos are exposed in a static renewal system to a control water and five different concentrations of effluent, or to receiving water, from shortly after egg fertilization to hatch, and the larvae are exposed an additional four days posthatch (total of eight days). Test results are based on the combined frequency of both mortality and gross morphological deformities (terata) in test solutions, compared to the controls. The test is useful for screening for teratogens because organisms are exposed during embryonic development.

(3) *Method 1002.0: Ceriodaphnia dubia* Survival and Reproduction test. *Ceriodaphnia* neonates are exposed to a control water and at least five different concentrations of effluent, or to receiving water, in a static renewal system for seven days. Test results are based on survival and reproduction in test solutions, compared to the controls.

(4) *Method 1003.0:* Algal (*Selenastrum capricornutum*) Growth Test. A *Selenastrum* population is exposed to a control water and to at least five different concentrations of effluent, or to receiving water, in a static system, for 96 hours. The population responses in test solutions is compared to the controls in terms of changes in cell density (cell counts per milliliter), biomass, chlorophyll content, or absorbance.

b. *Parameters and Units:* The results of the short-term chronic toxicity tests with effluents are expressed as the NOEC, which is the highest percent effluent concentration at which no adverse effect on survival, growth, or reproduction is observed.

c. *Precision:* The precision of the freshwater chronic toxicity tests is discussed in the respective methods sections in the methods manual (EPA/600/4–89/001). Results from repetitive tests generally fall within one concentration interval of the median value.

2. Short-Term Chronic Toxicity Test Methods for Estuarine and Marine Organisms

The proposed short-term chronic toxicity tests for estuarine and marine organisms are contained in the manual, "Short-term Methods for Estimating the Chronic Toxicity of Effluents and Surface Waters to Estuarine and Marine

Organisms" (EPA/600/4–87/028). This manual describes six short-term (one-hour to nine-day) methods for estimating the chronic toxicity of effluents and receiving waters to five species: The sheepshead minnow, *Cyprinodon variegatus*; the inland silverside, *Menidia beryllina*; the mysid, *Mysidopsis bahia*; the sea urchin, *Arbacia punctulata*; and the red macroalga, *Champia parvula*. Guidelines are also included on laboratory safety, quality assurance, facilities and equipment, dilution water, effluent sampling methods and holding times and temperatures, data analysis, report preparation, and organism culturing and handling. Listings and machine-readable copies of computer programs for data analysis referred to in the manual are available from EMSL-Cincinnati.

a. *The proposed short-term chronic tests are:*

(1) *Method 1004.0:* Sheepshead Minnow (*Cyprinodon variegatus*) Larval Survival and Growth Test. Larvae (preferrably less than 24 hours old) are exposed for seven days in a static renewal system to a control water and at least five concentrations of effluent, or to receiving water. Test results are based on the survival and weight of the larvae in test solutions, compared to the controls.

(2) *Method 1005.0:* Sheepshead Minnow (*Cyprinodon variegatus*) Embryo-larval Survival and Teratogenicity Test. Sheepshead minnow embryos are exposed in a static renewal system to a control water and at least five different concentrations of effluent, or to receiving water, from shortly after fertilization of the eggs to hatch, and the larvae are exposed for an additional four days posthatch (total of nine days). Test results are based on the combined frequency of both mortality and gross morphological deformities (terata) in the test solutions, compared to the controls. The test is useful in screening for teratogens because organisms are exposed during embryonic development.

(3) *Method 1006.0:* Inland silverside (*Menidia beryllina*), Larval Survival and Growth Test. Larvae (preferably 7–11 days old) are exposed seven days in a static renewal system to a control water and at least five concentrations of effluent, or to receiving water. Test results are based on the survival and weight of the larvae in the test solutions, compared to the controls.

(4) *Method 1007.0: Mysidopsis bahia* Survival, Growth, and Fecundity Test. Seven-day old mysids are exposed seven days in a static renewal system to a control water and at least five different concentrations of effluent, or to receiving water. Test results are based on survival, growth, and egg production of the mysids in the test solutions, compared to the controls.

(5) *Method 1008.0: Arbacia punctulata* Fertilization Test. *Arbacia* sperm are exposed one hour in a static system to control medium and at least five concentrations of effluent, or to receiving water. Eggs are then added to the sperm and both are exposed for an additional 20 min. The response is measured in terms of the percent fertilization of the eggs compared to the control.

(6) *Method 1009.0: Champia parvula* Reproduction Test. Branches of male and female plants are placed together for 48 hours in a static system and exposed to a control medium and at least five concentrations of effluent, or in receiving water. The exposed plants are then transferred to control medium for a recovery period of 5–7 days. After the recovery period, the number of reproductive structures (cystocarps) that develop on the female plants as a result of fertilization in the test solutions are compared to the controls.

b. *Parameters and Units*: The results of the estuarine and marine short-term chronic toxicity tests with effluents are expressed as the NOEC, which is the highest percent effluent concentration at which no adverse effect on survival, growth, or reproduction is observed.

c. *Precision*: The precision of the chronic toxicity tests is discussed in the respective methods sections in the manual. Results from repetitive tests generally fall within one concentration interval of the median value.

3. Comments:

EPA solicits comments on the freshwater and marine short-term chronic toxicity tests for such factors as the recommended test species, the quality of dilution water, effluent sampling methods, test conditions (age of organisms, number of test organisms per treatment, number of replicate test chambers, effluent concentration intervals, temperature, test duration, food and feeding regime, etc.), data analysis techniques, and data interpretation.

IV. Methods to Measure the Mutagenicity (Genotoxicity) of Wastewaters, Sludges, and Surface Waters

EPA is today proposing as a mutagenicity test method the Ames Test described in *Interim Procedures for Conducting the Salmonella/Microsomal Mutagenicity Assay (Ames Test)*, Environmental Monitoring Systems Laboratory, USEPA, Las Vegas, Nevada, EPA/600/4–82/068, which is based on Ames et al., 1975, *Mutation Res.* 31:347. The test involves the use of specially developed histidine-dependent *Salmonella typhimurium* that are reverted to histidine independence when exposed to mutagenic agents. Generally, four strains are recommended, TA98, TA100, TA1535, and TA1537. Strain TA97 may be used in lieu of or in addition to strain TA1537 (Kier, L. D., D. J. Brusick, A. E. Auletta, E. S. Von Halle, M. M. Brown, V. F. Simmon, V. Dunkel, J. McCann, K. Moretelmans, M. Prival, T. K. Rao, and V. Ray, 1986, "The *Salmonella typhimurium*/Mammalian Microsomal Assay. A Report of the U.S. Environmental Protection Agency Gene-Tox Program." *Mut. Res.* 168:69–240). Additional strains may be used to detect mutagans not currently identified by the Ames Test (Maron and Ames, 1984. Revised Methods for the *Salmonella* Mutagenicity Test. In: B.J. Kilbey, et al., eds., *Handbook of Mutagenicity Test Procedures*. Second edition. Elsevier Science Publishers).

Section 502(13) of the CWA defines mutagenic (genotoxic) agents as toxic substances subject to control. Mutagenic activity has been reported in both domestic and industrial waste discharged to surface waters and has been included in the Agency's toxics control strategy. Mutagenicity tests are used world-wide to monitor for mutagens in environmental samples. They are performed routinely on effluents in some municipal and EPA monitoring laboratories and are included in state toxics control programs.

Concern about exposure to mutagenic agents in the environment is based on the understanding that chemicals that damage the DNA of cells may lead to severe health consequences. Damage to the DNA in reproductive cells may lead to development of heritable mutations or birth defects, while interruption of the genetic control of cells may trigger carcinogenicity. Some carcinogens modify the genetic material directly (genotoxic carcinogens) while others may modify the expression of cellular genetic control (nongenotoxic carcinogens).

The Ames Test is designed to detect intrinsic mutagenic potential, but will not detect nongenotoxic carcinogens and is not suitable for predicting heritable effects.

Some mutagens are directly active, while others require metabolic (enzyme) activation. The Ames Test is performed both with and without metabolic

activation, which is accomplished by adding a mammalian microsome fraction (called S–9) from livers of rodents treated prior to sacrifice with a non-specific enzyme-inducing agent such as Aroclor 1254.

Toxic substances in wastewater samples are usually concentrated by organic extraction techniques before they are tested. Results of the tests can be expressed in terms of the number of revertants (number of bacteria that are mutated) per unit volume of sample or as the number of revertants per gram of extracted organic matter per liter of water tested. Results with test samples are compared to the spontaneous rate of mutation (reversion) in untreated control cultures.

A decade of research and testing had established a positive correlation between carcinogenicity and mutagenicity/genotoxicity. Short-term tests such as the *Salmonella* mammalian microsomal assay (Ames Test) identify substances that have a high potential for being mammalian mutagens and carcinogens. The EPA's Gene-Tox Program found that the Ames Test correctly identified 175 (79%) of 223 carcinogens and 29 (62%) of the 47 noncarcinogens tested with an overall accuracy of 76% (204/270). While the Ames Test accuracy is comparable to other short-term tests, its reproducibility, widespread use, and relatively low cost are advantages to its use as the primary test system for genotoxicity.

The chemical class of the agents being tested can influence results. This may be of particular importance in testing effluents and in interpreting test results. The USEPA's Gene-Tox Program found that the Ames Test was particularly sensitive to epoxides, amines, amides, sulfonamides, nitro compounds, nitrosoamines, and polycyclic aromatic hydrocarbons. Conversely, it was particularly insensitive to halides, organolead, organomercury and organophosphorus compounds, metals, and phosphate esters. Specificity was high for halides, carbamates, ureas, thioureas, and dicarboximides and was low for amines, amides, sulfonamides, nitro compounds, and polycyclic aramatic hydrocarbons.

A. Parameters and Units:

The results of mutagenicity tests with effluents are expressed as the number of revertants per liter.

B. Precision:

The single laboratory precision of the Ames Test (CV) is in the range of 10–15%.

C. Comments:

EPA solicits comments on the Ames Test for factors such as the sample extraction techniques, test conditions (tester strains, metabolic activation, etc.), calculation of test results, data interpretation, and any other relevant issue.

V. Methods to Recover and Enumerate Human Enteric Viruses in Wastewater, Sludges, and Surface Waters

EPA today proposes methods for the recovery and enumeration of human enteric viruses described in "USEPA Manual of Methods for Virology" (EPA/600/4–84/013). Pathogenic viruses are included in the definition of "toxic pollutants" to be controlled under section 502(13) of the CWA. The virus manual was prepared to meet the mandates of the Act and presents standardized step-by-step procedures for recovering viruses from most environmental samples other than air. Technicians trained in microbiology and familiar with aseptic techniques and safety procedures should be able to easily follow the methods in the manual.

The only characteristics of life that viruses are capable of manifesting are their ability to multiply, control processes within the cells they infect, and mutate. These characteristics are manifested only when inside a suitable host cell. Their ability to remain "infectious" outside a host cell is dependent on environmental conditions and exposure time. Viruses in sewage discharged to surface waters may remain infectious until they reach water treatment plant intakes and recreational areas of downstream communities. If virus-containing sewage or sludges are discharged to land, infectious viruses can contaminate crops or groundwaters. If discharged to oceans, viruses can contaminate recreational beaches or shellfish waters.

The smallest number of infectious human enteric viruses detectable with mammalian cell cultures may be sufficient to cause disease in susceptible individuals who consume them. To detect viruses present in low concentrations, they must be concentrated from large volumes of water.

More than 100 different serological types of enteric viruses of human origin have been reported in environmental waters. The numbers of viruses detected in sewage range from less than 100/L to more than 100,000/L. Because viruses do not multiply outside of susceptible living cells, dilution in receiving waters and deactivation with time eventually reduce the numbers of infectious viruses to levels often barely detectable by the most sensitive techniques available, even when concentrated from volumes of water as great as 1000 L.

The awareness of the importance of viruses in environmental samples has led to development and standardization of a number of techniques for recovering viruses from recreational waters, drinking water supplies, finished drinking water, sewage effluents, and land-applied sludges.

A. The proposed virus methods are:

1. Sampling: Because viruses are highly infectious, they must be concentrated from large volumes of sample if present only in small concentrations.

2. Concentration: The concentration technique uses virus adsorption onto filter surfaces, followed by elution. It is essential to increase the concentration of viruses in the final sample to a level at which they can be detected in a test. A second concentration step is sometimes required, depending on the sample source.

3. Detection: Viruses are detected and quantified by inoculating an aliquot of the sample concentrate into mammalian cell cultures.

4. Identification: Viruses are identified in neutralization tests using specific antisera.

B. Parameters and Units:

Test results are expressed as numbers of plaque-forming units per mL. or per gram of dry weight, depending on the nature of the test sample. Identified isolates are expressed as a percent of the virus type present in the sample.

C. Precision:

The single-laboratory precision of virus recovery and enumeration methods is in the range of 10–18%. The multi-laboratory method precision is 60–70%.

D. Comments:

Comments are invited on the recommended virus procedures for factors such as the various steps in the methods, method precision, and any other relevant issue.

VI. Revision of Table II, Preservation and Holding Times

In support of the expansion of the scope of parameters in part 136, EPA proposes to specify sample containers, preservation techniques, and maximum holding times for the new biological tests. These revisions are presented as proposed amendments to Table II of part 136. The Agency's reasoning for

each of these criteria is in the background document for each method.

VII. Additional Rulemaking Under Consideration by USEPA

Methods to measure toxic pollutants in sludges are under consideration by the EPA for amendment of the proposed 304(h) regulation in the near future. EPA has proposed a method for enteroviruses particularly appropriate for municipal sewage treatment plant sludges. Methods suitable for the measurement of specific chemical substances in sludges are under development or are being considered for proposal in this part.

VIII. Regulatory Analyses

A. Executive Order 12291

Under Executive Order 12291, EPA must judge whether a regulation is "major" and therefore subject to the requirement of a "Regulatory Impact Analysis." This regulation is not major for the following reasons:

1. It only prescribes analytical methods and sample handling requirements that ensure a uniform measure of pollutants across all wastewater discharges within minimum acceptance criteria. It does not require that analyses actually be performed. Other existing rules require such analyses. The purpose is to ensure that the quality of the environmental monitoring data meets certain minimum standards.

2. The impact of this regulation will be far less than $100 million. The regulation affects unit monitoring cost for the NPDES programs, e.g., effluent guidelines regulations and the NPDES implementation regulations, and the pretreatment programs. However, this rule does not itself impose those costs. The monitoring costs for other programs are considered in the rule making for each program.

3. These regulations will potentially affect all NPDES permittees and will not be concentrated on any particular sectors of American industry, and will not be significant. Accordingly, there will be no significant adverse effects on competition, employment, investment, productivity, innovation, or on the ability of the United States-based enterprises to compete with foreign-based enterprises in domestic or export markets.

This regulation was submitted to the Office of Management and Budget (OMB) for review as required by Executive Order 12291.

B. Regulatory Flexibility Act

Under the Regulatory Flexibility Act, 5 U.S.C. 601 et seq., EPA is required to determine whether a regulation will significantly affect a substantial number of small entities so as to require a regulatory analysis. The regulation requires no new reports beyond those now required. The analytical techniques approved here either can be handled by small facilities, or are widely available by contract at a reasonable price. Therefore, in accordance with 5 U.S.C. 605(b), I hereby certify that this rule will not have significant adverse economic impact on a substantial number of small facilities.

C. Paperwork Reduction Act

This rule does not impose any additional burdens on respondents. If additional burden results from more frequent use of the tests, this burden will be taken into account by amending existing information collection requests.

IX. Public Docket

All of the documents listed below are available only for public inspection and copying at Room M2904, U. S. Environmental Protection Agency, 401 M Street SW, Washington, DC from 8:00 a.m. to 4:30 p.m. Monday through Friday, excluding Federal holidays. The documents are also available for inspection and copying at the Office of the Director, Environmental Monitoring Systems Laboratory, Room 591, or at the Library, Room 406, U. S. Environmental Protection Agency, 26 West Martin Luther King Drive, Cincinnati, Ohio 45268.

X. Materials Proposed for Incorporation by Reference Into 40 CFR Part 136

1. Berg, G., R.S. Safferman, D.R. Dahling, D. Berman, and C.J. Hurst. 1984. USEPA Manual of Methods for Virology. Environmental Monitoring and Support Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio (EPA/600/4–84/013). Table IA, Note 7.

2. Williams, L.R., and J.E. Preston. eds. 1983. Interim procedures for conducting the Salmonella/Microsomal mutagenicity assay (Ames Test). Environmental Monitoring Systems Laboratory, U.S. Environmental Protection Agency, Las Vegas, Nevada (EPA/600/4–82/068). Table IA, Note 8.

3. Peltier, W.H. and C.I. Weber eds. 1985. Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms, Environmental Monitoring and Support Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio (EPA/600/4–85/013). Table IA, Note 9.

4. Weber, C.I., W.H. Peltier, T.J. Norberg-King, W.B. Horning, II, F.A. Kessler, J.R. Menkedick, T.W. Neiheisel, P.A. Lewis, D.J. Klemm, Q.H. Pickering, E.L. Robinson, J.M. Lazorchak, L.J. Wymer, and R.W. Freyberg. 1989. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Surface Waters to Freshwater Organisms, Second Edition. Environmental Monitoring Systems Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio. (EPA/600/4–89/001). Table IA, Note 10.

5. Weber, C.I., W.B. Horning, II, D.J. Klemm, T.W. Neiheisel, P.A. Lewis, E.L. Robinson J.R. Menkedick, and F.A. Kessler. eds. 1988. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms. Environmental Monitoring and Support Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio. EPA/600/4–87/028. Table 1A, Note 11.

XI. Request for Comments

USEPA requests public analysis, comments, and information on all aspects of this proposal. Comment is specifically solicited on the acute and chronic toxicity tests, including sampling methods, test conditions (age of organisms, number of test organisms per treatment, number of replicate test chambers, effluent concentration intervals, temperature, test duration, food and feeding regime, etc.), data analysis techniques, and data interpretation.

List of Subjects in 40 CFR Part 136

Water pollution control.

Dated: October 31, 1989.

William K. Reilly,

Administrator.

In consideration of the preceding, USEPA proposes to amend chapter I, subchapter D of title 40 of the Code of Federal Regulations as follows:

PART 136—[AMENDED]

1. The authority citation for part 136 is revised to read as follows:

Authority: Secs. 301, 302, 304(h), 307, 501(a) and 502, Pub. L. 95–217, Stat. 1566, et seq. (33 U.S.C. 1251, et seq. (Federal Water Pollution Control Act Amendments of 1972 as amended by the Clean Water Act of 1977 and the Water Quality Act of 1987).

§ 3136.3 [Amended]

2. In § 136.3(a), Table IA is revised to read as follows:

TABLE IA. LIST OF APPROVED BIOLOGICAL METHODS

Parameter and Units	Method [1]	EPA	Standard methods, 17th ed.	Other
Bacteria:				
1. Coliform (fecal), number per 100 mL	MPN, 5 tube, 3 dilution, or	p. 132 [3]	9221C	
	Membrane filter (MF) [2], single step	p. 124 [3]	9222D	B-0050-85 [4]
2. Coliform (fecal) in presence of chlorine, number per 100 mL.	MPN, 5 tube, 3 dilution, or	p. 132 [3]	9221C	
	MF, single step [5]	p. 124 [3]	9222D	
3. Coliform (total), number per 100 mL	MPN, 5 tube, 3 dilution, or	p. 114 [3]	9221B	
	MF [2] single step or two step	p. 108 [3]	9222B	B-0025-85 [4]
4. Coliform (total), in presence of chlorine, number per 100 mL.	MPN, 5 tube, 3 dilution, or	p. 114 [3]	9221B	
	MF [2] with enrichment	p. 111 [3]	9222B+B.5c	
5. Fecal streptococci, number per 100 mL	MPN, 5 tube, 3 dilution	p. 136 [3]	9230B	
	MF [2], or	p. 136 [3]	9230C	B-0055-85 [4]
	Plate count	p. 143 [3]		
Enteroviruses:				
6. Enteroviruses in water, plaque forming units per liter.	Absorption, elution, and organic flocculation, followed by:	Ch. 6 [6]	9510 B, C, D, E	
		Ch. 9 [6]	9510G	
	Plaque assay (cell culture infectivity)	Ch. 10 [6]	9510G	
	Identification	Ch. 12 [6]	9510G	
7. Enteroviruses in sludge, plaque forming units per liter.	Beef extract elution, and organic flocculation, followed by:	Ch. 7 [6]	9510F	
		Ch. 9 [6]	9510G	
	Plaque assay (cell culture infectivity)	Ch. 10 [6]	9510G	
	Identification	Ch. 12 [6]	9510G	
Mutagenicity:				
8. Mutagenicity (revertants per liter)	Ames Test, test strains TA97, TA98, TA100, and TA102.	Note 7		
Acute and Chronic Toxicity:				
9. Toxicity, acute, fresh water organisms, percent effluent.	*Daphnia* and *Ceriodaphnia*, 48-h static mortality.	p. 39 [8]		
	Fathead minnow, 48-h static mortality, or 48 to 96-h flow-through mortality.	p. 41 [8]		
10. Toxicity, acute, estuarine and marine organisms, percent effluent.	Mysids, 48-h static mortality, or 48 to 96-h flow-through mortality.	p. 40 [8]		
	Silversides, 48-h static mortality, or 48 to 96-h flow-through mortality.	p. 42 [8]		
11. Toxicity, chronic, fresh water organisms, percent effluent.	Fathead minnow larval survival and growth.	1000.0 [9]		
	Fathead minnow embryo-larval survival and teratogenicity.	1001.0 [9]		
		1002.0 [9]		
	Ceriodaphnia survival and reproduction.	1003.0 [9]		
	Selenastrum growth			
12. Toxicity, chronic, estuarine and marine organisms, percent effluent.	Sheepshead minnow larval survival and growth.	1004.0 [10]		
	Sheepshead minnow embryo-larval survival and teratogenicity.	1005.0 [10]		
		1006.0 [10]		
	Menidia beryllina larval survival and growth.	1007.0 [10]		
	Mysidopsis bahia survival, growth, and fecundity	1008.0 [10]		
	Arbacia punctulata fertilization	1009.0 [10]		
	Champia parvula reproduction			

[1] The method must be specified when results are reported.

[2] A 0.45 um membrane filter (MF) or other pore size certified by the manufacturer to fully retain organisms to be cultivated and to be free of extractables which could interfere with their growth.

[3] Bordner, R.H., and J.A. Winter, eds. 1978. Microbiological Methods for Monitoring the Environment, Water, and Wastes. Environmental-Monitoring and Support Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio. EPA/600/8-78/017.

[4] Britton, L.J., and P.E. Greeson, eds. 1988 Methods for Collection and Analysis of Aquatic Biological and Microbiological Samples," U.S. Geological Survey Techniques of Water Resources Investigations, Book 5, Chapter A4, Laboratory Analysis, U.S. Geological Survey, U.S. Department of Interior, Reston, Virginia.

[5] Because the MF technique usually yields low and variable recovery from chlorinated wastewaters, the Most Probable Number method will be required to resolve any controversies.

[6] Berg, G., R.S. Safferman, D.R. Dahling, D. Berman, and C.J. Hurst, 1984. USEPA Manual of Methods for Virology. Environmental Monitoring and Support Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio. EPA/600/4-84/013. (Chapter 9 revised January 1987; Chapter 10 revised December 1987; Chapter 12 revised May 1988; Chapter 7 revised September 1989).

[7] Williams, L.R., and J.E. Preston, eds. 1983. Interim Procedures for Conducting the Salmonella/Microsomal Mutagenicity Assay (Ames Test). Environmental Monitoring Systems Laboratory, U.S. Environmental Protection Agency, Las Vegas, Nevada. EPA/600/4-82/068.

[8] Peltier, W.H., and C.I. Weber, eds. 1985. Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms. Environmental Monitoring and Support Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio. EPA/600/4-85/013.

[9] Weber, C.I., W.H. Peltier, T.J. Norberg-King, W.B. Horning, II, F.A. Kessler, J.R. Menkedick, T.W. Neiheisel, P.A. Lewis, D.J. Klemm, Q.H. Pickering, E.L. Robinson, J.M. Lazorchak, L.J. Wymer, and R.W. Freyberg. 1989. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Surface Waters to Freshwater Organisms, Second Edition. Environmental Monitoring Systems Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio. (EPA/600/4-89/001).

[10] Weber, C.I., W.B. Horning, II, D.J. Klemm, T.W. Neiheisel, P.A. Lewis, E.L. Robinson, J.R. Menkedick, and F.A. Kessler, eds. 1988. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms. Environmental Monitoring and Support Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio. EPA/600/4-87/028.

3. In Section 136.3(e), Table II is amended by revising entry IA and footnotes 1 and 4 to read as follows:

TABLE II. REQUIRED CONTAINERS, PRESERVATION TECHNIQUES, AND HOLDING TIMES

Parameter no./name	Container [1]	Preservation [2,3]	Maximum holding time [4]
Table IA—biological tests:			
1–5. Bacteria	P,G	Cool, 4 °C, 0.008% $Na_2S_2O_3$.	6 h.
6–7. Enteroviruses	P,G	Cool, 4 °C	24 h.
8. Mutagenicity	G, Teflon-lined cap.	Cool, 4 °C	7 days.
9–12. Acute and chronic toxicity	P,G	Cool, 4 °C	36 h.
* * * * *	*	*	

[1] Polyethylene (P) or glass (G). For microbiology, plastic sample containers must be made of sterilizable materials (polypropylene or other autoclavable plastic).
[2] Sample preservation should be performed immediately upon sample collection. For composite chemical samples each aliquot should be preserved at the time of collection. When use of an automated sampler makes it impossible to preserve each aliquot, then chemical samples may be preserved by maintaining at 4°C until compositing and sample splitting is completed.
[3] When any sample is to be shipped by common carrier or sent through the United States Mails, it must comply with the Department of Transportation Hazardous Materials Regulations (49 CFR Part 172). The person offering such material for transportation is responsible for ensuring such compliance. For the preservation requirements of Table II, the Office of Hazardous Materials, Materials Transportation Bureau, Department of Transportation has determined that the Hazardous Materials Regulations do not apply to the following materials: Hydrochloric acid (HCl) in water solutions at concentrations of 0.04% by weight or less (pH about 1.96 or greater); Nitric acid (HNO_3) in water solutions at concentrations of 0.15% by weight or less (pH about 1.62 or greater); Sulfuric acid (H_2SO_4) in water solutions of 0.35% by weight or less (pH about 1.15 or greater); and Sodium hydroxide (NaOH) in water solutions at concentrations of 0.080% by weight or less (pH about 12.30 or less).
[4] Samples should be analyzed as soon as possible after collection. The times listed in the table are the maximum times that samples may be held before analysis and still be considered valid. Virus samples can be stored indefinitely at −70 C. Samples used for toxicity tests are to be used for test initiation or for renewal of test solutions within 36 h of collection as grab samples or after removal from composite samplers. Samples for biological or chemical analysis may be held for longer periods than specified in this table only if the permittee or monitoring laboratory has data on file to show that the specific types of samples under study are stable for the longer time and has received a variance from the Regional Administrator under § 136.3(e). Some samples may not be stable for the maximum time period given in the table. A permittee or monitoring laboratory is obligated to hold the sample for a shorter time if knowledge exists to show that this is necessary to maintain sample stability. See § 136.3(e) for details.

4. Section 136.3(b) is amended by revising references (2), (7) and (12) and by adding references (32), (33), (34), (35), (36) and (37) to read as follows:

§ 136.3 Identification of test procedures.

* * * * *

(b) * * *

References, Sources, Costs, and Table Citations

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(2) Bordner, R. H., and J. A. Winter, eds. 1978. Microbiological Methods for Monitoring the Environment, Water, and Wastes. Environmental Monitoring and Support Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio. EPA/600/8–78/017. Available from: National Technical Information Service, 5285 Port Royal Road., Springfield, Virginia 22161. Publ. No. PB–290329/AS. Cost: $36.95. Table 1A, Note 3.

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(7) Ibib, 15th Edition. Table 1B, note 29; Table ID.

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(12) Britton, L. J., and P. E. Greeson, eds. 1988. Methods for Collection and Analysis of Aquatic Biological and Microbiological Samples," U.S. Geological Survey Techniques of Water Resources Investigations, Book 5, Chapter A4, Laboratory Analysis, U.S. Geological Survey, U.S. Department of Interior, Reston, Virginia. Available from: USGS Book and Report Sales, Box 25425, Denver, Colorado 80225. Cost: $18.00. Table 1A, Note 4.

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(32) Berg, G., R. S. Safferman, D. R. Dahling, D. Berman, and C. J. Hurst. 1984. USEPA Manual of Methods for Virology. Environmental Monitoring and Support Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio. EPA/600/4–84/013. (Chapter 9 revised January 1987, Chapter 10 revised December 1987, Chapter 12 revised May 1988, Chapter 7 revised September 1989). Available from: ORD Publications, P.O. Box 12505, U.S. Environmental Protection Agency, Cincinnati, Ohio 45212. Table 1A, Note 6.

(33) Williams, L. R., and J. E. Preston, eds. 1983. Interim Procedures for Conducting the Salmonella/Microsomal Mutagenicity Assay (Ames Test). Environmental Monitoring Systems Laboratory, U.S. Environmental Protection Agency, Las Vegas, Nevada. EPA/600/4–82/068. Available from: National Technical Information Service, 5385 Port Royal Road., Springfield, Virginia 22161. Publ. No. PB–88–205380. Cost: $13.95. Table 1A, Note 7.

(34) Peltier, W. H., and C. I. Weber, eds. 1985. Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms. Environmental Monitoring and Support Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio. EPA/600/4–85/013. Available from: National Technical Information Service, 5285 Port Royal Road., Springfield, Virginia 22161. Publ. No. PB–85–205383. Cost: $28.95. Table 1A, Note 8.

(35) Weber, C. I., W. H. Peltier, T. J. Norberg-King, W. B. Horning, II, F. A. Kessler, J. R. Menkedick, T. W. Neiheisel, P. A. Lewis, D. J. Klemm, Q. H. Pickering, E. L. Robinson, J. M. Lazorchak, L. J. Wymer, and R. W. Freyberg. 1989. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Surface Waters to Freshwater Organisms, Second Edition. Environmental Monitoring Systems Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio 45268. (EPA/600/4–89/001). This manual and a supplemental published September 1989 (EPA/600/4–89/001A) are available from ORD Publications, P.O. Box 12505, U.S. Environmental Protection Agency, Cincinnati, Ohio 45212. Table 1A, Note 9.

(36) Weber, C. I., W. B. Horning, II, D. J. Klemm, T. W. Neiheisel, P. A. Lewis, E. L. Robinson, J. R. Menkedick, and F. A. Kessler, Eds. 1988. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms. Environmental Monitoring and Support Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio 45268. EPA/600/4–87/028. Available from the National Technical Information Service, 5285 Port Royal Road., Springfield, Virginia 22161. Publication No. PB-89-220503/AS. Cost: $42.95. Table 1A, Note 10.

(37) American Public Health Association. 1989. Standard Methods for the Examination of Water and Wastewater, 17th Edition. Amer. Publ. Hlth. Assoc., 1015 15th Street NW., Washington, DC 20005. Cost: $120.00. Table 1A.

[FR Doc. 27933 Filed 12-1-89; 8:45 am]

BILLING CODE 6560-50-M

federal register

Monday
December 4, 1989

Part IV

Department of Health and Human Services

Food and Drug Administration

21 CFR Part 291

Methadone In Maintenance Treatment of Narcotic Addicts; Proposed Interim Maintenance Treatment; Public Hearing and Reopening of Comment Period

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Food and Drug Administration

21 CFR Part 291

[Docket No. 88N-0444]

RIN 0905-AC93

Methadone in Maintenance Treatment of Narcotic Addicts; Proposed Interim Maintenance Treatment; Public Hearing

AGENCY: Food and Drug Administration.

ACTION: Notice of public hearing; reopening of comment period.

SUMMARY: The Food and Drug Administration (FDA), with the concurrence of the National Institute of Drug Abuse (NIDA), is announcing a public hearing to solicit information and views of interested persons on the proposed rule to revise the conditions for the use of methadone in the treatment of narcotic addicts. The proposed rule was pubished in the Federal Register of March 2, 1989 (54 FR 8973). The proposal would allow narcotic treatment programs to provide minimum service (interim) maintenance treatment to patients awaiting placement in comprehensive maintenance treatment. FDA and NIDA will use information presented at the public hearing, together with the written comments submitted in response to the proposal and to the issues discussed in this notice, in the development of a final FDA and NIDA action on this matter.

DATES: Written notices of participation should be filed by January 29, 1990. The hearing will begin at 9 a.m. on February 28, 1990. The record of the hearing will remain open for 15 days following the hearing, by which date any additional written material must be submitted.

ADDRESSES: The public hearing will be held at the Jack Masur Auditorium, Warren Grant Magnuson Clinical Center, Bldg. 10, National Institutes of Health, 9000 Rockville Pike, Bethesda, MD 20892. Written notices of participation and any comments are to be sent to the Dockets Management Branch (HFA-305), Food and Drug Administration, Rm. 4-62, 5600 Fishers Lane, Rockville, MD 20857. Transcripts of the hearing, copies of data and information submitted during the hearing, and any written comments will be available for review at the Dockets Management Branch (address above).

FOR FURTHER INFORMATION CONTACT:

Persons needing information about the hearing should contact:

Nicholas P. Reuter, Office of the Associate Commissioner for Health Affairs (HFY-20), Food and Drug Administration, 5600 Fishers Lane, Rockville, MD 20857, 301-443-1382.

Persons needing information about the substantive issues to be addressed at the hearing should contact:

Robert J. Meyer

or

Wayne H. Mitchell, Center for Drug Evaluation and Research (HFD-362), Food and Drug Administration, 5600 Fishers Lane, Rockville, MD 20857, 301-295-8046.

SUPPLEMENTARY INFORMATION:

I. Background

In the Federal Register of March 2, 1989 (54 FR 8973), FDA and NIDA jointly published a proposed regulation to revise the conditions for the use of methadone in the maintenance treatment of narcotic addicts. The proposal would allow narcotic treatment programs to provide minimum service (interim) maintenance treatment to patients awaiting placement in comprehensive maintenance treatment. The proposal was in response to the human immunodeficiency (HIV) epidemic in the intravenous (IV) drug-abusing population and was intended to allow programs additional flexibility to admit more narcotic addicts into treatment as quickly as possible.

The proposed rule contained the following minimum standards for interim maintenance treatment:

A program would be allowed to provide interim maintenance treatment only if it also provides comprehensive maintenance treatment to which an interim patient may be transferred;

A program would be allowed to place a patient in interim maintenance treatment only when there are no openings available in comprehensive maintenance treatment;

A program would be required to establish and follow written criteria regarding priorities for transferring a patient from interim maintenance to comprehensive maintenance treatment;

A program would be required to evaluate a patient 6 months after admission to interim maintenance treatment to determine if the patient meets established transfer priority criteria and, if necessary, at 6-month intervals thereafter; and

All other requirements for comprehensive maintenance treatment would apply to interim maintenance treatment with the following exceptions:

1. Methadone would be required to be administered daily under observation, i.e., take-home medication would not be allowed;

2. Drug-screening tests would not be required except for the initial drug screening test;

3. Treatment plans and treatment plan evaluations would not be required;

4. Primary counselors would not be required to be assigned to patients; and

5. Counseling, rehabilitative, vocational, and educational services generally would not be required to be provided, except that counseling on avoiding HIV transmission would have to be provided.

Interested persons should refer to the March 2, 1989, proposal for details of the proposed interim maintenance treatment provisions.

FDA and NIDA received over 80 comments on the proposal. These comments revealed a large number of differing opinions both on the desirability of adopting interim maintenance standards and on a number of related issues as well. (Copies of all received comments are included in Docket No. 88N-0444 and may be inspected at the Dockets Management Branch (address above).) The agencies believe that it is necessary to improve the current administrative record before making a decision regarding any final action based on the March 2, 1989, proposal. Therefore, FDA and NIDA have concluded that a public hearing should be held to obtain further public comment to enable the agencies to make decisions on the unresolved matters.

The agencies note that the provision of the proposal requiring counseling on avoiding transmission of HIV was uniformly commented upon favorably. This provision would apply to all patients in methadone treatment programs. The agencies believe that there is an adequate administrative record on this issue and this requirement will be incorporated either into the final rule resulting from this proposal or in a separate final rule which will proceed with that portion of the rulemaking.

II. Public Hearing Topics

In order to promote a more useful discussion at the public hearing, FDA and NIDA developed the following list of questions and issues after considering comments submitted in response to the March 2, 1989, proposal. This list is not intended to be exclusive and presentations and comments on other issues related to interim maintenance are encouraged. However, participants should keep in mind that the basic purpose of the hearing is to gather

factual information for the administrative record and the presiding officers may not schedule presentations that deal with irrelevant matters.

Topic A: HIV Risk Reduction Benefits of Interim Maintenance

The burgeoning HIV epidemic among IV drug abusers is a major concern to the agencies. FDA and NIDA believe that interim maintenance treatment's ability to decrease the spread of HIV infection is a key factor in determining the agencies' course of action.

1. *Could interim maintenance have a detrimental effect on comprehensive maintenance? If so, will the magnitude of this effect outweigh the anticipated HIV risk reduction benefits of interim maintenance?* Some comments have postulated that interim maintenance will substantially weaken comprehensive maintenance as a treatment modality due to the perception that could develop that interim maintenance is more cost efficient than comprehensive maintenance. These comments contended that the possible decrease or elimination of comprehensive maintenance as a successful treatment modality will ultimately prove counterproductive from both the drug abuse treatment and HIV transmission standpoints.

2. *Will the increasing "poly-drug abuse" profile of IV narcotic addicts and methadone maintenance patients diminish the impact of interim maintenance in curtailing high-risk HIV transmission behavior?* Several comments noted the increased prevalence of concomitant IV cocaine abuse with IV narcotic abuse and stated that, because methadone treatment is not effective in treating nonnarcotics drug addiction, interim maintenance treatment will not be successful in reducing needle-sharing associated with IV poly-drug abuse. Additionally, some comments stated that without counselor contact associated with comprehensive maintenance, the behavioral aspects of narcotic addiction will result in a failure of interim maintenance to reduce needle-sharing.

Topic B: Waiting Lists for Methodone Treatment

Interim maintenance treatment was conceived as a response to a reported waiting list crisis in methadone maintenance treatment. The extent of the problem, both now and in the future, and the impact interim maintenance treatment will have on the problem are of concern to the agencies.

1. *What are the nature and extent of existing methadone maintenance treatment waiting lists?* Many comments questioned the existence of an extensive, nationwide, or regional waiting list problem associated with methodone maintenance programs.

2. *How has (or will) the funding allocated by Congress to allow drug abuse treatment programs with demonstrable waiting lists to expand treatment affect the waiting list problem?* The Alcohol, Drug Abuse, and Mental Health Administration published a notice in the **Federal Register** of February 24, 1989 (54 FR 7990), requesting applications from drug abuse treatment programs with verifiable waiting lists for the purpose of awarding $75 million in competitive grants to expand the treatment capacity of those programs. Approximately 400 drug abuse treatment programs claiming verifiable waiting lists have applied.

3. *Would requiring city or State authorities to certify the existence of waiting lists as a preexisting condition for interim maintenance be appropriate? If so, what criteria are appropriate for these authorities to apply?* Several comments contended that there may be a financial incentive for methadone treatment programs to retain patients in the interim maintenance setting. Additional comments stated that many, if not most, patients would prefer the less structured treatment found in interim maintenance and thus, if given the choice, would choose interim maintenance over comprehensive maintenance. These comments suggested that some mechanism must be created to assure that all comprehensive treatment slots are filled in a given locality before patients may be placed in interim maintenance.

Topic C: Proposed Interim Maintenance Treatment Provisions

If FDA and NIDA determine that implementing regulations for interim maintenance treatment is a desirable course of action, the agencies will have to determine what standards need to be established to best implement interim maintenance.

1. *Should interim maintenance patients be monitored for drug abuse activity?* Many comments objected to the lack of required random drug screening tests. The agencies are uncertain that such testing should be required in an interim maintenance setting. The agencies are interested in what types of therapeutic or administrative decisions would be made based on these tests and whether those decisions are of a nature that would warrant requiring drug screening tests.

2. *What are the elements of a sound policy regarding transferring an interim maintenance patient to comprehensive maintenance? Should a limit to place on the time a patient can remain in interim maintenance?* Some comments stated that formal patient evaluations at 6-month intervals to determine whether patients meet a program's transfer priority criteria were too long. These comments recommended that formal patient evaluations be conducted for patients at 3-month intervals, but detailed reasons for their conclusions were not given. Other comments discussed limiting the period of time a patient could spend in interim maintenance without providing the kind of information the agenies needed to make a decision on the issue.

It should be noted that due to the consensus that has developed on the desirability of requiring counseling on avoiding transmission of HIV, no oral presentations will be scheduled on that topic, even though it was part of the March 2, 1989, proposal. However, interested persons may submit written comments on the topic, if they choose.

III. Exemption Process

FDA and NIDA are taking this opportunity to remind the narcotic treatment community that the exemption process provided for in 21 CFR 291.505(d)(11) can be used by a program to establish treatment modifications similar to the interim maintenance approach described in the March 2, 1989, proposal. All exemption requests are handled on a case-by-case basis. Those programs requesting an exemption to establish some type of "interim" service should be prepared to demonstrate that there is a shortage of methadone treatment slots available in its immediate locale. The exemption request should include a description of a systematic procedure for documenting and administering a waiting list that substantially meets the criteria set out in the eligibility provision of section IV.(3) of the Alcohol, Drug Abuse, and Mental Health Administration's Drug Abuse Treatment Waiting List Reduction Grant Program published in the **Federal Register** of February 24, 1989 (54 FR 7990). In addition, the exemption request should state the period of time to be covered by the exemption and submit a copy of their transfer priority criteria. Programs applying for an exemption should otherwise be generally guided by the March 2, 1989, proposed rule. FDA and NIDA may require additional information and prescribe additional conditions before granting the exemption. Treatment programs are reminded that the appropriate State authority must concur in any exemption before it is granted by FDA. Programs

interested in obtaining further information about the exemption process should contact the Regulatory Management Branch (HFD–342), Food and Drug Administration, 5600 Fishers Lane, Rockville MD 20857, 301–295–8029.

IV. Notice of Hearing Under 21 CFR Part 15

As discussed above, the agencies have received many sharply divided comments regarding the interim maintenance proposal. Some of the comments suggested that the agencies convene an expert meeting to address the complex issues that will have an impact on the proposal. The agencies believe that there is merit in those suggestions, particularly in light of the incomplete state of the current administrative record. The agencies believe that the more structured format and formalized procedures of a public hearing at which experts can testify will best elicit the types and quantity of data necessary to supplement the administrative record. Accordingly, the Commissioner of Food and Drugs, with the concurrence of the Director of NIDA, is announcing a public hearing under 21 CFR part 15.

The public hearing, scheduled to begin at 9 a.m. at the Jack Masur Auditorium (address above) on February 28, 1990, will be extended to an additional day if the number of participants warrants the extension. The presiding officers will be Stuart L. Nightingale, M.D., Associate Commissioner for Health Affairs, FDA, and Charles R. Schuster, Ph.D., Director, National Institute on Drug Abuse. The presiding officers will be accompanied by a panel of FDA, NIDA, and other Public Health Service employees with relevant expertise. The procedures governing the hearing are found at part 15.

Persons who wish to participate are requested to file a notice of participation with the Dockets Management Branch (address above) on or before January 29, 1990. To assure timely handling, any outer envelope should be clearly marked with Docket No. 88N–0444 and the statement "Interim Maintenance Treatment-Hearing." The notice of participation should contain the interested person's name, address, telephone number, any business or organizational affiliation of the person desiring to make a presentation, a brief summary of the presentation, and the approximate time requested for the presentation. FDA and NIDA may ask that groups having similar interests consolidate their comments and present them through a single representative or that representatives of these groups present their comments as part of a panel. FDA and NIDA will allocate the time available for the hearing among the persons who properly file notices of participation. If time permits, FDA and NIDA may allow interested persons attending the hearing who did not submit a notice of participation in advance of the hearing to make an oral presentation at the conclusion of the hearing.

Persons who find that there is insufficient time to submit the required information in writing may give oral notice of participation by calling Nicholas Reuter, 301–443–1382, no later than January 29, 1990. Those persons who give oral notice of participation should also submit written notice containing the information described above to the Dockets Management Branch by the close of business on February 5, 1990.

After reviewing the notices of participation and accompanying information, FDA and NIDA will schedule each appearance and notify each participant by mail or telephone of the time allotted to the person and the approximate time the person's oral presentation is scheduled to begin. The hearing schedule will be available at the hearing, and after the hearing it will be placed on file in the Dockets Management Branch under Docket No. 88N–0444.

To provide time for all interested persons to submit data, information, or views on this subject, the administrative record of the hearing will remain open for 15 days following the hearing. Persons who wish to provide additional materials for consideration are to file these materials with the Dockets Management Branch. To assure timely handling, any outer envelope should be clearly marked with Docket No. 88N–0444 and the statement "Interim Maintenance Treatment-Hearing."

The hearing is informal, and the rules of evidence do not apply. No participant may interrupt the presentation of another participant. Only the presiding officers and panel members may question any person during or at the conclusion of their presentation.

Public hearings, including hearings under Part 15, are subject to FDA's guideline (subpart C of 21 CFR part 10) concerning the policy and procedures for electronic media coverage of FDA's public administrative proceedings. Under 21 CFR 10.205, repesentatives of the electronic media may be permitted, subject to certain limitations, to videotape, film, or otherwise record FDA's public administrative proceedings, including presentations by participants.

To the extent that the conditions for the hearing, as described in this notice, conflict with any provisions set out in part 15, this notice acts as a waiver of those provisions as specified in 21 CFR 15.30(h).

Charles R. Schuster, Director, NIDA, has informed FDA that he concurs with the wording and issuing of this notice and that NIDA intends to participate fully in the conduct of the hearing.

Dated: November 28, 1989

Ronald G. Chesemore,

Acting Associate Commissioner for Regulatory Affairs.

[FR Doc. 89–28356 11–30–89; 2:41 pm]

BILLING CODE 4160–01–M

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FEDERAL REGISTER PAGES AND DATES, DECEMBER

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LIST OF PUBLIC LAWS

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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 523–6641. The text of laws is not published in the **Federal Register** but may be ordered in individual pamphlet form (referred to as "slip laws") from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402 (phone 202–275–3030).

S. 338/Pub. L. 101–191

To authorize the Secretary of the Interior to provide for the development of a trails interpretation center in the city of Council Bluffs, Iowa, and for other purposes. (Nov. 29, 1989; 103 Stat. 1697; 3 pages) Price: $1.00

S. 737/Pub. L. 101–192

To adjust the boundry of Rocky Mountain National Park. (Nov. 29, 1989; 103 Stat. 1700; 1 page) Price: $1.00

CFR CHECKLIST

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500–End	28.00	Apr. 1, 1989
21 Parts:		
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500–599	21.00	Apr. 1, 1989
600–799	8.00	Apr. 1, 1989
800–1299	17.00	Apr. 1, 1989
1300–End	6.50	Apr. 1, 1989
22 Parts:		
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300–End	17.00	Apr. 1, 1989
23	17.00	Apr. 1, 1989
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[1] Because Title 3 is an annual compilation, this volume and all previous volumes should be retained as a permanent reference source.

[2] No amendments to this volume were promulgated during the period Jan.1, 1988 to Dec.31, 1988. The CFR volume issued January 1, 1988, should be retained.

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[4] The July 1, 1985 edition of 32 CFR Parts 1–189 contains a note only for Parts 1–39 inclusive. For the full text of the Defense Acquisition Regulations in Parts 1–39, consult the three CFR volumes issued as of July 1, 1984, containing those parts.

[5] The July 1, 1985 edition of 41 CFR Chapters 1–100 contains a note only for Chapters 1 to 49 inclusive. For the full text of procurement regulations in Chapters 1 to 49, consult the eleven CFR volumes issued as of July 1, 1984 containing those chapters.

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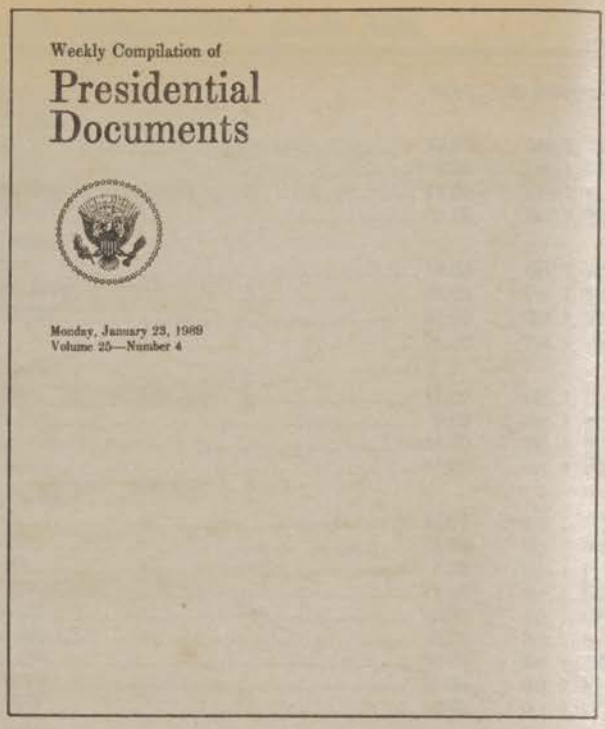

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