ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 63

[EPA–HQ–OAR–2010–1041 and EPA–HQ–OAR–2010–1042; FRL–9928–71–OAR]

RIN 2060–AQ90

National Emissions Standards for Hazardous Air Pollutants for Mineral Wool Production and Wool Fiberglass Manufacturing

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: This action finalizes the residual risk and technology reviews (RTR) conducted for the Mineral Wool Production and Wool Fiberglass Manufacturing source categories regulated under national emission standards for hazardous air pollutants (NESHAP). Under this action, we are establishing pollutant-specific emissions limits for hazardous air pollutants (HAP) that were previously regulated (under a surrogate) and for HAP that were previously unregulated. This action finalizes first-time generally available control technologies (GACT) standards for gas-fired glass-melting furnaces at wool fiberglass manufacturing facilities that are area sources. We are also amending regulatory provisions related to emissions during periods of startup, shutdown, and malfunction (SSM); adding requirements for reporting of performance testing through the Electronic Reporting Tool (ERT); and making several minor clarifications and corrections. The revisions in these final rules increase the level of emissions control and environmental protection provided by the Mineral Wool Production and Wool Fiberglass Manufacturing NESHAP.

DATES: This final action is effective on July 29, 2015.

ADDRESSES: The Environmental Protection Agency (EPA) has established two dockets for this action under Docket ID Nos. EPA–HQ–OAR–2010–1041 (for 40 CFR part 63, subpart DDD) and EPA–HQ–OAR–2010–1042 (for 40 CFR part 63, subparts NNN and NN). All documents in these dockets are listed on the *www.regulations.gov* Web site. Although listed in the index, some information is not publicly available, *e.g.,* confidential business information (CBI) or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically through *http://www.regulations.gov,* or in hard copy at the EPA Docket Center, EPA WJC West Building, Room Number 3334, 1301 Constitution Ave. NW., Washington, DC. The Public Reading Room hours of operation are 8:30 a.m. to 4:30 p.m. Eastern Time, Monday through Friday. The telephone number for the Public Reading Room is (202) 566–1744, and the telephone number for the Air and Radiation Docket and Information Center is (202) 566–1742.

FOR FURTHER INFORMATION CONTACT: For questions about this final action, contact Ms. Susan Fairchild, Sector Policies and Programs Division (D 234–04), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina, 27711; telephone number: (919) 541–5167; fax number: (919) 541–5600; and email address: *fairchild.susan@epa.gov.* For specific information regarding the risk modeling methodology, contact Mr. Chris Sarsony, Health and Environmental Impacts Division (C539–02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541–4843; fax number: (919) 541–0840; and email address: *sarsony.chris@epa.gov.* For information about the applicability of the NESHAP to a particular entity, contact Ms. Sara Ayres, Office of Enforcement and Compliance Assurance, U.S. Environmental Protection Agency Region 5, 77 West Jackson Boulevard, Mail Code E–19J, Chicago, IL 60604–3507; telephone number: (312) 343–6266; and email address: *ayres.sara@epa.gov.*

SUPPLEMENTARY INFORMATION:

Preamble Acronyms and Abbreviations. We use multiple acronyms and terms in this preamble. While this list may not be exhaustive, to ease the reading of this preamble and for reference purposes, the EPA defines the following terms and acronyms here:

ADAF Age-dependent adjustment factors
AEGL Acute Exposure Guideline Levels
ANSI American National Standards Institute
APA Administrative Procedures Act
BDL Below detection limit
BFS Batch Formulation System
CAA Clean Air Act
CA–REL California reference exposure level
CBI Confidential business information
CDX Central Data Exchange
CEDRI Compliance and Emissions Data Reporting Interface
CEMS Continuous emission monitoring system
CFR Code of Federal Regulations
CO Carbon monoxide
COS Carbonyl sulfide
CPMS Continuous parameter monitoring system
Cr Chromium
CRA Congressional Review Act
CRT Cathode ray tube
DESP Dry electrostatic precipitator
dscm Dry standard cubic meters
EPA Environmental Protection Agency
ERPG Emergency Response Planning Guidelines
ERT Electronic Reporting Tool
ESP Electrostatic precipitator
FA Flame attenuation
FR **Federal Register**
GACT Generally available control technology
HAP Hazardous air pollutants
HCl Hydrogen chloride
HEPA High efficiency particulate air
HF Hydrogen fluoride
HQ Hazard quotient
ICR Information collection request
IRIS Integrated Risk Information System
Lb/ton Pounds per ton
LOI Loss on ignition
MACT Maximum achievable control technology
MDL Minimum detection limit
MIR Maximum individual risk
NAICS North American Industry Classification System
NAIMA North American Insulation Manufacturers Association
NESHAP National Emission Standards for Hazardous Air Pollutants
NO_x Nitrogen oxide
NPV Net present value
NSPS New Source Performance Standards
NSSN National Standards Systems Network
NTTAA National Technology Transfer and Advancement Act
OAQPS Office of Air Quality Planning and Standards
OMB Office of Management and Budget
PB–HAP Persistent and Bioaccumulative-HAP
PM Particulate matter
ppm Parts per million
PRA Paperwork Reduction Act
RACT/BACT/LAER Reasonably Available Control Technology/Best Available Control Technology/Lowest Achievable Emission Rate
RCRA Resource Conservation and Recovery Act
RDL Representative detection limit
REL Recommended exposure limit
RFA Regulatory Flexibility Act
RIA Regulatory Impact Analysis
RIN Regulatory Information Number
RS Rotary spin
RTR Risk and Technology Review
SAB Science Advisory Board
SBA Small Business Administration
SBAR Small Business Analytical Review
SBREFA Small Business Regulatory Enforcement Flexibility Act
SO_2 Sulfur dioxide
SSM Startup, shutdown, malfunction
TOSHI Target organ specific hazard index
TTN Technology Transfer Network
UMRA Unfunded Mandates Reform Act
UPL Upper prediction limit

VCS Voluntary Consensus Standards

Background Information. On November 25, 2011 (76 FR 72770), the EPA proposed revisions to the Mineral Wool Production and Wool Fiberglass Manufacturing NESHAP based on our RTR under Clean Air Act (CAA) sections 112(f)(2) and (d)(6). We proposed chromium compounds emissions limits for wool fiberglass furnaces at major sources after finding that chromium refractories used to construct furnaces degrade with age and emit continuously-increasing levels of chromium compounds. These findings were the result of emissions testing conducted on these types of furnaces indicating significant amounts (550 pounds) of chromium emissions, 93 percent of which was in the hexavalent (most toxic) form. The furnaces tested were considered representative of all furnaces at each facility. In the November 2011 proposal, we also announced that we had already issued a new information collection request (ICR) to the wool fiberglass industry to collect data on chromium emissions and chromium refractory use at all operating wool fiberglass furnaces with the intent of regulating area sources in a future action.

In the November 2011 proposal we also proposed to discontinue using formaldehyde as a surrogate for phenol and methanol in both the Mineral Wool Production and Wool Fiberglass Manufacturing source categories and to discontinue using carbon monoxide (CO) as a surrogate for carbonyl sulfide (COS) in the Mineral Wool Production source category. This revision was proposed because we found that the surrogate for each pollutant is not necessarily a reasonable representation of the pollutant-specific emissions for these source categories (*e.g.,* formaldehyde is not invariably present in the binder formulation). We proposed maximum achievable control technology (MACT) standards under CAA sections 112(d)(2) and (3) for the HAP phenol and methanol in both source categories, and COS in the Mineral Wool Production source category. We also proposed MACT standards for hydrogen fluoride (HF) and hydrochloric acid (HCl), which are emitted from these source categories, but were not regulated under the MACT standard.

On April 15, 2013 (78 FR 22370), the EPA issued a supplemental proposal that was based on comments to the November 2011 proposal and new information on processes in both source categories. New emissions test data for all wool fiberglass furnaces across the industry showed that the same types of furnaces were in operation at both major and area sources, but that the emissions profile of electric furnaces differed from that of gas-fired furnaces (*i.e.,* emissions that could endanger public health). In that notice, we listed wool fiberglass manufacturing area sources, and proposed chromium emission limits for gas-fired wool fiberglass furnaces at area sources, and announced that the chromium limits at major sources would be specific to gas-fired furnaces (such as air-gas and oxyfuel furnaces) and not electric furnaces (such as cold-top and steel shell furnaces).

On November 13, 2014 (79 FR 68012), the EPA issued a second supplemental proposal to explain changes to previously proposed emissions limits for sources in these source categories. We proposed work practice standards under CAA section 112(h) in lieu of certain emissions limits, and clarified our use of the upper predictive limit (UPL) in setting MACT floors. In this action, we are finalizing decisions and revisions for these rules. We summarize some of the more significant comments we received regarding the proposed rules and provide our responses in this preamble. A summary of all other public comments on the proposal and the EPA's responses to those comments is available in the memorandum, ''National Emissions Standards for Hazardous Air Pollutants: Mineral Wool Production and Wool Fiberglass Manufacturing (Risk and Technology Review)—Summary of Public Comments and Responses'' (Docket ID Nos. EPA–HQ–OAR–2010–1041 and EPA–HQ–OAR–2010–1042). ''Track-changes'' versions of the regulatory language that incorporates the changes in this action are available in the respective dockets.

Organization of This Document

The information in this preamble is organized as follows:

I. General Information

A. Does this action apply to me?

Regulated Entities. Categories and entities potentially regulated by this action are shown in Table 1 of this preamble.

TABLE 1—NESHAP AND INDUSTRIAL SOURCE CATEGORIES AFFECTED BY THIS FINAL ACTION

NESHAP and source category	NAICS [a] code
Mineral Wool Production	327993
Wool Fiberglass Manufacturing	327993

[a] North American Industry Classification System.

Table 1 of this preamble is not intended to be exhaustive, but rather to provide a guide for readers regarding entities likely to be affected by the final action for the source categories listed. To determine whether your facility is affected, you should examine the applicability criteria in the appropriate NESHAP. If you have any questions regarding the applicability of any aspect of this NESHAP, please contact the appropriate person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section of this preamble.

B. Where can I get a copy of this document and other related information?

In addition to being available in the docket, an electronic copy of this final action will also be available on the Internet through the Technology Transfer Network (TTN) Web site, a forum for information and technology exchange in various areas of air pollution control. Following signature by the EPA Administrator, the EPA will post a copy of this final action at: *http://www.epa.gov/ttn/atw/woolfib/woolfipg* and at *http://www.epa.gov/ttn/atw/minwool/minwopg.* Following publication in the **Federal Register**, the EPA will post the **Federal Register** version and key technical documents at this same Web site.

Additional information is available on the RTR Web site at *http://www.epa.gov/ttn/atw/rrisk/rtrpg.html.* This information includes an overview of the RTR program, links to project Web sites for the RTR source categories and detailed emissions and other data we used as inputs to the risk assessments.

C. Judicial Review and Administrative Reconsideration

Under CAA section 307(b)(1), judicial review of this final action is available only by filing a petition for review in the United States Court of Appeals for the District of Columbia Circuit by September 28, 2015. Under CAA section 307(b)(2), the requirements established by this final rule may not be challenged separately in any civil or criminal proceedings brought by the EPA to enforce the requirements.

Section 307(d)(7)(B) of the CAA further provides that ''[o]nly an objection to a rule or procedure which was raised with reasonable specificity during the period for public comment (including any public hearing) may be raised during judicial review.'' This section also provides a mechanism for the EPA to reconsider the rule ''[i]f the person raising an objection can demonstrate to the Administrator that it was impracticable to raise such objection within [the period for public comment] or if the grounds for such objection arose after the period for public comment (but within the time specified for judicial review) and if such objection is of central relevance to the outcome of the rule.'' Any person seeking to make such a demonstration should submit a Petition for Reconsideration to the Office of the Administrator, U.S. EPA, Room 3000, EPA, WJC West Building, 1200 Pennsylvania Ave. NW., Washington, DC 20460, with a copy to both the person(s) listed in the preceding **FOR FURTHER INFORMATION CONTACT** section, and the Associate General Counsel for the Air and Radiation Law Office, Office of General Counsel (Mail Code 2344A), U.S. EPA, 1200 Pennsylvania Ave. NW., Washington, DC 20460.

II. Background

A. What is the statutory authority for this action?

Section 112 of the CAA establishes a two-stage regulatory process to address emissions of HAP from stationary sources. In the first stage, we must identify categories of sources emitting one or more of the HAP listed in CAA section 112(b) and then promulgate technology-based NESHAP for those sources. ''Major sources'' are those that emit, or have the potential to emit, any single HAP at a rate of 10 tons per year or more, or 25 tons per year or more of any combination of HAP. For major sources, these standards are commonly referred to as maximum achievable control technology or MACT standards and must reflect the maximum degree of emission reductions of HAP achievable (after considering cost, energy requirements, and non-air quality health and environmental impacts). In developing MACT standards, CAA section 112(d)(2) directs the EPA to consider the application of measures, processes, methods, systems or techniques, including but not limited to those that reduce the volume of or eliminate HAP emissions through process changes, substitution of materials, or other modifications; enclose systems or processes to eliminate emissions; collect, capture, or treat HAP when released from a process, stack, storage, or fugitive emissions point; are design, equipment, work practice, or operational standards; or any combination of the above.

For these MACT standards, the statute specifies certain minimum stringency requirements, which are referred to as MACT floor requirements, and which may not be based on cost considerations. See CAA section 112(d)(3). For new sources, the MACT floor cannot be less stringent than the emission control achieved in practice by the best-controlled similar source. The MACT standards for existing sources can be less stringent than floors for new sources, but they cannot be less stringent than the average emission limitation achieved by the best-performing 12 percent of existing sources in the category or subcategory (or the best-performing five sources for categories or subcategories with fewer than 30 sources). In developing MACT standards, we must also consider control options that are more stringent than the floor, under CAA section 112(d)(2). We may establish standards more stringent than the floor, based on the consideration of the cost of achieving the emissions reductions, any non-air quality health and environmental impacts, and energy requirements.

In the second stage of the regulatory process, the CAA requires the EPA to undertake two different analyses, which we refer to as the technology review and the residual risk review. Under the technology review, we must review the technology-based standards and revise them ''as necessary (taking into account developments in practices, processes, and control technologies)'' no less frequently than every 8 years, pursuant to CAA section 112(d)(6). Under the residual risk review, we must evaluate the risk to public health remaining after application of the technology-based standards and revise the standards, if necessary, to provide an ample margin of safety to protect public health or to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect. The residual risk review is required within 8 years after promulgation of the technology-based standards, pursuant to CAA section 112(f). In conducting the residual risk review, if the EPA determines that the current standards provide an ample margin of safety to protect public health, it is not necessary to revise the MACT standards pursuant to CAA section 112(f).[1] For more information on the statutory authority for this rule, see the November 25, 2011, proposal (76 FR 72773).

CAA sections 112(c)(3), (d)(5), and (k)(3) address regulation of area sources. Collectively, these sections are the basis of the Area Source Program under the Urban Air Toxics Strategy (Strategy).[2] Area sources are those that emit less than the major source threshold of HAP (*i.e.,* less than 10 tons per year of a single pollutant or 25 tons per year of a combination of HAP. Under the Strategy, we must regulate emissions of the 30 most toxic HAP emitted by area sources, based on generally available control technology (GACT), at a minimum. These provisions do not require the EPA to regulate all HAP from all HAP-emitting processes as we must do when setting MACT standards. On April 15, 2013, consistent with the Strategy, the agency added gas-fired glass-melting furnaces located at area sources to the source category list[3] [4] and proposed emissions standards for particulate matter (PM) and chromium compounds from these sources at wool fiberglass manufacturing facilities (78 FR 22370). On November 13, 2014, we withdrew our previously proposed GACT limits for PM and proposed to only require total chromium compounds emissions limits for these sources. Reduction of PM is accomplished through chromium reductions because chromium is the toxic pollutant entrained within PM that is emitted by these sources. We are finalizing GACT limits for chromium compound emissions for gas-fired glass-melting furnaces in the Wool Fiberglass Manufacturing area source category.

With this regulation, pursuant to CAA sections 112(c)(3) and (k)(3)(B), the agency will have subjected additional sources to regulation for the urban metal HAP chromium compounds, which is wholly consistent with the goals of the Strategy. For more information on the statutory authority for this rule, see the November 25, 2011, supplemental proposal (76 FR 72770), the April 15, 2013, supplemental proposal (78 FR 22375–22376), and the November 13, 2014, supplemental proposal (79 FR 68012).

B. What is the Mineral Wool Production source category and how does the NESHAP regulate HAP emissions from the source category?

The EPA promulgated the Mineral Wool Production NESHAP on June 1, 1999 (64 FR 29490). The standards are codified at 40 CFR part 63, subpart DDD. The Mineral Wool Production industry consists of facilities that produce mineral wool fiber from slag, rock, or other materials, excluding sand or glass. The source category covered by this MACT standard currently consists of eight facilities.

Mineral wool is a material used mainly for thermal and acoustical insulation. This category includes, but is not limited to, the following process units: A cupola furnace for melting the mineral charge; a blow chamber in which air and, in some cases, a binder are drawn over the fibers, forming them to a screen; a curing oven to bond the fibers; and a cooling compartment. The 1999 NESHAP rule set emissions limits

[1] The U.S. Court of Appeals has affirmed this approach of implementing CAA section 112(f)(2)(A): *NRDC* v. *EPA,* 529 F.3d 1077, 1083 (D.C. Cir. 2008) (''If EPA determines that the existing technology-based standards provide an 'ample margin of safety,' then the Agency is free to readopt those standards during the residual risk rulemaking.'').

[2] For EPA's document on the Urban Air Toxics Strategy, see 64 FR 38706–38715–716 (July 19, 1999).

[3] For the listing documents of the Strategy, see 64 FR 38075, July 19, 1999; 67 FR 43112, June 26, 2002; 67 FR 70427, November 22, 2002; 73 FR 78637, December 23, 2008; and 74 FR 30366, June 25, 2009.

[4] We have made several revisions to the CAA section 112(c)(3) list since its issuance: 67 FR 43112, June 26, 2002; 67 FR 70427, November 22, 2002; 73 FR 78637, December 23, 2008; 74 FR 30366, June 25, 2009.

for PM from new and existing cupolas, CO from new cupolas, and formaldehyde from new and existing curing ovens.

C. What changes did we propose for the Mineral Wool Production source category in our November 25, 2011 proposal; April 15, 2013 supplemental proposal; and November 13, 2014 supplemental proposal?

On November 25, 2011, the EPA published a proposed rule for the Mineral Wool Production NESHAP, 40 CFR part 63, subpart DDD, that proposed RTR amendments to this standard under CAA sections 112(d)(6) and (f)(2). In that proposal, we stated that maximum individual risk (MIR) for cancer was 4-in-1 million based on available test data for actual emissions and 10-in-1 million based on the MACT-allowable emission limits of the rule. We proposed, considering all available information, that risks were acceptable.

For PM, we reviewed the control technologies in use by the industry and did not find any improvements or developments in practices, processes, and control technologies since the 1999 MACT standard was promulgated. Therefore, we did not propose amendments to the PM standards under either CAA sections 112(f)(2) or (d)(6).

We also proposed to discontinue use of surrogates where we determined that the surrogacy was not reasonable. We proposed to discontinue using CO as a surrogate for COS, and to discontinue use of formaldehyde as a surrogate for phenol and methanol. Based on new source test data and CAA sections 112(d)(2) and (3), we proposed MACT floor emission limits for existing and new sources of COS, phenol, and methanol, pollutants that were previously regulated under a surrogate; and MACT floor emission limits for formaldehyde, the former surrogate. We retained PM as a surrogate for non-mercury HAP metals because there is a reasonable surrogate relationship. We also proposed emissions limits for HF and HCl, two pollutants that were previously unregulated, and proposed alternative emission limits for periods of startup and shutdown.

On April 15, 2013, we published a supplemental proposal for the Mineral Wool Production NESHAP that took into consideration the comments received on the November 2011 proposal, new emissions testing for horizontal lines, and subcategorization of cupolas based on design and raw material use. We withdrew our previously-proposed alternative emission limits for startup and shutdown, and instead proposed that sources may demonstrate compliance with the MACT floor emission limits during periods of startup and shutdown by keeping records showing that the emissions from cupolas were routed to air pollution control devices operated at the parameters established by the most recent performance test that showed compliance with the standard.

On November 13, 2014, the EPA published a second supplemental proposal for the Mineral Wool Production NESHAP that took into consideration comments received on the 2013 supplemental proposal, explained changes to previously proposed MACT limits for sources in this source category and clarified our use of the UPL in setting the MACT floors. In that proposal, we also proposed work practice standards under CAA section 112(h) for periods of startup and shutdown based on the practices used by the best performers among mineral wool producers to minimize emissions during these activities.

D. What is the Wool Fiberglass Manufacturing source category and how does the NESHAP regulate HAP emissions from the source category?

The EPA promulgated the Wool Fiberglass Manufacturing NESHAP on June 14, 1999 (62 FR 31695). The standards are codified at 40 CFR part 63, subpart NNN. The Wool Fiberglass Manufacturing source category is defined as any facility engaged in producing wool fiberglass from sand, feldspar, sodium sulfate, anhydrous borax, boric acid or any other materials. The Wool Fiberglass Manufacturing industry consists of facilities that produce bonded building insulation using a rotary spin (RS) manufacturing line, and facilities that produce bonded pipe insulation and bonded heavy-density products using a flame attenuation (FA) manufacturing line. The 1999 MACT standards currently apply to 10 major sources in the wool fiberglass industry. Another 20 facilities are area sources.

Wool fiberglass is used primarily as a thermal and acoustical insulation for buildings, automobiles, aircraft, appliances, ductwork and pipes. This category includes, but is not limited to, the following process units: A furnace for melting the mineral charge; a bonded line operation in which air and a binder are drawn over the fibers and cured in an oven to bond the fibers; and a cooling compartment. The 1999 NESHAP rule set emissions limits for PM from new and existing glass-melting furnaces and formaldehyde emissions from new FA and new and existing RS bonded lines.

E. What changes did we propose for major sources in the Wool Fiberglass Manufacturing source category in our November 25, 2011 proposal; April 15, 2013 supplemental proposal; and November 13, 2014 supplemental proposal?

On November 25, 2011, the EPA published a proposed rule for the Wool Fiberglass Manufacturing NESHAP to amend the standard based on our RTR analyses. In that proposal, we found under CAA section 112(f)(2) that the MIR for cancer, primarily due to emissions of hexavalent chromium and formaldehyde, was 40-in-1 million based on actual emissions and 60-in-1 million based on MACT-allowable emissions. The maximum chronic non-cancer target organ specific hazard index (TOSHI) value based on actual emissions was 0.2 with emissions of formaldehyde dominating those impacts. The acute noncancer hazard quotient (HQ), based on the recommended exposure limit (REL) for formaldehyde, was 30. The acute noncancer HQ, based on the Acute Exposure Guideline Levels (AEGL–1) for formaldehyde, was 2. We determined that nothing prevents construction of a high chromium emitting furnace at any wool fiberglass facility. Therefore, we evaluated risk under an auxiliary risk assessment which asked, ''if all wool fiberglass facilities emitted hexavalent chromium at the level of the highest emitter (that is, 450 pounds of hexavalent chromium annually), what would be the risk to human health?'' The MIR under the auxiliary risk analysis exceeded 100-in-one million at four facilities, a level we consider unacceptable.

Although the risk from actual emissions were considered to be well within a level we consider acceptable, we proposed that risk due to hexavalent chromium could be further reduced to achieve an ample margin of safety. The chromium compounds limit would also prevent operation of another high-chromium emitting furnace in this source category. We therefore proposed chromium compounds emission limits of 0.00006 pounds of chromium compounds per ton of glass pulled, under CAA section 112(f)(2).

We proposed under CAA section 112(d)(6) that the control technologies in place on wool fiberglass manufacturing furnaces were essentially the same as existed at the time the MACT standards were promulgated, but that there have been improvements in both the operation and the design of furnaces and their control technologies since that time. As a result, we proposed

emissions limits for both PM and total chromium compounds for gas-fired glass-melting furnaces at major sources, under CAA section 112(d)(6), and indicated our intent to list and regulate chromium compounds at area sources in a future action.

In the November 2011 proposal, similar to how we addressed the mineral wool source category, we also proposed in wool fiberglass to discontinue use of formaldehyde as a surrogate for phenol and methanol because the surrogacy was not reasonable. We proposed phenol, formaldehyde, and methanol MACT floor emission limits based on information collected in 2010 for two subcategories of bonded lines under CAA sections 112(d)(2) and (3). We proposed limits for FA lines that apply to all lines without further subcategorization, and proposed alternative emission limits for periods of startup and shutdown. In that notice, we also announced that we had issued an ICR under our section 114 authority to gather additional emission information on furnace chromium emissions.

In our April 2013 supplemental proposal, we took into consideration comments received on the November 2011 proposal, new process and chromium emissions test data, and related furnace data collected under a CAA section 114 ICR.

We further proposed revised PM emission limits for glass-melting furnaces at wool fiberglass manufacturing facilities that are major sources under CAA section 112(d)(6), presented the results of the new chromium emission testing collected from glass-melting furnaces, and required that the chromium emission limits proposed under CAA sections 112(d)(6) and (f)(2) would apply only to gas-fired glass-melting furnaces at major sources. We proposed an alternative compliance provision for startup and shutdown that would require sources to keep records showing that emissions were routed to the air pollution control devices and that these control devices were operated at the parameters established during the most recent performance test that showed compliance with the applicable emission limits. For electric cold-top furnaces, we proposed limiting raw material content to only cullet during startup and shutdown in recognition of the fact that these furnaces do not allow control devices to be operated during startup. For all other glass-melting furnaces, we also required preheating the empty furnace using only natural gas.

On November 13, 2014, the EPA published a second supplemental proposal. For major sources, the 2014 supplemental proposal took into consideration comments received on the 2013 supplemental proposal, withdrew the previously proposed amendments for affirmative defense, explained changes to previously proposed limits for major sources in this source category, proposed work practice standards under CAA section 112(h) for periods of startup and shutdown, and clarified our use of the UPL in setting MACT floors.

F. What did we propose for area sources in the Wool Fiberglass Manufacturing source category in our November 25, 2011 proposal; April 15, 2013 supplemental proposal; and November 13, 2014 supplemental proposal?

In the November 2011 proposal, we noted our intent to potentially list wool fiberglass manufacturing area sources and to use data from the CAA section 114 letter noted above to regulate wool fiberglass area sources in a future action.

On April 15, 2013, the EPA published a supplemental proposal that listed gas-fired glass-melting furnaces at wool fiberglass manufacturing facilities that are area sources as a source category under CAA sections 112(c)(3)and (k)(3). We also proposed first-time PM and total chromium compounds standards for gas-fired glass-melting furnaces at wool fiberglass manufacturing facilities that are area sources under CAA section 112(d)(5).

We proposed GACT standards of 0.00006 pounds of chromium compounds per ton of glass pulled and 0.33 pounds of PM per ton of glass pulled. These were the same limits that we proposed for gas-fired glass-melting furnaces located at major sources in the Wool Fiberglass Manufacturing source category. To maintain consistency with the major source rule, we proposed the same provisions for startup, shutdown, malfunction, testing, monitoring, and recordkeeping that we proposed for major sources.

On November 13, 2014, the EPA published a second supplemental proposal. For area sources, the 2014 supplemental proposal took into consideration comments received on the 2013 supplemental proposal, withdrew the previously proposed provisions for affirmative defense, explained changes to previously proposed limits for sources in this source category, and proposed work practice standards under CAA section 112(h) for periods of startup and shutdown.

III. What is included in the final Mineral Wool Production rule?

This action finalizes the EPA's determinations pursuant to the RTR provisions of CAA section 112 for the Mineral Wool Production source category and amends the Mineral Wool Production NESHAP based on those determinations. This action also finalizes MACT emission limits under CAA sections 112(d)(2) and (3), work practice standards for periods of startup and shutdown under CAA section 112(h), and other changes to the NESHAP discussed in section III.E of this preamble.

In this action, we are finalizing, as previously proposed, the emission limits for HAP-emitting processes in the Mineral Wool Production source category, as shown in Table 2 of this preamble.

TABLE 2—EMISSION LIMITS FOR THE MINERAL WOOL PRODUCTION SOURCE CATEGORY

Process	Subcategory	HAP	2011 Proposal	2013 Proposal	2014 Proposal	Final rule
Cupolas	Existing Open-top	COS	3.3	6.8	No change	6.8
	New Open-top	COS	0.017	4.3	3.2	3.2
	Existing Closed-top	COS	3.3	3.4	No change	3.4
	New Closed-top	COS	0.017	0.025	0.062	0.062
	Existing Processing Slag	HF	0.014	0.16	No change	0.16
		HCl	0.0096	0.21	0.44	0.44
	New Processing Slag	HF	0.014	0.16	0.015	0.015
		HCl	0.0096	0.21	0.012	0.012
	Existing Not Processing Slag	HF	0.014	0.13	No change	0.13
		HCl	0.0096	0.43	No change	0.43
	New Not Processing Slag	HF	0.014	0.13	0.018	0.018
		HCl	0.0096	0.43	0.015	0.015

TABLE 2—EMISSION LIMITS FOR THE MINERAL WOOL PRODUCTION SOURCE CATEGORY—Continued

Process	Subcategory	HAP	2011 Proposal	2013 Proposal	2014 Proposal	Final rule
Bonded Lines	Vertical (Existing and New) Combined Collection and Curing Operations.	Formaldehyde	0.46	2.7	2.4	2.4
		Phenol	0.52	0.74	0.71	0.71
		Methanol	0.63	1.0	0.92	0.92
	Horizontal (Existing and New) Combined Collection and Curing Operations.	Formaldehyde	0.054	No change	0.63	0.63
		Phenol	0.15	No change	0.12	0.12
		Methanol	0.022	No change	0.49	0.49
	Drum (Existing and New) Combined Collection and Curing Operations.	Formaldehyde	0.067	0.18	0.17	0.17
		Phenol	0.0023	1.3	0.85	0.85
		Methanol	0.00077	0.48	0.28	0.28

A. What are the final rule amendments based on the risk review for the Mineral Wool Production source category?

As presented in the November 2014 supplemental proposal, we are finalizing our determination that risks from the Mineral Wool Production source category are acceptable, the current standards provide an ample margin of safety to protect public health and prevent an adverse environmental effect. We are, therefore, not requiring additional controls and are thus readopting the existing standards under section 112(f)(2).

B. What are the final rule amendments based on the technology review for the Mineral Wool Production source category?

As discussed in the November 2011 proposal (76 FR 72786–72787, 72798), we identified and evaluated the developments in practices, processes, and control technologies that have occurred since the 1999 MACT rules were promulgated. In cases where we identified such developments, we analyzed the technical feasibility and the estimated impacts (*e.g.,* costs, emissions reductions, risk reductions) of applying these developments. We then decided, based on impacts and feasibility, whether it was necessary to propose amendments to the regulation to require any of the identified developments.

Based on our analyses of the data, information collected under the voluntary ICR, our general understanding of both of the industries and other available information on potential controls for these industries, we identified potential developments [5] in practices, processes, and control technologies.

In addition to reviewing the practices, processes, and technologies that were not considered at the time we developed the 1999 MACT rules, we reviewed a variety of data sources for the mineral wool industry. This review included the NESHAP for various industries promulgated after the 1999 MACT rules, regulatory requirements and technical analyses associated with these regulatory actions to identify any practices, processes, and control technologies considered in these efforts that could possibly be applied to emissions sources in the Mineral Wool Production source category, as well as the costs, non-air impacts, and energy implications associated with the use of these technologies.

We additionally consulted the EPA's Reasonably Available Control Technology/Best Available Control Technology/Lowest Achievable Emission Rate (RACT/BACT/LAER) Clearinghouse to identify potential technology advances, and searched this database to determine whether it contained any practices, processes, or control technologies for the types of processes covered by the mineral wool production rule.

We also requested information from facilities regarding developments in practices, processes or control technologies and we reviewed other information sources, such as state and local permitting agency databases and industry-supported databases. For more information, see the ''Technology Review for the Mineral Wool Production Source Category Memorandum'' in the docket to this rule.

As a result of our technology review under CAA section 112(d)(6) for the Mineral Wool Production source category, we determined that there are no developments in practices, processes, and control technologies that warrant revisions to this MACT standard. We are therefore not amending the standards under CAA section 112(d)(6).

C. What are the final rule amendments pursuant to CAA sections 112(d)(2) and (3) for the Mineral Wool Production source category?

This action finalizes the removal of formaldehyde as a surrogate for phenol and methanol, and the removal of CO as a surrogate for COS, as earlier explained in this preamble and as proposed on November 25, 2011 (76 FR 72770). We also are finalizing the proposed COS, HCl, and HF emission limits for cupolas and the proposed emission limits for formaldehyde, methanol, and phenol for bonded lines developed as a result of new representative detection limit (RDL) values, new source test data and our approach for calculating MACT floors based on limited data sets, as discussed in section III.B of the November 2014 supplemental proposal preamble. These final rule requirements for the Mineral Wool Production NESHAP are consistent with the provisions discussed in our various proposals.

D. What are the final rule amendments addressing emissions during periods of startup and shutdown for the Mineral Wool Production source category?

We are finalizing, as proposed, amendments to the Mineral Wool Production NESHAP to eliminate the SSM exemption. Consistent with *Sierra Club* v. *EPA,* 551 F. 3d 1019 (D.C. Cir. 2008), the EPA has established work practice standards for periods of startup and shutdown under CAA section 112(h) because measurement of the emissions is not practicable due to technological and economic limitations. Emissions are not at steady state during startup and shutdown (a necessary factor for accurate emissions testing), and the varying stack conditions, gas compositions and low emission rates make accurate emission measurements impracticable. In addition, the startup period for mineral wool cupolas is usually 2 hours, which is too short a

[5] For the purpose of this exercise, we considered developments not identified or considered during development of the 1999 MACT rules, including any add-on control technology or equipment; any improvements in technology or equipment that could result in significant additional emissions reduction; any work practice or operational procedure; any process change or pollution prevention alternative that could be broadly applied to the industry; and any development in equipment or technology that could result in decreased HAP emissions.

time in which to conduct source testing. We are finalizing under CAA section 112(h), as previously proposed in the November 2014 supplemental proposal, standards requiring affected sources to comply with work practices that are used by the best performers during periods of startup and shutdown. The best performers in the mineral wool industry use one of two possible work practices: either they route any cupola emissions that occur during startup and shutdown to an operating baghouse, or, alternatively, operate the cupola during startup and shutdown with three percent excess oxygen. Regarding the first alternative, baghouses achieve the same outlet concentrations regardless of pollutant loading in the emission stream, and fluctuations in pollutants or exhaust flow rate do not affect the overall level of emissions at the outlet of this control device. Regarding the second alternative, operating the cupola with excess oxygen prevents the formation of pollutants that would otherwise be routed to existing controls.

In the final rule, we are specifying work practice standards that require items of equipment that are required or utilized for compliance with subpart DDD to be operating during startup and shutdown, designating when startups and shutdowns begin, and specifying recordkeeping requirements for startup and shutdown periods. We are also revising Table 1 to subpart DDD of part 63 (General Provisions applicability table) to change several references related to requirements that apply during periods of SSM. We are eliminating or revising certain recordkeeping and reporting requirements related to the eliminated SSM exemption.

E. What other changes have been made to the Mineral Wool Production NESHAP?

We are finalizing, as proposed, addition of EPA Methods 26A and 320 in appendix A part 63 for measuring the concentrations of HCl and HF. We are finalizing, as proposed, the requirement for existing sources to conduct performance tests to demonstrate compliance with the emission limits for cupolas and combined collection/curing operations no later than July 30, 2018 and every 5 years thereafter. We are finalizing, as proposed, the requirement for new sources to comply with the emission limits of the final rule on July 29, 2015, or upon the first cupola campaign, whichever is later, and to conduct performance tests to demonstrate compliance with the emission limits for cupolas and combined collection/curing operations within 180 days of the applicable compliance date.

We are also adding an alternative operating limit for cupolas that provides owners or operators the option of maintaining the percent excess oxygen in the cupola at or above the level established during the performance test. In addition, we are finalizing editorial changes to the performance testing and compliance procedures to specify formaldehyde, methanol, phenol, and COS rather than only the surrogates formaldehyde and CO. In this action, we are finalizing, as proposed, definitions for ''closed-top cupola,'' ''open-top cupola,'' ''combined collection/curing operations'' and ''incinerator.'' We are also adding a definition for ''slag.'' The 2013 supplemental proposal indicated that we would add such a definition (78 FR 22386). Slag is the primary contributing factor to the formation of HF and HCl in the cupola emissions, and is, for some mineral wool formulas, a necessary ingredient for the production of mineral wool. We subcategorized cupolas according to their use of slag as a raw material in the cupola, and are in this final rule defining slag in 40 CFR 63.1196 to mean the by-product materials separated from metals during smelting and refining of raw ore.

We are also making minor corrections to the citations in Table 1 (part 63 General Provision applicability table) to reflect both the final amendments in this action, and the revisions that have been made to the General Provisions since 1999.

F. What are the effective and compliance dates of the new MACT standards for the Mineral Wool Production source category?

The new MACT standards for the Mineral Wool Production source category being promulgated in this action are effective on July 29, 2015. The compliance date for existing cupolas and combined collection/curing operations is July 30, 2018. New sources must comply with the all of the standards immediately upon the effective date of the standard, July 29, 2015, or upon initial startup, whichever is later.

Mineral wool producers are predominantly small businesses. Prior to the November 25, 2011, proposal, we found there was potentially a significant impact to a substantial number of small entities (SISNOSE), and convened a small business advocacy review (SBAR) panel. In that process, the EPA conducted meetings with mineral wool companies and the Small Business Office of Advocacy in order to determine ways in which the impact and burden to small entities could be reduced while continuing to meet the requirements of the CAA. Stakeholders requested up to 3 years to comply with the standards once they were promulgated, in order to be able to install controls, find sources of low-sulfur coke and low-chloride slag, and to conduct performance testing. In subsequent proposals, we subcategorized cupolas according to design and according to raw material use, and can certify that the final rule will not have a SISNOSE. However, we believe that it is still appropriate to retain the proposed compliance date of 3 years after promulgation because the added compliance emissions testing and any process changes sources needed to comply could become significant if the compliance time were shortened to less than the 3 years allowed for standards developed under CAA sections 112(d)(2) and (3).

G. What are the requirements for submission of performance test data to the EPA?

As stated in the proposed preamble to the November 2011 proposal, the EPA is taking a step to increase the ease and efficiency of data submittal and data accessibility. Specifically, the EPA is requiring owners and operators of affected facilities to submit electronic copies of certain required performance test reports.

As mentioned in the preamble of the November 2011 proposal, data will be collected by direct computer-to-computer electronic transfer using EPA-provided software. As discussed in the November 2011 proposal, the EPA-provided software is an electronic performance test report tool called the ERT. The ERT will generate an electronic report package which will be submitted to the Compliance and Emissions Data Reporting Interface (CEDRI) and then archived to the EPA's Central Data Exchange (CDX). A description and instructions for use of the ERT can be found at *http://www.epa.gov/ttn/chief/ert/index.html,* and CEDRI can be accessed through the CDX Web site at *http://www.epa.gov/cdx.*

The requirement to submit performance test data electronically to the EPA does not create any additional performance testing and will apply only to those performance tests conducted using test methods that are supported by the ERT. A listing of the pollutants and test methods supported by the ERT is available at the ERT Web site. The EPA believes, through this approach, industry will save time in the

performance test submittal process. Additionally, this rulemaking benefits industry by cutting back on recordkeeping costs as the performance test reports that are submitted to the EPA using CEDRI are no longer required to be kept in hard copy.

As mentioned in the preamble of the November 2011 proposal, state, local, and tribal agencies will benefit from more streamlined and accurate review of performance test data that will be available on the EPA WebFIRE database. The public will also benefit. Having these data publicly available enhances transparency and accountability. For a more thorough discussion of electronic reporting of performance tests using direct computer-to-computer electronic transfer and using EPA-provided software, see the discussion in the preamble of the November 2011 proposal.

In summary, in addition to supporting regulation development, control strategy development, and other air pollution control activities, having an electronic database populated with performance test data will save industry; state, local, and tribal agencies; and the EPA significant time, money, and effort, while improving the quality of emission inventories, air quality regulations and enhancing the public's access to this important information.

IV. What is the rationale for our final decisions and amendments for the Mineral Wool Production source category?

For each topic, this section provides a description of what we proposed and what we are finalizing for the subject, the EPA's rationale for the final decisions and amendments and a summary of key comments and responses. For all comments not discussed in this preamble, comment summaries and the EPA's responses can be found in the comment summary and response document available in the dockets for each source category.

A. Residual Risk Review for the Mineral Wool Production Source Category

1. What did we propose pursuant to CAA section 112(f) for the Mineral Wool Production source category?

Pursuant to CAA section 112(f), we conducted a residual risk assessment on the Mineral Wool Production source category and presented the results of this assessment, along with our proposed decisions regarding risk acceptability and ample margin of safety, in the November 2011 proposed rule (76 FR 72798). Based on the inhalation risk assessment, we estimated that the MIR could be up to 4-in-1 million due to actual emissions and up to 10-in-1 million due to MACT-allowable emissions, mainly due to formaldehyde stack emissions. We estimated that the incidence of cancer based on actual emissions is 0.0004 excess cancer cases per year or one case every 2,500 years, and that about 1,700 people face a cancer risk greater than 1-in-1 million due to HAP emissions from the mineral wool production source category.

That risk assessment indicated that the maximum modeled chronic non-cancer TOSHI value for the Mineral Wool Production source category could be up to 0.04 with emissions of formaldehyde dominating those impacts, indicating no significant potential for chronic non-cancer impacts.

Our screening analysis for worst-case acute impacts indicated the potential for only one pollutant, formaldehyde, to exceed an HQ value of 1 at only one facility in the Mineral Wool Production source category, with a potential maximum HQ up to 8. A refined emissions multiplier of 3 was used to estimate the peak hourly emission rates from the average rates.

Consequently, in November 2011 we proposed that risks from this source category were acceptable. In addition, we did not identify cost-effective options that would further reduce risk under our ample margin of safety analysis. Therefore, we proposed that the current standards for the Mineral Wool Production source category provide an ample margin of safety to protect public health. We also determined that HAP emissions from this source category were not expected to result in adverse environmental effects.

In the April 2013 supplemental proposal, we revised the risk assessment to reflect new emissions data submitted by the industry following the 2011 proposal, the development of subcategories for HCl and HF emissions from slag- and nonslag-processing cupolas, and subcategories for COS emissions from closed- and open-top cupolas. As noted in the 2013 supplemental proposal, the risks estimated in our revised assessment under CAA section 112(f)(2) from actual emissions increased slightly (based on the new data) compared to the risk assessment conducted for the 2011 proposal. The actual MIR for cancer increased from 4-in-1 million to 10-in-1 million. The maximum chronic non-cancer TOSHI value for the source category increased from 0.04 to 0.12 with emissions of formaldehyde dominating those impacts, indicating no significant potential for chronic noncancer impacts. The acute noncancer HQ, based on the REL for formaldehyde, increased from 8 to 20. The acute noncancer HQ, based on the AEGL–1 for formaldehyde, increased from 0.4 to 1.1. While the risk increased slightly based on the new source test data, we noted that that our findings regarding risk acceptability and ample margin of safety remained unchanged.

In our November 2014 supplemental proposal, we also revised the draft risk assessment under CAA section 112(f)(2) based on new emissions data collected by the industry and updates to the model and model libraries. The new test data that were received did not change our estimate of risk from actual emissions when compared to the risk assessment conducted for the 2013 supplemental proposal. The risk from mineral wool production continued to be driven by formaldehyde and to be well within a level we consider to be acceptable. The MIR for cancer for actual baseline emissions remained 10-in-1 million, with the acute noncancer HQ remaining at 20 for the REL and at 1 for the AEGL–1. The maximum chronic non-cancer TOSHI value based on actual emissions remained at 0.1 with emissions of formaldehyde dominating those impacts, indicating no significant potential for chronic noncancer impacts.

The MIR for cancer from mineral wool production due to allowable emissions (under the original MACT standard) was estimated to be 30-in-1 million (formaldehyde). Facilities actually emit formaldehyde at levels lower than allowed under the 1999 MACT standard, and the limits in the final rule codify formaldehyde (and the other HAP) limits at the actual emissions levels. As a result, the potential MIR for cancer due to allowable emissions after implementation of the standard is estimated to be 10-in-1 million. Therefore, the MIR based on emissions at the level of this standard (*i.e.,* what sources are permitted to emit) decreased by a factor of 3 from MACT-allowable levels. Additional information on the risk assessment can be found in the document titled, ''Residual Risk Assessment for the Mineral Wool Production and Wool Fiberglass Manufacturing in Support of the June 2015 Final Rule'' available in the docket for this action (EPA–HQ–OAR–2010–1041).

2. How did the risk review change for the Mineral Wool Production source category?

We have not changed any aspect of the risk assessment since the November 2014 supplemental proposal.

3. What key comments did we receive on the risk review for the Mineral Wool Production source category, and what are our responses?

The comments received on the proposed risk review were generally supportive of our determination of risk acceptability and ample margin of safety analysis and requirement for additional control. A summary of the comments received regarding the risk acceptability and ample margin of safety analysis and our responses can be found in the comment summary and response document available in the docket for this action (EPA–HQ–OAR–2010–1041). None of the public comments resulted in changes to the conclusions of our risk analysis.

4. What is the rationale for our final approach and final decisions for the risk review for the Mineral Wool Production source category?

As explained in the various proposals and in section IV.A.1 of this preamble, our assessment of residual risk from the Mineral Wool Production source category shows that risks from the source category are acceptable, the current standards provide an ample margin of safety to protect public health, and prevent an adverse environmental effect. We are, therefore, not requiring additional controls and are thus readopting the existing standards under section 112(f)(2).

B. Technology Review for the Mineral Wool Production Source Category

1. What did we propose pursuant to CAA section 112(d)(6) for the Mineral Wool Production source category?

Pursuant to CAA section 112(d)(6), we conducted a technology review that focused on identifying and evaluating developments in practices, processes, and control technologies for sources of HAP in the Mineral Wool Production source category. As discussed in the 2011 proposal (76 FR 72798), existing cupolas are controlled using baghouses, and bonded lines are controlled using thermal oxidizers. We did not identify any relevant cost-effective developments in technologies, practices, or processes since promulgation of the 1999 NESHAP that would further reduce HAP emissions. Therefore, we did not propose any changes to the 1999 NESHAP as a result of our technology review under CAA section 112(d)(6) for the Mineral Wool Production source category. Additional information regarding the technology review for the Mineral Wool Production source category can be found in the document titled, ''Section 112(d)(6) Technology Review for the Final Mineral Wool NESHAP'' available in the docket for this action (EPA–HQ–OAR–2010–1041).

2. How did the technology review change for the Mineral Wool Production source category?

We have not changed any aspect of the technology review for this source category since the November 2014 supplemental proposal.

3. What key comments did we receive on the technology review, and what are our responses?

The comments received on our technology review and findings were generally supportive. A summary of the comments received regarding the technology review and our responses can be found in the comment summary and response document available in the docket for this action (EPA–HQ–OAR–2010–1041). We note that none of the public comments and information received in response to the November 2014 supplemental proposal provided data relevant to the technology review, and we made no changes to the technology review based on the comments.

4. What is the rationale for our final approach for the technology review?

As explained in the various proposals and in section IV.B.1 of this preamble, we did not identify any cost-effective developments in practices, processes and controls used to reduce emissions from the mineral wool production industry. Therefore, consistent with our proposals, we are not making any changes to the standards as a result of the CAA section 112(d)(6) review.

C. MACT Standards for Pollutants Previously Regulated Under a Surrogate and Previously Unregulated Pollutants

1. What did we propose pursuant to CAA section 112(d)(2) and (3) for pollutants previously regulated under a surrogate and for previously unregulated pollutants?

In our November 2011 proposal, we proposed revisions to the 1999 NESHAP under CAA sections 112(d)(2) and (3). We proposed to remove unreasonable surrogates, to set limits for each HAP emitted that was previously regulated under a surrogate, and to set limits for previously unregulated HAP. These revisions included removing CO as a surrogate for COS and removing formaldehyde as a surrogate for methanol and phenol; proposing emission limits for COS from cupolas, formaldehyde, methanol, and phenol from combined collection and curing operations; and proposing emissions limits for previously unregulated pollutants (*i.e.,* HCl and HF emitted from cupolas).

In our April 2013 supplemental proposal, we made changes to the previously proposed emission limits for phenol, formaldehyde, and methanol based on new emissions test data. We further proposed subcategories for COS emissions from cupolas based on cupola design. Finally, we proposed subcategories for HF and HCl from cupolas based on whether they processed slag.

In the November 2014 supplemental proposal, we revised emission limits under CAA sections 112(d)(2) and (3) for cupolas and bonded lines as a result of new information regarding detection limits (and consistent with our procedures for ensuring that emission limits are not set below the minimum level that can be accurately measured), new source test data and our approach for calculating MACT floors based on limited data sets.

2. How did we change our proposed emission limits for pollutants that were previously regulated under a surrogate or that were previously unregulated?

Our final emission limits for pollutants previously regulated under a surrogate, and previously unregulated pollutants did not change since our most recent proposal in November 2014.

3. What key comments did we receive on pollutants previously regulated under a surrogate and on previously unregulated pollutants?

We received comments both supporting and objecting to our use of the UPL in calculating MACT floors and the way we treat limited datasets for these pollutants. The commenters did not provide new information or a basis for the EPA to change the proposed emission limits, and did not show that facilities cannot comply with the MACT standards. The comments related to the proposed emission limits for pollutants that were previously regulated under a surrogate and that were previously unregulated are in the comment summary and the response document available in the docket for this action (EPA–HQ–OAR–2010–1041).

4. What is the rationale for our final approach for pollutants previously regulated under a surrogate and for previously unregulated pollutants?

As we discussed in the preamble for the November 2014 supplemental proposal and provided in the comment summary and response document available in the docket, we are finalizing, as proposed, the emission limits for pollutants previously regulated under a surrogate and for previously unregulated pollutants. Three surrogate relationships were in place in the Mineral Wool MACT standard, and we reviewed each of these to determine whether they were reasonable surrogates. We found that the relationship of formaldehyde, methanol and phenol emissions tend to be specific to the binder formulation of an individual product. We found that the surrogacy of CO for COS was not reasonable because the two pollutants are not invariably present and the relationships tend to be specific to the site. We retained the surrogacy of PM for non-mercury HAP metals because control of PM achieves the same level of control for non-mercury HAP metals, regardless of the concentration of those metals in the PM or whether the concentration of those metals varies in the PM.

We requested and obtained HAP-specific emissions testing for all HAP emitted by all processes in the mineral wool industry. Emissions of PM, HF, HCl, and COS were measured from at least one cupola in operation at each facility, and emissions of formaldehyde, methanol, and phenol were measured at the three bonded lines that were in operation in 2010. As a result of the information we gathered, we are finalizing limits for all measured HAP and for the collection process, which emits HAP but was not regulated under the 1999 MACT standard. We are not changing the PM emission limit as a result of the information we gathered.

HF and HCl were not previously regulated, and the emissions of these pollutants depend upon whether slag is used in the cupola. Slag is a raw material in the mineral wool industry that is a waste product of electric arc furnaces at steel plants. Depending on the end-use of the mineral wool product, slag is a needed ingredient in some mineral wool formulations and an undesirable ingredient in others. The use of slag as a raw material in the mineral wool cupola causes ''shot'' (small pellets of iron) to form in the mineral wool product. The quality of some mineral wool products (such as that used for hydroponic gardening) is affected by the presence of shot, and, as a result, facilities making such products do not use slag in their raw materials. Consequently, their emissions of HF and HCl are lower. Two subcategories of cupolas reflect whether slag is processed in the cupola.

Emissions of COS are affected by whether a cupola is designed as a closed cupola (which results in lower COS emissions) or an open cupola (which results in higher COS emissions). Two subcategories of cupolas reflect this design criteria.

Data collected from the mineral wool industry showed three bonded lines were in operation at the time of data collection in 2010. The bonded lines include both collection (the process in which the fibers are formed and sprayed with a phenol/formaldehyde binding agent); and curing, the thermosetting process that cures the binder. Collection was not regulated under the 1999 MACT standard, the emissions from both the curing and collection processes are vented to the same line, and the emissions from these processes can be measured together. These combined collection and curing operations emit phenol, formaldehyde, and methanol as a result of the phenolic resin used to produce the bonded product. We are finalizing limits for combined collection and curing operations according to three different designs: Vertical, horizontal, and drum. The final emission limits for the mineral wool industry are shown above in Table 2 of section III of this preamble.

D. Startup, Shutdown, and Malfunction Provisions for the Mineral Wool Production Source Category

1. What SSM provisions did we propose for the Mineral Wool Production source category?

In its 2008 decision in *Sierra Club* v. *EPA,* 551 F.3d 1019 (D.C. Cir. 2008), the United States Court of Appeals for the District of Columbia Circuit vacated portions of two provisions in the EPA's CAA section 112 regulations governing the emissions of HAP during periods of SSM. Specifically, the Court vacated the SSM exemption contained in 40 CFR 63.6(f)(1) and 40 CFR 63.6(h)(1), holding that under section 302(k) of the CAA, emissions standards or limitations must be continuous in nature and that the SSM exemption violates the CAA's requirement that some CAA section 112 standards apply continuously.

We have therefore eliminated the SSM exemption in this rule. Consistent with *Sierra Club* v. *EPA,* the EPA has established work practice standards for those periods. We also revised Table 1 of the General Provisions applicability table in several respects as is explained in more detail below. For example, we have eliminated the incorporation of the General Provisions' requirement that the source develop an SSM plan. We also eliminated and revised certain recordkeeping and reporting provisions that are related to the SSM exemption as described in detail in the proposed rule and summarized again in section IV.D of this preamble, in the rule at 40 CFR 63.1389, and in the General Provisions Table 1 to subpart DDD of part 63 (40 CFR part 63, subpart A).

2. How did the SSM provisions change for the Mineral Wool Production source category?

We have not changed any aspect of the proposed SSM provisions since the November 2014 supplemental proposal.

3. What key comments did we receive on the SSM provisions, and what are our responses?

We received comments regarding the proposed revisions to remove the SSM exemptions for the Mineral Wool Production source category. Comments from industry representatives expressed support for the proposed work practice standards. Another commenter contended that we should have established numerical emission limits. As we noted in the November 2014 supplemental proposal (79 FR 68016), the EPA may promulgate a work practice rather than an emissions standard when measurement of the emissions is technically and economically practicable. In the case of this source category, emissions are not at steady state during startup and shutdown (a necessary factor for accurate emissions testing), and the varying stack conditions, gas compositions, and flow rates make accurate emission measurements impracticable. In addition, startup period for mineral wool cupolas, typically 2 hours, is too short a time to conduct source testing.

The commenters did not provide new information or a basis for the EPA to change the proposed provisions and did not show that facilities cannot comply with the work practice standards during periods of startup and shutdown. The comments related to the proposed revisions to remove the SSM exemptions and our specific responses to those comments can be found in the comment summary and response document available in the docket for this action (EPA–HQ–OAR–2010–1041).

4. What is the rationale for our final decisions for the SSM provisions?

For the reasons provided above, in the preamble for the proposed rule and provided in the comment summary and response document available in the docket, we have removed the SSM exemption from the Mineral Wool Production NESHAP; eliminated or revised certain recordkeeping and reporting requirements related to the eliminated SSM exemption; and removed or modified inappropriate, unnecessary, or redundant language in the absence of the SSM exemption. For periods of startup and shutdown, we are finalizing the work practices of the best performers, as proposed in the November 2014 supplemental proposal. Owners/operators may choose to comply using two potential options during startup and shutdown. One, cupola emissions may be controlled using the control devices that meet the limits of the standard during normal operation, or two, the cupola may be operated during startup and shutdown with 3 percent or more excess oxygen. Additionally, sources must maintain records of the startup and shutdown option they practice, and must monitor and keep records of the parameters of the operating control device(s) or the oxygen level of the cupola during these periods. The controls of startup and shutdown emissions practiced by the best performers in the source category are sufficient so that no additional standards are needed to address emissions during startup or shutdown periods.

E. Other Changes Made to the Mineral Wool Production NESHAP

1. What other changes did we propose for the Mineral Wool Production NESHAP?

a. Electronic Reporting

As stated in the preamble to the November 2011 proposed rule, the EPA proposed electronic reporting requirements. See section III.G of this preamble for more information on what we proposed (and what we are finalizing) for electronic reporting.

b. Test Methods and Testing Frequency

We are finalizing, as proposed, the requirement for new sources to conduct performance tests to demonstrate compliance with the emission limits for cupolas and combined collection/curing operations within 180 days of the applicable compliance date and every 5 years thereafter. We are finalizing, as proposed, the requirement for existing sources to conduct performance tests to demonstrate compliance with the emission limits for cupolas and combined collection/curing operations by July 30, 2018 and every 5 years thereafter. We are finalizing, as proposed, the addition of EPA Methods 26A and 320 in appendix A of part 63 for measuring the concentrations of HCl and HF; and EPA Method 318 for measuring the concentrations of COS, formaldehyde, methanol, and phenol. In addition, we are finalizing editorial changes to the performance testing and compliance procedures to replace references in the 1999 NESHAP to the surrogates CO and formaldehyde with references to specific HAP (formaldehyde, methanol, and phenol for the surrogate formaldehyde, and COS for the surrogate CO).

2. How did the provisions regarding these other changes to the Mineral Wool Production NESHAP change since proposal?

We have not made any changes to the proposed provisions for electronic reporting; testing methods and frequency; definitions or revisions to the General Provision applicability table.

3. What key comments did we receive on the other changes to the Mineral Wool Production NESHAP, and what are our responses?

We received no key comments regarding electronic reporting, testing methods and frequency, definitions, and revisions to the General Provisions applicability table. A summary of the comments we did receive and our responses can be found in the comment summary and response document available in the docket for this action (EPA–HQ–OAR–2010–1041).

4. What is the rationale for our final decisions regarding these other changes to the Mineral Wool Production NESHAP?

There was no information in the public comments that affected the rationale for these provisions that was presented in the various proposals. Therefore, we are finalizing the proposed provisions regarding electronic reporting; testing methods and frequency; definitions and revisions to the General Provision applicability table.

V. What is included in the Final Wool Fiberglass Manufacturing Rule for major sources?

This action finalizes the EPA's determinations pursuant to the RTR provisions of CAA section 112 for the Wool Fiberglass Manufacturing source category and amends the Wool Fiberglass Manufacturing NESHAP based on those determinations. This action also finalizes other changes to the NESHAP (*e.g.,* compliance dates) as discussed in section V.F of this preamble. In addition, we are finalizing the emission limits for major sources in the Wool Fiberglass Manufacturing source category as shown in Table 3 of this preamble.

TABLE 3—EMISSION LIMITS FOR WOOL FIBERGLASS MANUFACTURING MAJOR SOURCES

[lb pollutant/ton glass pulled]

Process	HAP	Emission limit
Existing Flame Attenuation Lines	Formaldehyde	5.6
	Phenol	1.4
	Methanol	0.50
New Flame Attenuation Lines	Formaldehyde	2.6
	Phenol	0.44
	Methanol	0.35
Existing and New Furnaces	PM	0.33
Existing and New Gas-Fired Furnaces	Chromium compounds	0.00025

A. What are the final rule amendments based on the risk review for the Wool Fiberglass Manufacturing (major sources) source category?

Pursuant to CAA section 112(f)(2), we are finalizing emission limits for chromium emissions from gas-fired glass-melting furnaces of 0.00025 pounds of total chromium per ton of glass pulled to provide an ample margin of safety to protect public health. We are also requiring that facilities establish the materials mix, including the percentages of raw materials and cullet, used in gas-fired glass-melting furnaces during the performance test conducted to demonstrate compliance with the chromium emission limit. We are requiring that the percentage of cullet in the material mix be continually maintained at or below the level established during the most recent performance test showing compliance with the standard.

We note that although we have adopted these same standards, under both CAA sections 112(f)(2) and 112(d)(6), these standards rest on independent statutory authorities and independent rationales. Consequently, these standards remain independent and legally severable.

B. What are the final rule amendments based on the technology review for the Wool Fiberglass Manufacturing (major sources) source category?

We determined that there are developments in practices, processes, and control technologies that warrant revisions to the MACT standards for this source category. Therefore, to satisfy the requirements of CAA section 112(d)(6), we are revising the existing MACT standards to include an emission limit for glass-melting furnaces of 0.33 pounds of PM per ton of glass pulled as we proposed in April 2013. In this action, we are also revising the proposed chromium emission limit for gas-fired glass-melting furnaces from 0.00006 to 0.00025 pounds of total chromium per ton of glass pulled, based on our re-assessment of emissions data for newly-rebuilt gas-fired glass-melting furnaces.

We note that although we have adopted the total chromium compounds standards under both CAA sections 112(f)(2) and 112(d)(6), these standards rest on independent statutory authorities and independent rationales. Consequently, these standards remain independent and legally severable.

C. What are the final rule amendments pursuant to CAA sections 112(d)(2) and (3) for the Wool Fiberglass Manufacturing (major sources) source category?

This action finalizes the HAP-specific limits proposed in November 2014 that we developed under CAA sections 112(d)(2) and (3) as a result of removing the use of formaldehyde as a surrogate for methanol and phenol on FA lines. We are also eliminating the subcategories for FA lines because the technical bases for distinguishing the subcategories when the original rule was developed no longer exist and we are promulgating emission limits at the MACT floor level for formaldehyde, methanol, and phenol.

As explained in section V.H of this preamble, we are not, at this time, finalizing limits under CAA sections 112(d)(2) and (3) for RS lines.

D. What are the final rule amendments pursuant to CAA section 112(h) for the Wool Fiberglass Manufacturing (major sources) source category?

This action finalizes the work practice standards for HCl and HF emissions from glass-melting furnaces at wool fiberglass manufacturing facilities developed under CAA section 112(h) as proposed in November 2014 (79 FR 68023). These amendments to the Wool Fiberglass Manufacturing NESHAP are consistent with the amendments discussed in the November 2014 supplemental proposal.

E. What are the final rule amendments for the Wool Fiberglass Manufacturing (major sources) source category addressing emissions during periods of startup and shutdown?

We are finalizing, as proposed, changes to the Wool Fiberglass Manufacturing NESHAP to eliminate the SSM exemption. Consistent with *Sierra Club* v. *EPA,* 551 F. 3d 1019 (D.C. Cir. 2008), the EPA has established work practice standards in this rule that apply during startup and shutdown periods. We are revising Table 1 to subpart NNN of part 63 (General Provisions applicability table) to change several references related to requirements that apply during periods of SSM. We also eliminated or revised certain recordkeeping and reporting requirements related to the eliminated SSM exemption. We are specifying that items of equipment that are required or utilized for compliance with 40 CFR part 63, subpart NNN must be operated during startup and shutdown. We are finalizing the specifications designating when startup and shutdown begins and recordkeeping requirements for demonstrating compliance during startup and shutdown periods.

We determined that facilities in this source category can meet the applicable work practice standards by following the startup and shutdown procedures that we identified as representative of the procedures employed by the best performing units during periods of startup and shutdown.

Gas-fired furnaces use an electrostatic precipitator (ESP) to control emissions during normal operations. The best performing gas-fired furnaces route emissions during startup and shutdown to the control device. We note that operators of gas-fired furnaces that formerly turned off the controls during startup or shutdown would no longer be allowed to do so.

Electric furnaces use baghouses to control emissions during normal operations. Until the crust is formed on top of the molten glass (and startup ends) the temperature of the gases that would be routed to the baghouse would cause the bags to catch fire. The best performing electric furnaces use only cullet (which emits PM at extremely low levels when melted) and clean fuels (natural gas, which does not emit PM when combusted) during startup and shutdown in order to minimize PM emissions during these periods.

F. What other changes have been made to the Wool Fiberglass Manufacturing NESHAP (major sources)?

We are finalizing, as proposed, the addition of EPA Method 29 for measuring the concentrations of chromium. We are finalizing the requirement, as proposed, to maintain the filter temperature at 248 ± 25 °F when using Method 5 to measure PM emissions from furnaces. We are also amending the NESHAP to allow owners or operators to measure PM emissions from furnaces using either EPA Method 5 or Method 29.

We are finalizing, as proposed, the addition of EPA Method 318 as an alternative test method for measuring the concentration of phenol and methanol and EPA Method 308 as an alternative test method for measuring the concentration of methanol. We are finalizing, as proposed in the 2013 supplemental proposal (78 FR 22402), the replacement of a minimum sampling time of 1 hour with the specification to collect 10 spectra when using EPA Method 318. When using Method 316 to measure formaldehyde, we are finalizing, as proposed, the requirement to collect a minimum sampling volume of 2 dry standard cubic meters (dscm); however, we are not finalizing the

proposed minimum sampling run time of 2 hours. We are also finalizing editorial changes to the performance testing and compliance procedures to specify formaldehyde, methanol, phenol (rather than the surrogate, formaldehyde), chromium, HCl, and HF. Additionally, for existing sources we are finalizing, as proposed, the requirement to conduct performance tests to demonstrate compliance with the chromium emission limit for furnaces no later than July 31, 2017 and annually thereafter; to demonstrate compliance with the PM emission limit for furnaces no later than July 31, 2017 and every 5 years thereafter; and to demonstrate compliance with the phenol, formaldehyde and methanol emission limits for FA lines no later than July 31, 2017 and every 5 years thereafter.

We are finalizing the requirement for new sources to comply with the emission limits on July 29, 2015, or upon the initial startup, whichever is later, and to conduct performance tests to demonstrate compliance with the emission limits for furnaces and FA lines no later than 180 days after the applicable compliance date. Following the initial test to demonstrate compliance with the chromium emission limit, owners or operators must test for chromium emissions annually. For all other pollutants, owners or operators must conduct performance tests every 5 years after the initial test to demonstrate compliance with the emissions limits. Table 4 of this preamble summarizes the compliance test schedule for major and area sources.

TABLE 4—WOOL FIBERGLASS MANUFACTURING COMPLIANCE TEST SCHEDULE FOR MAJOR SOURCES

Process	Pollutant(s)	Initial test dates		Subsequent testing frequency
		Existing sources	New sources	
FA Line	Phenol Formaldehyde Methanol.	2 years after publication of the final rule amendments in the **Federal Register**.	Within 180 days after publication in the **Federal Register**, or 180 days after initial startup, whichever is later.	Every 5 years thereafter.
All Furnace Types	PM			
Gas-fired Furnace	Chromium compounds			Annually thereafter.

We are finalizing, as proposed, the clarification that 40 CFR part 63, subpart NNN applies to FA lines, regardless of what products are manufactured on the FA line.

In this action, we are finalizing, as proposed, definitions for ''gas-fired glass-melting furnace'' and ''incinerator.'' We are also revising the definition of ''new source'' and the trigger date for the requirement to submit notifications of intent to construct/reconstruct an affected source to reflect the date of the initial RTR proposal (November 25, 2011).

We are finalizing, as proposed, the monitoring requirement for furnaces and FA lines to provide flexibility in establishing an appropriate monitoring parameter.

We are also making minor corrections to the citations in Table 1 (part 63 General Provision applicability table) to reflect the final amendments in this action, and the revisions that have been made to the General Provisions since 1999.

G. What are the effective and compliance dates of the standards?

The revisions to the MACT standards for the Wool Fiberglass Manufacturing source category being promulgated in this action are effective on July 29, 2015. The compliance date for existing sources is July 31, 2017. New sources must comply with the all of the standards immediately upon the effective date of the standard, July 29, 2015, or upon initial startup, whichever is later.

The effective and compliance dates finalized in this action are consistent with the dates we presented in the 2014 supplemental proposal.

H. What is the status of the Wool Fiberglass Manufacturing MACT standard amendments under CAA sections 112(d)(2) and (3) for RS Manufacturing Lines?

We are not finalizing the formaldehyde, methanol, and phenol standards under CAA sections 112(d)(2) and (3) for RS manufacturing lines in this final action. On November 25, 2011 (76 FR 72791), we proposed to discontinue use of formaldehyde as a surrogate for phenol and methanol and we proposed formaldehyde, methanol and phenol emission limits for RS and FA lines. On April 15, 2013 (72 FR 22387), we proposed revised emission limits for RS lines based on clarification of test data received from the industry during the comment period. We explained that since the 1999 promulgation of the MACT standards, many companies had discontinued the use of formaldehyde. However, they did not distinguish between the bonded lines that still used formaldehyde and those that did not. We had, therefore, included some data for HAP-free lines along with the data for lines still using formaldehyde when we developed the emission limits proposed in the November 2011 proposal (78 FR 22387). In the November 2014 supplemental proposal (79 FR 68203), we also proposed revised formaldehyde, methanol, and phenol emission limits for new RS lines as a result of our updated approach for evaluating limited datasets (79 FR 68023–24).

The EPA is not finalizing these proposed CAA sections 112(d)(2) and (3) standards in this action because we believe the data that we relied on in proposing these standards are not sufficiently related to current operations or emissions from RS bonded lines. The emissions and process data available to EPA were collected beginning in 2003. As previously explained, since that time, sources have phased out the use of a phenol/formaldehyde binder from approximately 95 percent of the lines on which it was previously used. We have also found out that sources often can no longer either identify the products that were tested or on the lines on which those products had been manufactured. Moreover, when sources can identify the products that were tested, those products are now produced using a HAP-free binder, and the product lines that now operate using a phenol/formaldehyde binder do not bear similarity in size, end use, production rate or loss on ignition (LOI) percent to the tested product line. As a result, the data no longer represent current industry conditions, most notably the significant reduction in the use of phenol/formaldehyde binders in wool fiberglass manufacturing. Consequently, we have issued a CAA section 114 ICR to wool fiberglass facilities to obtain updated formaldehyde, methanol, and

phenol emissions and process data for RS manufacturing lines.

I. What are the requirements for submission of performance test data to the EPA for the Wool Fiberglass Manufacturing NESHAP?

The requirements for electronic reporting of performance test data for wool fiberglass manufacturing major sources are the same as the requirements for the mineral wool production source category. See section III.G of this preamble for a description of the requirements.

VI. What is the rationale for our final decisions and amendments for the Wool Fiberglass Manufacturing source category (major sources)?

For each issue, this section provides a description of what we proposed and what we are finalizing for the issue, the EPA's rationale for the final decisions and amendments and a summary of key comments and responses. For all comments not discussed in this preamble, comment summaries and the EPA's responses can be found in the comment summary and response document available in Docket ID No. EPA–HQ–OAR–2010–1042.

A. Residual Risk Review for the Wool Fiberglass Manufacturing Source Category (Major Sources)

1. What did we propose pursuant to CAA section 112(f) for the Wool Fiberglass Manufacturing source category (major sources)?

Pursuant to CAA section 112(f)(2), we conducted a residual risk assessment and presented the results of this assessment, along with our proposed decisions regarding risk acceptability and ample margin of safety, in the November 2011 proposed rule (76 FR 72801). Based on the inhalation risk assessment, we estimated that the MIR could be as high as 40-in-1 million due to actual emissions and up to 60-in-1 million due to MACT-allowable emissions, mainly due to formaldehyde and hexavalent chromium emissions. We stated that the risk levels due to actual and MACT-allowable emissions were acceptable; however, we proposed an emission limit for total chromium (0.00006 pounds per ton of glass pulled) in order to provide an ample margin of safety to protect public health.

In the April 2013 supplemental proposal, we revised the draft risk assessment to reflect new emissions data for hexavalent chromium that we collected from all glass-melting furnaces available for testing in response to our October 28, 2011, CAA section 114 ICR. These revisions reduced our estimate of risk from actual emissions when compared to the risk assessment conducted for the November 2011 proposal. The risk from wool fiberglass manufacturing was driven by formaldehyde and hexavalent chromium. The MIR for actual baseline emissions decreased from 40-in-1-million to 20-in-1 million (formaldehyde), with the acute noncancer HQ remaining at 30 for the REL and at 2 for the AEGL–1 (formaldehyde). The maximum chronic non-cancer TOSHI value based on actual emissions remained at 0.2 with emissions of formaldehyde dominating those impacts, indicating no significant potential for chronic noncancer impacts.

In the November 2014 supplemental proposal, we presented the revised draft risk assessment to reflect updates to the model and model libraries and also retained the proposed emission limits for chromium compounds for existing and new gas-fired glass-melting furnaces. These revisions did not significantly change our estimate of risk from actual emissions when compared to the risk assessment conducted for the April 2013 supplemental proposal (79 FR 68020). The risk from wool fiberglass manufacturing was driven by formaldehyde and hexavalent chromium and continued to be well within a level we consider to be acceptable. The MIR for actual baseline emissions remained 20-in-1 million (formaldehyde), with the acute noncancer HQ remaining at 30 for the REL and decreased from 2 to 1 for the AEGL–1 (formaldehyde). The maximum chronic non-cancer TOSHI value based on actual emissions decreased from 0.2 to 0.1 with emissions of formaldehyde dominating those impacts, indicating no significant potential for chronic noncancer impacts. Overall, we considered the risk to be acceptable.

Based on information provided by the industry, 95 percent of the RS lines no longer use phenol-formaldehyde binders and are no longer major sources. However, this phase out is not reflected in the facility file data on which the risk assessment was based. Throughout the wool fiberglass manufacturing industry, these binders continued to be phased out as this rule was developed. The risk analysis we conducted for the Wool Fiberglass Manufacturing source category overstates the risk because of the continuing phase out. Therefore, we believe the risks from wool fiberglass manufacturing from actual emissions are lower than the risks we estimated.

2. How did the risk review change for the Wool Fiberglass Manufacturing source category (major sources)?

The baseline risk assessment has not changed since the November 2014 supplemental proposal. The MIR based on actual emissions remains at 20-in-1 million with the acute noncancer HQ remaining at 30 for the REL and 1 for the AEGL–1 (formaldehyde). The maximum chronic non-cancer TOSHI value based on actual emissions is 0.1 with emissions of formaldehyde dominating those impacts, indicating no significant potential for chronic noncancer impacts.

The MIR based on MACT-allowable emissions could be as high as 60-in-1 million, which we believe to be a conservative estimate based on four factors: (1) At one time, there were at least 60 RS lines in the industry, (2) industry has stated that 95 percent of RS lines no longer use formaldehyde as a binder, (3) Industry has stated that there are only 5 RS lines left that use a phenol/formaldehyde binder, and (4) Title V permit records indicate that 20 out of a total of 30 facilities have completely phased out their use of formaldehyde as a raw material throughout the facility.

We conducted a new assessment of the risks remaining after implementation of these final rule revisions. The revised assessment of post-control risks reflects the adjustment of the chromium compounds emission limit and the EPA's deferral of setting standards for formaldehyde, methanol and phenol from RS lines. Specifically, the risk assessment takes into account the change in the chromium compounds emission limit for gas-fired glass-melting furnaces from 0.00006 pounds of chromium per ton of glass pulled to 0.00025 pounds of chromium per ton of glass pulled, the emission limits for formaldehyde at new and existing FA lines (2.6 pounds per ton and 5.6 pounds per ton, respectively) and the current emission estimates for formaldehyde, methanol and phenol from RS lines. The MIR for cancer after implementation of the RTR could be up to 60-in-1 million (equal to the current risk estimates for allowables) but, as discussed above, this is a conservative, upper-end estimate. Consequently, we believe risks are significantly lower than estimated and the standards provide an ample margin of safety.

Emissions of chromium compounds are a secondary risk driver to formaldehyde, and the risk is 7-in-1 million based on current actual emissions. It is important to note that,

even though risks are acceptable, the health risks from hexavalent chromium emissions from wool fiberglass manufacturing facilities could be much higher in the future without a chromium compounds emission limit. To capture this scenario, we conducted an auxiliary risk analysis in which we assumed all wool fiberglass furnaces emitted hexavalent chromium at the same rate as the reasonable highest-emitting furnace. The results of the auxiliary risk analysis showed that, in the absence of a chromium emission limit and with furnaces emitting at the assumed emission rate, risk at four facilities is expected to increase over time to greater than 100-in-1 million, due to increasing chromium emissions occurring with furnace age. Therefore, we determined that the chromium emission limit in the final rule, which will limit the MIR cancer risk from hexavalent chromium emissions from this category to no higher than 3-in-1 million, is necessary to provide an ample margin of safety.

Regarding chromium compounds, as discussed above, we received comments on the proposed chromium compounds limit that indicated that a newly-rebuilt furnace, which we believe is the likely compliance technology, may not be able to demonstrate compliance with the proposed emission limit. The comment was based on one specific example from the 2012 test data that showed a 1-year old gas-fired glass-melting furnace emitting approximately 0.0002 pounds chromium per ton of glass. We re-evaluated the proposed chromium compounds limit in light of information on this technology, and based on the data available, we have revised the chromium compounds limit and are now finalizing an emissions limit of 0.00025 pounds per ton of glass pulled for gas-fired glass-melting furnaces. We conducted an assessment of the risk attributable to all HAP for each facility and determined that increasing the chromium compound emission limit from 0.00006 to 0.00025 pounds total chromium per ton of glass pulled has a minimal effect on the post-RTR risks because these risks are largely driven by formaldehyde emissions. Specifically, at the chromium compounds emission limit of 0.00025 pounds total chromium per ton of glass pulled, the MIR due to only chromium emissions for the source category is 3-in-1 million.

The results of the risk assessment are presented in more detail in the final residual risk memorandum titled ''Residual Risk Assessment for the Mineral Wool Production and Wool Fiberglass Manufacturing Source Categories in Support of the June 2015 Final Rule,'' which can be found in Docket ID No. EPA–HQ–OAR–2010–1042.

3. What key comments did we receive on the risk review for Wool Fiberglass Manufacturing (major sources), and what are our responses?

We received comments in support of and against our proposed determination of risk acceptability, ample margin of safety analysis, and requirement for additional control. A summary of these comments and our responses can be found in the comment summary and response document available in the docket for this action (EPA–HQ–OAR–2010–1042). The following is a summary of the key comments received regarding the risk assessment for the Wool Fiberglass Manufacturing source category and our responses to these comments. Additional comments on the risk assessment and our responses can be found in the comment summary and response document available in the docket for this action (EPA–HQ–OAR–2010–1042).

Comment: One commenter stated that the EPA should find the acute health risk from wool fiberglass manufacturing facilities to be unacceptable. The commenter noted that the EPA's assessment in the November 2011 proposal found an acute risk of 30 for the Wool Fiberglass Manufacturing source category and argued that the EPA should find the health risk to be unacceptable under CAA section 112(f)(2) based on this acute risk.

The commenter stated that the EPA has a presumption that an HQ below 1 is safe, that the EPA has stated that a HQ less than or equal to 1 indicates that adverse noncancer effects are not likely to occur, and that exposure below that threshold level is safe. The commenter added that the EPA did not adequately explain why the formaldehyde risks were found to be acceptable although they are 30 times higher than the threshold.

The commenter asserted that, by applying the outdated integrated risk information system (IRIS) dose-response values in determining formaldehyde inhalation exposure risk, the EPA is not basing the proposed rule on the best available science. The commenter urged the EPA to revise the proposed rule to accurately convey the best available science and a weight-of-evidence approach in compliance with the Information Quality Act (IQA) Guidelines and Executive Order 13563. In particular, the commenter argued that the EPA should reject the 1991 IRIS dose-response value and incorporate the Chemical Industry Institute of Toxicology (CIIT, 1999) cancer dose-response value for formaldehyde.

Response: As discussed in sections V.A and VI.A of this preamble, we revised the risk assessment for wool fiberglass facilities for the November 2014 supplemental proposal. For wool fiberglass facilities, the MIR for actual baseline emissions remained 20-in-1 million (formaldehyde), with the acute noncancer HQ remaining at 30 for the REL and decreased from 2 to 1 for the AEGL–1 (formaldehyde). The maximum chronic non-cancer TOSHI value based on actual emissions decreased from 0.2 to 0.1 with emissions of formaldehyde dominating those impacts, indicating no significant potential for chronic noncancer impacts. We found that the risks were acceptable.

We note that the acute risks are based on an REL value, which is defined as ''the concentration level at or below which no adverse health effects are anticipated for specified exposure duration.'' Moreover, we note that the acute risk assessment is a worst-case assessment. For example, the acute assessment assumes worst-case meteorology, peak emissions and an individual being located at the site of maximum concentration for an hour. Taken together, the EPA does not believe that in all RTR reviews, HQ values must be less than or equal to 1. Rather, the EPA finds that acute risks must be judged on a case-by-case basis in the context of all the available health evidence and risk analyses.

To better characterize the potential health risks associated with estimated acute exposures to HAP, and in response to a key recommendation from the Science Advisory Board's (SAB) peer review of the EPA's RTR risk assessment methodologies,[6] we generally examine a wider range of available acute health metrics (*e.g.,* RELs, AEGLs) than we do for our chronic risk assessments. This is in response to the SAB's acknowledgement that there are generally more data gaps and inconsistencies in acute reference values than there are in chronic reference values. In some cases, when Reference Value Arrays[7] for HAP have been developed, we consider additional acute values (*i.e.,* occupational and

[6] The SAB peer review of RTR Risk Assessment Methodologies is available at: *http://yosemite.epa.gov/sab/sabproduct.nsf/4AB3966E263D943A8525771F00668381/$File/EPA-SAB-10-007-unsigned.pdf.*

[7] U.S. EPA. (2009) Chapter 2.9 Chemical Specific Reference Values for Formaldehyde in Graphical Arrays of Chemical-Specific Health Effect Reference Values for Inhalation Exposures (Final Report). U.S. EPA, Washington, DC, EPA/600/R–09/061, and available on-line at: *http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=211003.*

international values) to provide a more complete risk characterization. The EPA uses AEGL and Emergency Response Planning Guidelines (ERPG) values (when available) in conjunction with REL values (again, when available) to characterize potential acute health risks. However, it is often the case that HAP do not have all of these acute reference benchmark values. In these instances, the EPA describes the potential acute health risk in relation to the acute health values that are available. Importantly, when interpreting the results, we are careful to identify the benchmark being used and the health implications associated with any specific benchmark being exceeded. By definition, the acute California reference exposure level (CA–REL) represents a health-protective level of exposure, with no risk anticipated below those levels, even for repeated exposures; however, the health risk from higher-level exposures is unknown. Therefore, when a CA–REL is exceeded and an AEGL–1 or ERPG–1 level is available (*i.e.,* levels at which mild effects are anticipated in the general public for a single exposure), we have used them as a second comparative measure. Historically, comparisons of the estimated maximum off-site 1-hour exposure levels have not been typically made to occupational levels for the purpose of characterizing public health risks in RTR assessments. This is because occupational ceiling values are not generally considered protective for the general public since they are designed to protect the worker population (presumed healthy adults) for short duration (*i.e.,* less than 15 minute) increases in exposure. As a result, for most chemicals, the 15-minute occupational ceiling values are set at levels higher than a 1-hour AEGL–1, making comparisons to them irrelevant unless the AEGL–1 or ERPG–1 levels are exceeded. Such is not the case when comparing the available acute inhalation health effect reference values for formaldehyde.[8]

Thus, while this means we cannot rule out the potential for acute concerns due to formaldehyde emissions from these facilities, we note that the worst-case acute HQs are based on conservative assumptions (*e.g.,* worst-case meteorology coinciding with peak short-term 1-hour emissions from each emission point, with a person located at the point of maximum concentration during that hour). We also note that, as stated earlier, the emissions estimates for formaldehyde are expected to be an overestimate of emissions, further supporting our determination that acute risks are not a significant concern for the wool fiberglass source category.

Comment: One commenter stated that AEGLs or ERPGs were developed for accidental release emergency planning and are not appropriate for assessing daily human exposure to toxic air pollutants because they do not include adequate safety and uncertainty factors. The commenter stated that they are not meant to evaluate the acute impacts from routine emissions that occur over the life of a facility and cannot be relied upon to protect the public from the adverse effects of exposure to toxic air pollutants. The commenter concluded that their use is not appropriate in risk assessments and urged the EPA to increase its reliance on the California RELs to address acute exposures in the residual risk assessments.

Response: The EPA does not rely exclusively upon AEGL or ERPG values for assessment of acute exposures. Rather, the EPA's approach is to consider various acute health effect reference values (see the preamble to the November 2011 proposal (76 FR 72781)), including the California REL, in assessing the potential for risks from acute exposures. To better characterize the potential health risks associated with estimated acute exposures to HAP, and in response to a key recommendation from the SAB's peer review of the EPA's RTR risk assessment methodologies, we generally examine a wider range of available acute health metrics (*e.g.,* RELs, AEGLs) than we do for our chronic risk assessments. This is in response to the SAB's acknowledgement that there are generally more data gaps and inconsistencies in acute reference values than there are in chronic reference values. In some cases, when Reference Value Arrays for HAP have been developed, we consider additional acute values (*i.e.,* occupational and international values) to provide a more complete risk characterization. As discussed in the preamble to the November 2011 proposal, the exposure guidelines the EPA considers depends on which exposure guidelines are available for the various HAP emitted. The EPA uses AEGL and ERPG values (when available) in conjunction with REL values (when available) to characterize potential acute health risks. However, it is often the case that HAP do not have all of these acute reference benchmark values. In these instances, the EPA describes the potential acute health risk in relation to the acute health values that are available. Importantly, when interpreting the results, we are careful to identify the benchmark being used and the health implications associated with any specific benchmark being exceeded.

Comment: According to one commenter, the EPA's multipathway risk assessment fell short because the EPA did not use ''allowable'' emissions for this assessment and the proposed rule shows multipathway risks that are 60 times greater than the EPA's threshold. The commenter stated that the EPA acknowledged in its 2014 risk assessment that the emissions allowed by the standard may be up to 3 times greater than actual emissions for phenol, methanol, and formaldehyde, such that the HQ of 30 could be 3 times higher based on allowable emissions. The commenter stated that by using actual emissions, the EPA's analysis is likely to be an underestimate of the health risks from multipathway routes of exposure. The commenter supports the EPA's use of ''allowable'' as well as ''actual'' emissions to assess inhalation risk.

Response: Consistent with previous risk assessments, the EPA considers both allowable and actual emissions in assessing chronic risks under CAA section 112(f)(2) (See, *e.g.,* National Emission Standards for Coke Oven Batteries (70 FR 19998–19999, April 15, 2005); proposed and final National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry (71 FR 34428, June 14, 2006, and 71 FR 76603, December 21, 2006). This approach is both reasonable and consistent with the flexibility inherent in the Benzene NESHAP framework for assessing acceptable risk and ample margin of safety, as developed in the Benzene NESHAP (54 FR 38044, September 14, 1989). As a general matter, modeling allowable emission levels is inherently reasonable since this reflects the maximum level sources could emit and still comply with national emission standards. But, it is also reasonable to consider actual emissions, where such data are available, in the acceptable risk and ample margin of safety analyses. See National Emission Standards for Coke Oven Batteries (70 FR 19992, 19998, April 15, 2005). The commenter claims that limiting our review to actual emissions would be inconsistent with the applicability section of Part 63 rules. As explained, however, we did not limit our review to actual emissions.

The commenter also urged the agency to rely on allowable emissions for the purpose of our acute assessment. The

[8] U.S. EPA. (2009) Chapter 2.9 Chemical Specific Reference Values for Formaldehyde in Graphical Arrays of Chemical-Specific Health Effect Reference Values for Inhalation Exposures (Final Report). U.S. EPA, Washington, DC, EPA/600/R–09/061, and available on-line at: *http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=211003.*

use of allowable emissions was not considered due to the conservative assumptions used to gauge worst-case potential acute health effects. The conservative assumptions built into the acute health risk screening analysis include: (1) Use of peak 1-hour emissions that are, on average, 10 times the annual average 1-hour emission rates; (2) that all emission points experience peak emissions concurrently; (3) worst-case meteorology (from 1 year of local meteorology); and (4) that a person is located downwind at the point of maximum impact during this same 1-hour period. Thus, performing an acute screen based on allowable emissions would be overly conservative and at best, of questionable utility to decision makers.

Comment: Two commenters stated that the EPA does not have authority to consider ''total facility'' emissions in conducting the residual risk assessments for a given source category. The commenter argued that it would be impossible for the EPA to fulfill its unambiguous obligation for CAA section 112(f) standards to protect public health with an ample margin of safety in cases where facilities contain sources in a category where the 8-year deadline for conducting the CAA section 112(f) risk review precedes the adoption of MACT standards for other sources at the facilities. One commenter added that CAA section 112(f)(2)(A) requires EPA to promulgate standards on a source category basis. Another commenter continued that this provision unambiguously requires the CAA section 112(f) risk assessment to be focused exclusively on ''emissions from a source in the category or subcategory,'' asserting that the EPA does not have authority to consider emissions from any sources other than those in the source category or subcategory under review at that time.

Response: We disagree that examining facility-wide risk in a risk assessment conducted under CAA section 112(f) exceeds the EPA's authority. The development of facility-wide risk estimates provides additional information about the potential cumulative risks in the vicinity of the RTR sources, as one means of informing potential risk-based decisions about the RTR source category in question. While we recognize that, because these risk estimates were derived from facility-wide emissions estimates which have not generally been subjected to the same level of engineering review as the source category emission estimates, they may be less certain than our risk estimates for the source category in question, they remain important for providing context as long as their uncertainty is taken into consideration.

Section 112(f)(2) of the CAA expressly preserves our use of the two-step process for developing standards to address residual risk and interpret ''acceptable risk'' and ''ample margin of safety'' as developed in the Benzene NESHAP (54 FR 38044, September 14, 1989). In the Benzene NESHAP, the EPA rejected approaches that would have mandated consideration of background levels of pollution in assessing the acceptability of risk, concluding that ''. . . comparison of acceptable risk should not be associated with levels in polluted urban air. With respect to considering other sources of risk from benzene exposure and determining the acceptable risk level for all exposures to benzene, the EPA considers this inappropriate because only the risk associated with the emissions under consideration are relevant to the regulation being established and, consequently, the decision being made.'' (54 FR 38044, 38061, September 14, 1989).

Although not appropriate for consideration in the determination of acceptable risk, we note that background risks or contributions to risk from sources outside the source category under review could be one of the relevant factors considered in the ample margin of safety determination, along with cost and economic factors, technological feasibility, and other factors. Background risks and contributions to risk from sources outside the facilities under review were not considered in the ample margin of safety determination for this source category, mainly because of the significant uncertainties associated with emissions estimates for such sources. Our approach here is consistent with the approach we took regarding this issue in the Hazardous Organic NESHAP (HON) RTR (71 FR 76603, December 21, 2006), which the court upheld in the face of claims that the EPA had not adequately considered background.

In our November 2011 proposal, we explained that for these source categories, there are no other significant HAP emissions sources present at wool fiberglass manufacturing and mineral wool production facilities beyond those included in the source category. We also explained that all significant HAP sources have been included in the source category risk analysis. We therefore concluded that the facility-wide risk is essentially the same as the source category risk and that no separate facility-wide analysis was necessary (76 FR 72783, November 25, 2011). Our evaluation of facility-wide risks did not change our decisions under CAA section 112(f)(2) about acceptability and ample margin of safety of the risks associated with the wool fiberglass source categories.

4. What is the rationale for our final approach and final decisions for the risk review for the Wool Fiberglass Manufacturing source category (major sources)?

For the Wool Fiberglass Manufacturing source category, we have determined that the current MACT standards reduce risk to an acceptable level. We have further evaluated the cost, emissions reductions, energy implications and cost effectiveness of the total chromium compounds emission limits being promulgated in this final rule and have determined that they are cost effective, technically feasible and will provide an ample margin of safety to protect public health and prevent adverse environmental effects.

For chromium emissions, we are finalizing the emission limit of 0.00025 pounds total chromium per ton of glass pulled for gas-fired glass-melting furnaces, under CAA section 112(f)(2). This is based on our assessment of emissions from newly-rebuilt gas-fired glass-melting furnaces. Because commenters provided new information indicating that cullet use is tied to increasing chromium emissions from gas-fired glass-melting furnaces, we are also requiring that facilities establish the materials mix, including the percentages of raw materials and cullet, used in gas-fired glass-melting furnaces during the performance test conducted to demonstrate compliance with the chromium emission limit. Affected sources must maintain the percentage of cullet in the material mix at or below the level established during the most recent performance test showing compliance with the standard. If a gas-fired glass-melting furnace uses 100 percent cullet during the most recent performance test showing compliance with the standard, then monitoring of the cullet use on that furnace is not required until the next annual performance test.

B. Technology Review for the Wool Fiberglass Manufacturing Source Category (Major Sources)

1. What did we propose pursuant to CAA section 112(d)(6) for the Wool Fiberglass Manufacturing source category (major sources)?

As discussed in the 2011 proposal (76 FR 72803–72804, 72798), we conducted a technology review for FA and RS bonded lines and for furnaces that focused on identifying and evaluating developments in practices, processes, and control technologies for the emission sources in the Wool Fiberglass Manufacturing source category that have occurred since the 1999 MACT rules were promulgated. We consulted the EPA's RACT/BACT/LAER Clearinghouse to identify potential technology advances for processes similar to those covered by the Wool Fiberglass Manufacturing NESHAP, as well as the costs, non-air impacts, and energy implications associated with the use of these technologies.

We also requested information from facilities regarding developments in practices, processes, or control technologies, and conducted site visits, held meetings with industry representatives, and reviewed other information sources, such as technical literature, state and local permitting agency databases and industry-supported databases. For more information, see the ''Technology Review for the Wool Fiberglass Manufacturing Source Category Memorandum'' in the docket to this rule.

Subsequent to the November 2011 proposal, we announced that we had issued a CAA section 114 ICR to collect emissions data and other information on glass-melting furnaces in order to regulate area sources in a future action. This resulted in a near complete dataset for emissions test data on all wool fiberglass furnaces, with the only exceptions being furnaces at facilities that were closed or that were shut down at the time of the 2012 testing. The data also indicated that three gas-fired glass-melting furnaces had been rebuilt and retested, and we also had emissions test data for these three furnaces for the years before and after the rebuild.

a. Technology Review for Reduction of PM From Furnaces

For our technology review under CAA section 112(d)(6), for PM emissions from glass-melting furnaces, we identified advances in control measures for PM emissions. These included improvements and advances in control technology, such as application of ESPs, as well as developments in furnace design and the use of high-chromium furnace refractories that had been made since promulgation of the 1999 NESHAP.

Our technology review included glass-melting furnaces at both area and major sources. As explained in our April 2013 supplemental proposal, the number of area sources is constantly increasing as a result of the definition of ''wool fiberglass facility'' in Subpart NNN. For example, in 2002, two out of 33 facilities were area sources, but by December 2012, 20 facilities were area sources (78 FR 22377). As also previously explained, there are no differences between the furnaces used at major and area sources (78 FR 22377). Therefore, we believed it was appropriate to consider all furnaces in the technology review, under CAA section 112(d)(6).

In our November 2011 proposal, based on the responses to survey data regarding the performance of existing control measures, we proposed an emission limit of 0.014 pounds of PM per ton of glass pulled for glass-melting furnaces, under CAA section 112(d)(6).

In the April 2013 supplemental proposal, in response to comments we received on our November 2011 proposal, we revised the PM limit for furnaces to 0.33 pounds per ton of glass pulled in order to be consistent with our intentions to set the new limit based on technology review.

We did not propose any further revisions to the proposed PM limit in the November 2014 supplemental proposal.

b. Technology Review for Reduction of Chromium From Furnaces

In our November 2011 proposal, we identified refractories having a high content of chromium, and their use in wool fiberglass furnaces, as a new development affecting the emissions of chromium compounds from sources since promulgation of the 1999 NESHAP. We reviewed the use of chromium refractories (as compared to non-chromium refractories), as well as other control technologies, such as caustic scrubbers. We analyzed the technical feasibility and the estimated impacts (*e.g.,* costs, emissions reductions, risk reductions) of applying these developments. We then determined, based on impacts and feasibility, whether it was necessary to propose amendments to the regulation to require any of the identified developments.

We found that, while the furnaces and control technologies are generally the same as those used at promulgation of the MACT standard in 1999, there have been some developments in furnace design and preference in control equipment. We found that developments in refractory technology and in furnace design are inextricably linked. Oxyfuel furnaces were not widely used prior to 1999 in the wool fiberglass industry, due to a number of factors, especially refractory degradation in the wool fiberglass furnace environment. At that time, new technology of the oxyfuel furnace constructed using conventional refractories of that time (*e.g.,* alumina-silicate, zirconium) limited the furnace life to 4 or 5 years. As a result, air-gas and electric furnaces predominated in the years prior to 1999.

With the advent of new refractory technology, new furnace designs were constructed that could be expected to last longer. With the industry focus upon new furnace designs and technology, the research to develop refractories that could withstand high temperatures, thermal shock and corrosive materials yielded the development of new types of chromium refractory products that could be used for construction of the high-temperature oxyfuel furnace.

As a result, the wool fiberglass industry began a trend toward oxyfuel furnaces constructed using high-chromium refractory products, a trend that commenters noted is expected to continue into the future. This gives rise to increased chromium emissions as a result of both wool fiberglass raw material formulation (corrosivity) and associated refractory degradation (*i.e.,* furnace wear). We explained the mechanisms of chromium emissions at length in our April 2013 supplemental proposal (78 FR 22379–22382) and in our technology review memorandum.

We therefore found that the development of new types of chromium refractories that could and would be used to construct entire gas-fired glass-melting furnaces for wool fiberglass manufacturing is a development that largely took place after promulgation of the MACT standard in 1999. We also proposed a total chromium compounds limit of 0.00006 pounds per ton of glass pulled for all glass-melting furnaces.

In the 2013 supplemental proposal, we did not revise the chromium emission limit for furnaces; however, we explained that there were two general types of furnaces used in this industry: Gas-fired (which include both air-gas and oxyfuel furnaces) and electric furnaces (which include both steel shell and cold-top electric furnaces). We proposed in the April 2013 supplemental proposal to limit the

applicability of the total chromium compounds emission limit to gas-fired glass-melting furnaces for two reasons: (1) Electric furnaces do not have chromium refractories above the glass melt line, and (2) they do not reach the operating temperatures necessary to convert significant amounts of trivalent to hexavalent chromium. As a result, electric furnaces do not emit significant amounts of chromium compounds.

We did not propose to revise the chromium compounds limit in our November 2014 supplemental proposal. However, based on comments received on our April 2013 supplemental proposal, we proposed that sources would be likely to rebuild the furnace rather than install a sodium hydroxide scrubber as previously proposed, due to revisions to our cost estimate for this control option.

2. How did the technology review change for the Wool Fiberglass Manufacturing source category (major sources)?

We did not make any changes to the technology review for PM from furnaces since the November 2014 supplemental proposal, and we are finalizing the previously proposed emission limit for PM, which is 0.33 lb per ton of glass pulled.

For chromium compounds, based on the public comments and information for glass-melting furnaces received on our November 2014 supplemental proposal, we believe it is necessary to revise our technology review under CAA section 112(d)(6) for gas-fired glass-melting furnaces in the Wool Fiberglass Manufacturing source category. Data collected on gas-fired glass-melting furnaces in 2010 and 2012 show that three furnaces tested their emissions for chromium in 2010, then shut down or repaired, and then retested in 2012 using the same test methods and protocols. In each case, chromium emissions were reduced by about 2/3 as a result of having rebuilt the furnaces. In two of the three cases, the chromium emissions before the repair or rebuild were higher than the proposed limit (0.00006 lb/ton of glass). In a third case, a furnace that measured 0.0006 lb/ton of glass in 2010 was rebuilt and retested for the 2012 ICR. The second test measured chromium at 0.0002 lb/ton of glass, a level slightly higher than our proposed chromium emission limit.

While we recognize that the rebuilt furnaces had different designs depending on the company's objectives at the particular facility, at this time we believe the highest emitting rebuilt furnace was well designed for its intended use. This furnace was rebuilt only one year before testing, at a cost to the company of between $10–12 million. As this is a technology review standard, we consider cost when evaluating the technology. We consider it reasonable to evaluate the technology based on the emission limit achieved by new furnaces, and we are increasing the chromium limit above what was previously proposed to account for this new furnace.

The final chromium limit also prevents operation of another furnace that could emit chromium at the reasonable high-end rate of the highest emitting furnace, as characterized in section VI of this preamble. Finally, we evaluated the cost, using our revised economic analysis, of compliance with the final limit and found that these costs are reasonable.

Specifically, we are revising the estimated costs of rebuilding the furnace as an option to comply with the chromium limit. We have determined, based on the revised costs and data regarding the level of chromium emissions that is achieved by rebuilt furnaces, that it is necessary, pursuant to CAA section 112(d)(6), to revise the proposed emission limit for chromium from gas-fired glass-melting furnaces. We are finalizing a limit of 0.00025 pounds chromium compounds per ton of glass pulled. This is a higher limit for chromium compounds than previously proposed, because data show that this level can be achieved by furnaces that are rebuilt, while the previously proposed level was shown to be lower than the level supported by the data provided by industry. We explain our decision further in the responses to key comments below and in the Technology Review Memo for the Wool Fiberglass Manufacturing source category, available in the docket to the rule.

We revised the cost estimate for rebuilding a gas-fired glass-melting furnace; however, we did not revise our finding from our technology review that rebuilding the furnace is an effective approach for reducing chromium emissions. We also note, from our technology review, that other options to reduce chromium from furnaces are available to wool fiberglass manufacturers. These include raw material substitution and installation of a properly-designed caustic (sodium hydroxide) scrubber to the outlet of the dry electrostatic precipitator (DESP). These other options are presented in more detail in the Economic Analysis, which accompanied the April 2013 supplemental proposal.

3. What key comments did we receive on the technology review, and what are our responses?

We received comments in support of and against our proposed technology review. The following is a summary of the key comments received regarding the technology review for the Wool Fiberglass Manufacturing source category and our responses. Additional comments on the technology review and responses can be found in the comment summary and response document available in the docket for this action (EPA–HQ–OAR–2010–1042).

Comment: One commenter stated that the EPA's depiction in the 2011 proposal (76 FR 72770, November 25, 2011) of high-chromium refractories and furnace control technologies as new technology developments is inaccurate, as demonstrated by the following evidence: (1) High-chromium refractories have been used in the wool fiberglass industry since the early 1980s; (2) the EPA was aware in 1999 that chromium was emitted from wool fiberglass plants, as demonstrated by the following statement in its 1999 promulgation preamble ''The hazardous air pollutants (HAP) emitted by the facilities covered by this rule include compounds of three metals (arsenic, chromium, lead) and three organic HAP,'' [9] although chromium emissions (and all metal HAP) at that time were insignificant and PM was chosen as a surrogate for those low emissions; and (3) chromium emission reductions have been achieved by the industry since initial MACT implementation in 1999 without using any new control technologies.

Response: Regarding the characterization of high chromium refractories as a new technology, chromium refractories for use in the glass industry have been a developing technology. According to information provided by the wool fiberglass and refractories industries as part of this rulemaking, significant problems with their use in the furnace had to be overcome before wool fiberglass furnaces could be constructed using them. For example, when fused-cast refractories started to be developed using high chromium materials, some companies discovered ways to manufacture those products that maintained the integrity of the refractory over a long time and in extreme temperatures, making these products candidates for trials in the wool fiberglass industry. At least two

[9] 64 FR 31695 (June 14, 1999).

major corporations [10] have developed high chrome refractory product lines since 1999, and they characterize these refractories on their Web sites as 'new' products developed for the fiberglass industry. Therefore, our characterization of these products as 'new' refers to the improvements in refractory and is not meant to imply that using chromium refractories, in and of itself, is new.

Further, we noted in the November 2011 proposal that we identified ''improvements'' in PM emissions controls, not that we identified ''new'' controls. We acknowledged in both our November 2011 and April 2013 supplemental proposals that sodium hydroxide scrubbers are not currently used in the wool fiberglass industry for removal of chromium, but that these controls are used in metallurgical processes and in the chromium electroplating industry for the removal of hexavalent chromium. We stated in those proposals that we were considering applying scrubber technology to this source category; however, as discussed in the 2014 supplemental proposal (79 FR 68020–69024), the technology basis for the chromium standard is more frequent furnace rebuilds, not scrubber technology.

Moreover, as we explained in our 2013 supplemental proposal (78 FR 22380), the type of furnace used to produce wool fiberglass at the highest emitting wool fiberglass manufacturing source was the type of furnace that is expected to dominate the industry in the future as a new and very efficient energy source. The oxyfuel furnace was not identified in our 1999 MACT standard as a separate technology. While we acknowledge that wool fiberglass furnaces are not 'new' technologies, the oxyfuel furnace is both new to this industry and its use is increasing. As the industry has commented, air-gas furnaces are becoming increasingly difficult to permit, while an oxyfuel furnace has no such restrictions due to its low PM and NO_X emissions profile.

We are not changing our assessment of the industry controls as having improved since 1999, and we are lowering the PM limit in the final rule from 0.5 to 0.33 pounds PM per ton of glass pulled. This limit codifies the current good practices and PM controls within the industry while not imposing additional costs to industry.

Regarding the commenter's allegation that chromium emissions were insignificant in 1999, and on that basis the EPA should not set chromium limits for this industry, we do not agree. The EPA has the responsibility to regulate air toxics under section 112 and to protect the health and environment surrounding these facilities as we are doing in this final rule. Moreover, due to source testing at the wool fiberglass industry, we have more information now than we had in 1999, and the industry's technology (that is, both the furnaces and refractories used) has changed.

Regarding the statement that, since initial MACT implementation in 1999, industry has reduced chromium emissions without using any new control technologies, the industry did not provide data showing that chromium emissions have been reduced.

Comment: One commenter argued that chromium emissions from glass furnaces do not increase with age and that a relationship between furnace age and chromium emissions is not statistically significant. The commenter argued that erosion of the refractories is slow and there is no substantial increase in chromium emissions over time. The commenter noted that the EPA asserted that ''when the glass-melting furnace is constructed using refractories containing high percentages of chromium, the emission levels of chromium compounds continuously increase over the life of the furnace according to the increasingly exposed refractory surface area.'' The commenter noted that the EPA further explains: ''It is our understanding that because of the corrosive properties of the molten glass, fresh refractory is continuously exposed to the molten glass along the metal/glass contact line in the glass-melting furnace process. This increases the surface area of the refractory that is exposed to the molten glass. As a result, when the glass furnace is constructed using high chromium refractories, the emission levels of chromium compounds continuously increase over the life of the furnace.'' The commenter stated that this is not correct. The commenter explained that surface area of refractory exposed to molten glass does not substantially increase, nor do the chromium emissions as a result. The commenter asserted that the slight increase in surface area as between uneven and smooth surfaces of new brick exposed to molten glass cannot explain the major difference that the one source exhibited on chromium emissions. In fact, the commenter observed, the testing results provided by the industry included furnaces in all stages of their life. The commenter argued that given the nearly constant surface area as refractory erodes, and the homogeneous chrome content throughout the brick, there would be no substantial increased chromium emissions over time in the manner the EPA asserts. Furthermore, according to the commenter, the erosion process is very slow given the lifespan of these furnaces.

The commenter stated that the EPA reports that ''[o]ne industry spokesperson estimated that 20,000 pounds per year of refractory are worn away from the inside walls of one wool fiberglass furnace and ducted to the control device before venting to the atmosphere.'' The commenter contended that the context of that statement is that furnace emissions are going through control devices that already meet the definition of BACT for particulate and if this were normal for the industry furnaces, they could not have the long lives that they typically exhibit.

The commenter provided a detailed statistical analysis to demonstrate that a furnace rebuild is not a viable control technology by using EPA's data to show that a relationship between furnace age and chromium emissions is not statistically significant. Using the EPA's data, the commenter also pointed out specific examples of apparent contradictions with the EPA's conclusions, such as the data from one oxyfuel furnace showing lower chromium emissions at the end of its life than at the beginning of its life, and showing no change in emissions after a furnace rebuild. The commenter also points to data from another furnace demonstrating that emissions lessen with furnace age.

The commenter contended that the proposed chromium limit is based on unproven technology, and that experimental and theoretical technologies do not constitute ''available'' or ''generally available'' technology. The commenter provided the results of various analyses to

[10] The North American Refractories Company (NARCO) and the Saint-Gobain Corporation Web sites advertise product lines of refractories that are 50%–95% chromium for use in the glass fiber and wool fiberglass industries. From NARCO's Web site: ''Wool and C-Glass makers rely on NARCO's extensive line of chrome-alumina materials, the SERV and JADE brands, available in standard pressed brick, large cast shapes, and Cast-in-Place linings. Supplying the complete furnace refractory package required for this application is a strength of NARCO''. (*http://www.anhrefractories.com/glass-refractory*). From Saint-Gobain's Web site: ''High temperature sintered chromium oxide based refractories have unequalled resistance against high temperature corrosion by molten SiO_2-Al_2O_3-Fe_2O_3-CaO/MgO slags and by certain glass wool compositions, in an oxidizing environment. Saint-Gobain Ceramics has pioneered and patented a unique range of chromium oxide-alumina-zirconia refractory compositions, marketed as . . .'' (from *http://www.refractories.saint-gobain.com/Chromium-Oxide.aspx*).

demonstrate that there is no proven technology that can meet the proposed limit. The technologies represented in the commenter's analyses include high efficiency particulate air (HEPA) filter, Venturi scrubber, 3-stage filter with water cleaning, membrane baghouse, and caustic scrubber. The commenter described these technologies as ''theoretical'' and ''unproven,'' because they have never been installed at the outlet of a DESP serving a wool fiberglass manufacturing furnace. The commenter contended that a membrane baghouse is used to control emissions from the industry, but has not been demonstrated to achieve the proposed chromium limit. The commenter provided feedback from vendors of these technologies to demonstrate that pilot tests would need to be conducted prior to vendors committing to guaranteeing a specific performance level. The commenter also investigated the performance capacity of the sodium hydroxide scrubber and found that this technology is not transferable to a wool fiberglass manufacturing process.

Response: We disagree with the commenters on the basis of direct statements, measurements and information on refractory content, production rates and furnace life received from industry sources. We issued a CAA section 114 ICR to all five wool fiberglass manufacturing companies and visited four of the manufacturing facilities in December 2012 to improve our understanding of the source of the chromium emissions from this industry. The results of these activities include source test data, information on chromium content of refractories used to construct different parts of all types of furnaces, and a deeper understanding of the properties of materials and technologies used to manufacture wool fiberglass. We were able to confirm our earlier statements presenting our understanding of this industry. Specifically, we confirmed that the furnace refractory are eroded and corroded during the life of the furnace both beneath the level of the glass, at the glass/metal contact line, and, in the case of gas-fired furnaces, above the level of the glass. We also learned that electric furnaces do not have the same temperature profile as gas-fired furnaces and, therefore, typically do not emit chromium at the level of the gas-fired furnaces.

We also learned that oxyfuel furnaces are an important new technology both in terms of energy consumption and potential to emit SO_2 and NO_X, but have the greatest potential (followed by gas-fired furnaces) to emit chromium. We have established that furnace age affects chromium emissions, as documented in ''Memorandum Chromium Emissions and Furnace Age, August 14, 2014'' and ''Explanation of the Mechanisms of Chromium Emissions from Gas-Fired Furnaces, June 3, 2015'', which are available in the public docket for this rulemaking.[11] We also disagree with the commenter's statistical analysis and argument that the EPA has not sufficiently established that there is a relationship between furnace age and chromium emissions. We have based our conclusions on industry comments, furnace emissions testing, technical literature, and other available data.

In the letter dated March 12, 2012, the commenter stated that ''Fiber glass furnaces necessarily use chrome-based refractory products (see Appendices A and B, spreadsheets showing typical chrome content),'' and that ''Virtually all of the above-glass refractory in gas-oxy furnaces, unlike other furnace classes, is chrome-based refractory.''

In that letter, the commenter continued, explaining that ''Since the advent of chrome-based refractory, insulation manufacturers have been able to extend furnace life more than 50 percent. Without these refractories, wool fiberglass manufacturers would not likely be competitive in the global marketplace. Moreover, there currently is no available material that is as good as and has the structural integrity of chrome-based refractory to handle the higher temperature and more corrosive atmosphere inside gas-oxy furnaces.''

Regarding the use of chromium refractories in oxyfuel furnaces, and the continual increase in chromium emissions that result, the commenter added that oxyfuel furnaces have greater chromium emissions than other furnaces because, based on industry experience, the combination of furnace design, glass composition, higher flame temperatures, higher water vapor concentration, and an oxidizing atmosphere with increased concentration of oxides (filterable and condensable PM) can cause more rapid deterioration of the refractory in a gas-oxy fiberglass insulation manufacturing furnace than in other types of glass furnaces.

Regarding the comparison of operating temperatures of oxyfuel to other furnaces, the commenter added that, ''One advantage of gas-oxy firing is the large reduction in NO_X, due to the reduction of nitrogen from the air in combustion, and the reduction in the volume of flue gases. One disadvantage of gas-oxy firing is that the peak flame temperatures are up to 40 percent higher than gas-air furnaces. The gas-oxy burner flame does not have to heat the added air components. In gas-oxy glass furnaces, peak flame temperatures approach 5,000 degrees Fahrenheit, whereas air-gas flame temperatures peak at about 3,560 degrees Fahrenheit, and cold-top electric melters are even lower due to having no heat input above the glass line.''

Regarding the relationship of furnace temperature and glass chemistry to chromium emissions, the commenter explained that ''with the reduction in the flue gas volume, the concentration of glass batch ingredient volatiles and water vapor in the atmosphere (and flue gas) is also much higher. The higher temperature of the gas-oxy burners can volatize the glass batch components more readily than in other furnaces. These glass volatiles that contain alkaline earth oxides reduce the temperature that chrome can be vaporized to as low as 1,832 degrees Fahrenheit. While the chrome must still reach temperatures of 2,700 to 2,900 degrees Fahrenheit to oxidize the chromium from the trivalent to hexavalent state, the potentially increased volatiles can contribute to higher chrome emissions. The 40 percent higher peak flame temperature of oxyfuel burners also raises the probability that available chrome (sic) will encounter the conditions that will convert it to the hexavalent state. Combined, these differences generate conditions that are more corrosive to chrome refractory and can create favorable conditions for conversion to hex chrome (CR206) inside a gas-oxyfueled furnace. These severe conditions do not exist in the other fiber glass furnace classes.''

Regarding the commenters' assertion that wool fiberglass furnaces could not be eroded by the molten fiberglass at the rate stated by industry, we note that the range of furnace life and rates of erosion did not originate from the EPA, but from information obtained from the industry itself. Further, we note that at the rate stated by industry and the control efficiency achieved by fabric filters, that refractory degrading at a rate of 20,000 pounds per year and fabric filters achieving 99-percent efficiency would emit 200 pounds PM annually from the contribution of the refractory alone. Using industry refractory content of 95-percent chromium, 190 of the 200 pounds of annual PM would be chromium compounds; 93 percent (177 pounds) of that chromium would be in the hexavalent state, which is within the range measured at oxyfuel and air-gas furnaces in this industry.

[11] EPA–HQ–OAR–2010–1042 at *www.regulations.gov.*

Regarding the comment that there is no other technology available to meet the chromium limit, we note that all furnaces at existing area sources and all but two furnaces at existing major sources currently meet the final chromium limit. Regarding these two furnaces, the EPA has established that a furnace rebuild is an approach that existing facilities have used to reduce their chromium emissions for furnaces over 6 years old, as discussed in section III.D of the preamble to the 2014 supplemental proposal. Further, the rule requires sources to meet the emission limits, but does not require the use of any specific control device or vendor. Sources may use whatever means they choose to meet the limits, such as more frequent furnace rebuilds, using non-chromium or low chromium refractories in furnace rebuilds, enhanced baghouse operation, improved maintenance and alternative controls, and furnace design features, changes in raw material, or scrubbers.

Comment: Two commenters asserted that the proposed chromium emissions limit would require technological controls that are not cost effective. According to one commenter, the installation of these controls would be economically damaging to the fiberglass insulation industry.

The commenters cited the agency's estimated cost of $300 per pound of hexavalent chromium removed if a scrubber is used to comply and the agency's estimated cost of $12,000 per pound of chromium compounds removed if operations with high-chromium refractory are rebricked with low-chromium refractory. According to the commenters, the conclusion that the proposed new chromium limit is ''feasible and cost effective'' is unreasonable and arbitrary. One commenter observed that the EPA's cost-effectiveness values would be $600,000 per ton of chromium removed for scrubbers and $24 million per ton of chromium removed for rebricking, assuming either proposed compliance solution would actually be successful. As such, the commenters stated that the agency's cost-effectiveness analysis does not support the conclusion that the new chromium limit is authorized and justified under CAA section 112(d)(6). One commenter claimed that the EPA's conclusion is arbitrary because the cost-effectiveness values are far in excess of the cost-effectiveness values the EPA has found acceptable in prior CAA section 112 cost-effectiveness analyses and the EPA has not explained why such high cost-effectiveness values are justified, especially considering risk.

According to the commenters, fiberglass insulation producers provide economic benefits by adding manufacturing jobs to the U.S. economy, shipment of finished product to markets throughout the country, and export of product to foreign markets. According to one commenter, one reason jobs are being sent overseas is the existing regulatory requirements and concerns about the future regulatory climate growing even more stringent. If revisions are not made to the proposal as recommended by the commenter, many of the companies will cease operation and it is likely that foreign competitors will flood the market with substandard product.

Response: We have reviewed the available chromium test data and information provided in response to our 2011 proposal, 2013 supplemental proposal, and 2014 supplemental proposal (76 FR 72770, November 25, 2011; 78 FR 22370, April 15, 2013; and 79 FR 68011, November 13, 2014) and we have revised our technology review, the chromium limit and our economic impact analysis for the final rule.

The EPA is finalizing a chromium limit of 0.00025 pounds per ton of glass pulled. Based on emissions data submitted in 2010 and 2012 by all wool fiberglass manufacturers on every furnace type, the EPA determined that this is a limit reflected by well-designed furnaces in this source category.

As discussed in section VI.B of this preamble, all three of the furnaces that were tested in 2010, then rebuilt or repaired and retested in 2012, showed lower chromium emissions as a result of the furnace rebuild or repair. Of these three furnaces, two emitted chromium below the previously proposed limit of 0.00006 pounds of chromium per ton of glass pulled after the rebuild or repair. One, a new furnace, tested at about 0.0002 pounds of chromium per ton of glass, and had been rebuilt at a cost of about $10 million. Consequently, we revised our limit to reflect the level of chromium emissions that is achieved by a well-designed rebuilt furnace.

Thus, the final emission limit is a level that has been demonstrated by recently rebuilt furnaces. We note that a key aspect of our changing the final chromium limit was to account for this new furnace, which measured chromium emissions at a level slightly higher than the limit we proposed.

In our November 2014 supplemental proposal (79 FR 68012 at 68021), we presented a chart showing chromium emissions by furnace age. That chart indicates 0.00025 pounds per ton represents the level below which rebuilt furnaces operate and many gas-fired furnaces operate below this level beyond their tenth year. We are aware of new developments in the field of chromium refractories that reduce the spalling and degradation of the refractory face. We consider many of these to be design features which a wool fiberglass company would consider when planning to rebuild a furnace. These data demonstrate that well-designed furnaces (that is, furnaces designed and operated to minimize chromium emissions) can continue to meet the chromium limit as they age.

This final rule does not limit the materials with which a gas-fired furnace may be constructed. Specifically, we recognize from industry commenters that gas-fired glass-melting furnaces used by the wool fiberglass industry will continue to use chromium refractories in their glass-melting furnaces. To help ensure that these sources are well-designed to minimize chromium emissions, wool fiberglass gas-fired glass-melting furnaces will be required to conduct chromium emissions performance testing annually.

Two facilities are projected to need to improve performance. For these two facilities, the total capital costs are $21.4 million and the total annualized compliance costs are estimated to be $944,000 for furnace rebuilds and compliance testing. For all other major source facilities subject to the chromium limit, the cost of compliance will include only the cost of emissions testing ($10,000 per furnace for a total of $80,000). Based on the EPA's economic impact analysis, which shows that the impacts to wool fiberglass manufacturers should be low, we believe that the compliance costs of the final rule are reasonable and will not be economically devastating to the wool fiberglass insulation industry.

Regarding the comment requesting that the EPA compare the cost-effectiveness of the proposed chromium limit (*i.e.,* 0.00006 lb/ton of glass) to the cost effectiveness of standards finalized under other rulemakings, cost-effectiveness values for hexavalent chromium are generally not comparable to values for other less toxic pollutants. We note, however, that the values now estimated for hexavalent chromium are now well within the range that we have considered cost effective for other highly toxic pollutants (*e.g.,* mercury and lead) in past actions. CAA section 112(d) neither specifies nor mandates a cost methodology. We note that in *Husqvarna AB* v. *EPA,* 254 F.3d 195, 200 D.C. Cir. 2001), the D.C. Circuit found the EPA's chosen methodology ''reasonable'' because the statute ''did

not mandate a specific method of cost analysis.''

Comment: One commenter stated that the EPA's cost analysis for furnace rebuilds in support of the 2014 supplemental proposal (79 FR 68011, November 13, 2014) underestimated the cost effectiveness by using the wrong costing method, incorrectly applying the costing method used, using the wrong discount rate, and considering costs over only the short term. The commenter provided the document ''National Emission Standards for Hazardous Air Pollutants (NESHAP) Risk and Technology Review (RTR) For the Mineral Wool and Wool Fiberglass Industries Economic Analysis Report,'' January 2015, as the source of this critique of the EPA's analysis.

The commenter argued that the Net Present Value (NPV) methodology is not an appropriate method for calculating cost effectiveness of the proposed accelerated rebuild schedule if the EPA is evaluating the cost of a control as the single factor to consider, and also stated that they could not identify any EPA rules that have used this approach. The commenter suggested that a replacement cost analysis, as described in section 2.5.5.6 of the *EPA Air Pollution Control Cost Manual,*[12] is more appropriate, and more commonly used by the EPA for this situation. The commenter provided cost-effectiveness results (dollars per pound of chromium emission reduction), as follows: Using a replacement cost methodology, the cost effectiveness was estimated by the commenter to be in the range of $366,161 to $527,334 at major source facilities and $67,808 to $97,654 at area sources; and using the NPV methodology, the cost effectiveness was estimated by the commenter to be in the range of $398,939 to $403,532 at major source facilities and $206,857 to $209,239 at area sources (each range represents the cost effectiveness calculated over 10 years versus 30 years).

The commenter further contended that the EPA erred in applying the NPV methodology in that the EPA excluded from its cost analysis the cost of losing the residual value (1 to 3 years) of a furnace's life, which contradicts the EPA's NPV methodology. The commenter explained that the EPA calculated what a $10 million investment losing 7 percent a year would lose in 7 years versus 10 years, and then concluded that the difference was the cost difference of the investments. The commenter contended, however, that both calculations are incorrect in how the process of NPV is used for comparison: With a furnace re-bricking, the $10 million represents the investment that is consumed over the periods of comparison; and using the 10 years as a base case, the $10 million is consumed and has no residual value remaining at the end of the 10 year period. The commenter concluded that, therefore, the $10 million consumed with no residual value must be compared to a $10 million investment that retains a residual value at the end of 7 years, but yet must be replaced (*i.e.,* discounting the residual value at the end of the 7 years to present value (''PV'') and adding that to the annual costs).

The commenter also objected to the EPA's use of a 7-percent discount rate because small variations in the discount rate can significantly bias the cost-benefit analysis. The commenter alleged that the EPA chooses radically different discount rates for different regulations, generally providing no explanation for this variation, which appears arbitrary and capricious because it often chooses relatively high discount rates (between 7 and 10 percent) for regulations imposing future costs and low rates (around 3 percent) for regulations creating future benefits.

The commenter further argued that the EPA's cost analysis failed to look at the longer-term cost of 7-year rebuilds, beyond 10 years into the future. The commenter provided the results of an analysis that presented the impact over 30 years, which show higher costs for both area and major sources.

Response: Regarding the comment that the EPA used the wrong costing method in the 2014 supplemental proposal, the EPA has reviewed the information provided by the commenter and, based on that information, which discussed the estimation of costs for changes in equipment that may occur as a route to comply with NESHAPs, we agree that the EPA's replacement costing approach described in section 2.5.5.6 of the *EPA Air Pollution Control Cost Manual*[13] is more appropriate for estimating the cost of furnace rebuilds than the NPV approach used for the 2014 supplemental proposal.

We received new information from the industry that they believed the replacement costing (RC) approach was a better fit for the situation and approach than the NPV approach, which is what we had used at proposal. The NPV evaluated the loss to the company from having to rebuild a furnace earlier, (*i.e.,* at 7 years into the furnace campaign instead of at 10 years.) The RC approach applies the equivalent uniform cost method as defined in the control cost manual. This is different because it calculates a uniform, or equal cost across the time of the investment, and the NPV is not calculated in the same way. While we note that use of the NPV is not necessarily incorrect in this case, we agree that in other similar rules whereby this type of approach was introduced (that is, replacing a process unit before the end of its useful life, or campaign in this case), the replacement costing approach was applied instead of the NPV. Therefore, we agree with the commenter and have changed our cost estimation method to be consistent.

We also revised the capital cost estimate for rebuilding a furnace to include the cost ($700,000) of transferring production to another facility while the furnace is being rebuilt, based on information provided by the commenter. Based on the revised cost-estimating procedure and capital cost ($10.7 million), we estimated the total annualized cost for rebuilding a furnace to be $462,000.

Regarding the comment that the EPA used the wrong discount rate, the EPA's use of a 7-percent interest rate is in accordance with OMB guidance under Circular A–4 and Circular A–94. This interest rate has been used in the cost estimates for all rulemakings issued by the Office of Air Quality Planning and Standards (OAQPS) since Circular A–94 was issued in 1992 and affirmed by Circular A–4 in 2003. This includes the 2011 proposal for the mineral wool and wool fiberglass rules, and both supplemental proposals. In addition, the *EPA Air Pollution Control Cost Manual*[14], a key cost guidance document prepared by the EPA and widely used in the Agency as a basis for cost estimation that has been available in its current edition since 2003, discusses the use of the 7-percent interest rate for rulemakings at length. The adherence by OAQPS to OMB guidance with regards to annualizing capital costs in its rulemaking has been consistent, and the information provided by the commenter on interest rates is not germane to the analysis for this rulemaking.

Comment: One commenter stated that the EPA's proposed chromium limit in the 2014 supplemental proposal (79 FR 68011, November 13, 2014) was not cost effective because the EPA's cost analysis was missing the following costs associated with furnace rebuilds: New materials (refractory bricks); recycling and disposal of old material; installation

[12] *http://www.epa.gov/ttncatc1/dir1/c_allchs.pdf.*

[13] *http://www.epa.gov/ttncatc1/dir1/c_allchs.pdf.*

[14] *http://www.epa.gov/ttncatc1/dir1/c_allchs.pdf.*

labor; maintenance; loss of production; and loss of labor force. The commenter retained a consultant to conduct a cost analysis of a furnace rebuild, and the analysis is provided by the commenter. The analysis concluded that the total investment of a furnace refractory rebuild is estimated to be about $28 million, assuming the EPA's furnace rebuild cost of $10 million. The $28 million includes approximately $7.9 million for all materials, $2 million for installation labor, $60,000 for brick recycling/disposal, $8 million for additional maintenance, $9 million for loss of production, and $384,000 for loss of labor force. The commenter explained that the loss of production cost is based on 200 tons per day throughput, $0.65 per pound of reproduction, and 35-day shutdown period. These costs are listed in Table 2 of Appendix 2 of Docket ID No. EPA–HQ–OAR–1042–0348. The commenter explained that the additional maintenance cost includes maintenance of control equipment performed while the furnace is shut down during rebuild, as follows:

> Maintaining safe and proper operation at a wool fiberglass manufacturing facility requires that the facility maintain melted glass within the furnace at all times. In addition to the furnace operating continuously, all other equipment used in the manufacturing process, including air pollution control equipment operates continuously during normal operation. During a scheduled rebuild of the furnace refractory, a facility will use that downtime to perform routine maintenance on the entire manufacturing line. This maintenance requires longer downtimes to accomplish because it includes the support equipment for the furnaces as well as the major down line equipment such as forming sections, curing ovens, and line drives. This maintenance is done at this time to avoid the other operational expenses and product supply issues incurred when taking extended downtimes. Therefore, when a facility plans a refractory rebuild, it must consider the additional costs and logistics associated with the routine repair and general maintenance of the entire manufacturing line. NAIMA [North American Insulation Manufacturers Association] members estimate these additional costs to be in the range of $6,000,000 to $10,000,000, and include material (wear part replacements, pollution control device maintenance, electrical preventative maintenance, etc.) and labor to perform this maintenance. (Appendix 2 of Docket ID No. EPA–HQ–OAR–1042–0348).

Response: As noted in the information provided by the commenter (see Appendix 2 of Docket ID No. EPA–HQ–OAR–2010–1042–0348), the EPA's capital cost estimate of $10 million includes material costs, installation labor, and brick recycling/disposal costs. We also revised the capital cost estimate for rebuilding a furnace to include the cost ($700,000) of transferring production to another facility while the furnace is being rebuilt, based on information provided by the commenter. We disagree that the cost of additional maintenance for control devices performed while the furnace is being rebuilt should be included in the total capital cost estimate because these costs are not directly related to rebuilding the furnace (*i.e.,* the furnace could be rebuilt without performing maintenance on control equipment). We also disagree with the commenter that the cost of lost labor force suggested by the comment should be included because we believe that workers would be reassigned to other duties at the facility (including activities related to rebuilding the furnace) while the furnace is shut down.

Comment: One commenter indicated that facilities will need to install control equipment to achieve the proposed chromium standard and that the EPA has grossly underestimated the cost of this equipment for major sources. One commenter provided cost-effectiveness estimates (in dollars per pound of chromium emission reduction) developed by Trinity Consultants for various technologies: HEPA filter would be $18,500 to $24,100; Venturi scrubber would be $29,700 to $41,700; 3-stage filter after DESP would be $49,100 to $63,900.

Response: The EPA amended the proposed chromium limit for major sources to be 0.00025 pounds chromium per ton of glass pulled. Based on emission data submitted to the EPA in 2010 and 2012 by all major source wool fiberglass manufacturers for every furnace type, the EPA determined that all but two major source furnaces currently meet this chromium limit. For those two sources that will not initially meet the finalized chromium limit, the EPA determined that a furnace rebuild may be conducted to achieve the limit with no additional control technologies (*e.g.,* scrubber).

Note that the finalized chromium limit applies to gas-fired furnaces and does not apply to electric furnaces. Electric furnaces at major sources will not be subject to the final chromium emission limits, so wool fiberglass manufacturing facilities operating electric furnaces will not incur any additional costs for compliance with the finalized chromium limits.

Comment: One commenter asserted that the EPA should subcategorize sources by furnace type because the chromium emissions test data indicate significant differences among wool fiberglass furnaces and furnace type. The commenter further asserted that non-oxyfuel furnaces should not have a chromium limit, and that oxyfuel furnaces should be further subcategorized to limit any applicable chromium emission limits to only those furnaces that warrant such limits. A second commenter asserted that the EPA should not subcategorize by furnace type.

One commenter suggested the following list of subcategories: Oxyfuel, specialty, steel shell, air-gas, cold-top electric. The commenter characterized the EPA's authority to subcategorize as broad and discretionary, noting that the CAA authorizes the EPA to ''distinguish among classes, types, and sizes of sources within a category'' in establishing MACT standards, and that the EPA retains discretion in important respects in setting floors for MACT standards within the statutory framework in order to promulgate MACT standards that best serve the public interest. The commenter continued, ''Congress authorized EPA to subcategorize source categories based on classes, types and sizes of sources which will result in different [f]loors for different subcategories.'' The commenter observed that the EPA's criteria for subcategorization include ''air pollution control differences, process operation . . ., emissions characteristics, control device applicability and costs, safety, and opportunities for pollution prevention.'' The commenter also noted that the EPA had incorrectly stated ''[f]urnace construction and refractory composition were not factors that were presented by industry as having an effect on HAP emissions, and those factors were not used as a basis of representativeness for the resulting data set,'' which contradicted the May 5, 2010 testing proposal letter sent to the EPA that categorized furnaces by construction and identified furnaces as having an effect on emissions. The commenter stated that this identification by furnace type in the May 5, 2010 letter is precisely what the EPA should consider when subcategorizing.

The commenter asserted that no subcategories except oxyfuel furnaces should have a chromium limit, noting that non-oxyfuel furnaces (steel shell, cold-top electric, air-gas, and specialty) have extremely low to non-detectable chromium emissions and referred to three supporting references: A summary of the chromium content of refractories and chromium emissions (attachment 8 of comment letter), the test reports sent to the EPA as a basis for the comment, and a technology review of glass furnaces (attachment 10 of the comment

letter).[15] The commenter stated that the technology review (attachment 10) concluded that oxyfuel combustion has a much higher potential for generating hexavalent chromium emissions as compared to air-gas or other types of furnaces based on the following conclusions: (1) Chromium emissions result from volatilization from the surface of chromium alumina refractories used at or above the glass line in the melting furnaces, and (2) the most significant variable with respect to quantity of chromium volatilized and to the presence of hexavalent chromium is the flame temperature. The commenter cited the study's recommendations regarding subcategorization: ''Because of the very significant flame temperature differences between oxyfuel and air-gas furnaces (5,035 degrees Fahrenheit versus 3,562 degrees Fahrenheit, respectively), there is engineering rationale to differentiate or subcategorize the furnaces by combustion type from a standpoint of emissions . . . Other furnaces, such as cold-top melters and steel shell melters, should be in any lower emissions subcategory'' (attachment 10, p. 10).

The commenter further asserted that the EPA should go a step further and subcategorize oxyfuel furnaces to regulate only those furnaces that pose a concern. The commenter stated that the other oxyfuel furnaces other than the CertainTeed Kansas City, Kansas facility (a total of 12 furnaces) do not pose a concern because they show low chromium emissions and do not approach a level of emissions that would trigger MACT applicability. The commenter recommended the following possible approaches for subcategorizing oxyfuel furnaces: (1) Establish a subcategory of the oxyfuel furnaces based on variation in demonstrated chromium emissions; and (2) establish a subcategory of the oxyfuel furnaces based on sources that can demonstrate a less than 1-in-1 million risk (using a risk-based source threshold limit of 25 pounds per year).

Another commenter urged the EPA not to subcategorize the glass-melting furnaces used in the Wool Fiberglass Manufacturing source category. The commenter supported the EPA's recognition at proposal that it was inappropriate to subcategorize in the wool fiberglass source category, given that there are no relevant differences that distinguish among classes, types, and sizes of sources within the category. The commenter argued that use of different types of furnace bricks does not qualify as a basis for subcategorization because sources of the same class, type, and size use different bricks. According to the commenter, the EPA may not subcategorize the source category into high chromium-emitters and low chromium-emitters because that would violate the purpose of protecting public health and the purpose of ensuring that the best-performers drive CAA section 112(d) standards to become stronger. The commenter observed that best-performers may have lower emissions, in part, because of the materials they use in their process or in their equipment. The commenter emphasized that the EPA may not lawfully subcategorize in a way that would place the best and worst performers into their own separate subcategories. The commenter asserted that the EPA should ensure that it sets standards for the entire source category that meet CAA section 112 requirements, rather than subcategorizing in a way that may allow a source to evade stronger emission requirements.

Response: In today's final rule, we are promulgating a PM limit under CAA section 112(d)(6) that is applicable to all glass melting furnaces in the Wool Fiberglass Manufacturing major source category. In our November 2011 proposal, we explained that in conducting our technology review, we found that most sources had reported PM emissions that were less than 10 percent of the current limit with several sources achieving PM emissions that were two to three orders of magnitude lower than the current MACT limit. We reasoned that new furnace designs and improvements in control devices operations, design, and bags since promulgation of the 1999 MACT were most likely responsible for reductions in PM emissions. As previously explained, the EPA may use surrogates to regulate HAP if there is reasonable basis to do so. In several rulemakings, we have used PM as a surrogate ''for HAP metals because PM control technology traps HAP metal particles and other particulates indiscriminately.'' *National Lime Association* v. *EPA,* 233 F.3d at 639. We continue to believe that PM controls would be effective for chromium emissions commensurate with the levels from both steel and electric furnaces used by wool fiberglass manufacturing facilities.

In today's rule, we are also promulgating a chromium compounds limit under CAA section 112(d)(6) that will apply to gas-fired glass-melting furnaces. As explained in the April 2013 supplemental proposal, electric furnaces emit metal HAP including chromium at generally lower emission levels than gas-fired furnaces. For example, because they operate at higher temperatures, gas-fired furnaces are constructed with chromium refractories at various parts of the furnace that are above the molten glass, including the crown. Temperatures above the melt in gas-fired furnaces range from 2500 to 4500 degrees Fahrenheit, and these temperatures are sufficient to convert chromium to its hexavalent state. When chromium is available, as it is in the refractories above the melt in gas-fired furnaces, it may be converted to the hexavalent state by the heat of the gas-fired furnace. Thus, gas-fired furnaces have the potential to emit elevated levels of chromium, even when meeting the total PM limit (78 FR 22379–82; 78 FR 22386). These higher chromium emissions do not occur with electric furnaces because they are constructed with either non-chromium refractories (cold-top electric) or steel in place of refractories (electric steel shell) above the glass/metal line. As also explained in our 2013 supplemental proposal, available test data from both electric and steel shell glass-melting furnaces consistently showed chromium emissions below the detection level of the emissions measurement method (78 FR 22379–80). Furnace construction and source test data also show that electric furnaces are not constructed using high-chromium refractories above the glass-metal line, do not reach the temperatures necessary to transform chromium to the hexavalent state, and do not emit significant amounts of chromium compounds, as do the gas-fired furnaces. In fact, all test data for electric furnaces show that chromium emissions were below the detection limit or were at least one order of magnitude below the proposed limit. Based on test data and statements from industry, we confirmed that gas-fired glass-melting furnaces are constructed using similar high-chromium refractories as one high emitting glass-melting furnace, that chromium emissions increase with furnace age as the refractories age, and that the type of furnace at the high emitter is an emerging new technology that is preferred across the industry where a source of industrial oxygen is economically available.

Additionally, as also explained in today's final rule, we are finalizing a chromium compounds limit, under the ample margin of safety step of CAA section 112(f)(2), that will also apply to gas-fired glass-melting furnaces. As explained above, gas-fired (oxyfuel and

[15] Denis A. Brosnan, Ph.D., PE, ''Technology Review, Chromium Emissions in Wool Fiberglass Melting Furnaces,'' December 10, 2011.

air-gas) furnaces have the greatest potential to emit chromium compounds because they have the internal temperature, the availability of oxygen, reactivity, and corrosivity of the furnace environment that are typical of wool fiberglass furnaces. In the 2013 supplemental proposal, we explained that the elevated chromium emissions from gas-fired furnaces are of concern due to the toxic nature of the type of chromium emitted—hexavalent chromium—and the effects associated with its inhalation. For example, hexavalent chromium is classified as a Class A known human carcinogen (78 FR 22374). In the November 2011 proposal, we also explained that an auxiliary risk characterization analysis, to assess the potential maximum individual lifetime cancer risks in the event that all wool fiberglass manufacturing facilities emitted at the level of the highest hexavalent chromium emitter, indicated that if other facilities were to emit at that reasonable highest measured level, emissions of hexavalent chromium could potentially pose unacceptable risks to public health due to inhalation exposures resulting from stack emissions of hexavalent chromium (76 FR 72801–80). We provided a detailed explanation on our decision to set both PM and total chromium standards in the memorandum titled ''Technical Basis for Separate Chromium Emission Limits for Wool Fiberglass Glass-Melting Furnaces'', which is in the docket for this rulemaking.

Comment: Two commenters predicted that the environmentally beneficial use of recycled mixed and green glass (cullet), and the businesses that provide it, will be adversely impacted by the chromium limit. The commenters pointed out that in 2008–2011, member companies used more than 5.4 billion pounds of recycled glass, and that they are the largest user of mixed glass and the only large user of green glass. These commenters surmise that some chromium may be emitted from cullet when it is remelted in the furnace, and that companies may reduce their use of green cullet to meet the chromium emission limits, an outcome that the commenters see as undesirable. The commenters added that the highest chromium emissions were measured from the furnace that also fed the most green glass cullet as a fraction of total raw materials into the furnace during the test period. One commenter noted that ''not all chrome was retained in the glass (cullet),'' and that green glass cullet ''can be a primary contributor of chrome emissions.''

Response: As discussed in an attachment to comments submitted on the EPA's 2011 proposal, the wool fiberglass ''recipe'' uses alkali or alkaline earth oxides, or boron oxide (borax) for its properties to terminate chains and sheets of silicon and oxygen tetrahedral in the glass melt.[16] The result of this process is the formation of macromolecules. These macromolecules are kinetically unable to crystallize at low temperature and, as a result, essentially polymerize the glass.

The comment attachment further explains that chromium enters the glass in wool fiberglass furnaces below the glass line, and goes into solution without having the potential for volatilization at glass-melting temperatures.[17] Chromium enters the silicate network structure of the glass as a ''modifier'' of the network, and cannot form glass on its own due to thermodynamic constraints. Chromium is held ''rigidly'' in the silicate structure in interstices in the atomic network, and is present in coordinated complexes with oxygen.[18]

Further, based upon comments from industry, technical literature, refractory product specifications, and other data, we conclude that the chromium is not released from the cullet when it is melted, but from the chromium refractories due to several influencing factors: The glass chemistry, furnace temperatures, refractory wear rate and glass pull rate. For more information regarding this topic, see memo titled ''Mechanisms of Chromium Emissions From Wool Fiberglass Glass-Melting Furnaces, June 2015'' in the docket to this rule.

However, we agree that the chemistry of the internal furnace environment may be influenced when green glass cullet comprises most or nearly all of the raw material mixture used in the furnace. This may be due to reaction of submetallic oxides (boron) with the chromium oxide of the refractory. As described in the comment attachment, ''the basics of glass melting are well-known, with fluxes acting on silicon dioxide or SiO_2 to achieve a melted state that forms an amorphous ''network'' of atoms of oxygen and silicon with ''fluxing'' metals resulting in rigid solids at room temperature.'' [19] The attachment concludes that, ''Below the glass line in mineral wool [20] (sic) furnaces, chromium from refractory corrosion enters the network structure of the molten glass where it is held to the extent that it is not volatile at the flame temperatures of batch temperature within these furnaces. Therefore, volatilization from chromium refractories within mineral fiberglass furnaces originates at or above the glass line in the furnaces from the exposed refractory surfaces.''

To summarize, according to the commenter, the minerals used to color these glasses is not re-emitted from the cullet when it is melted at the temperatures of wool fiberglass furnaces. According to the commenter, studies show that in order to volatilize chromium from glass, temperatures above 7,000 degrees Celsius (12,000 degrees Fahrenheit) (such as occurs at plasma processing temperatures) are required (Brosnan, 2012).

Therefore, we disagree with the commenter's assertion of the mechanism of chromium emissions from the furnace, *i.e.,* that chromium is volatilized from green glass cullet when it is remelted in the wool fiberglass furnace.

To the contrary, we maintain that chromium emissions are due to chromium refractory products in wool fiberglass furnaces. According to the literature and references, many of which were provided by the commenter, chromium emissions increase from the wool fiberglass furnace as a result of degradation of chromium refractories, which is influenced by the thermochemical interactions within the furnace environment. The rate of degradation of the chromium refractory in the wool fiberglass furnace is influenced by the thermochemical interactions which are influenced by the raw material mixture processed in the furnace and the use of cullet (of any color).

We note that the test results upon which the final limits are based include tests conducted while the furnace was processing cullet in the raw material

[16] Technology Review. Chromium Emissions from Wool Fiberglass Melting Furnaces. Brosnan, Denis A. Ph.D., PE. Clemson University, Clemson, SC February 1, 2012.

[17] Chromium volatilization is only reported in the non-equilibrium melting of glasses at plasma processing temperatures, *i.e.,* with flame temperatures typically reported as above 7,000 degrees Celsius (>12,000 degrees Fahrenheit). Brosnan, 2012.

[18] C. Nelson, Transition Metal Ions in Glasses: Nework Modifiers or Quasi-Molecular Complexes, Mat. Res. Bull. 18 (1983) 959–966.

[19] W. David Kingery, H. Bowen, and D. Uhlmann, *Introduction to Ceramics* (2nd Edition), Wiley (1976).

[20] This report was attached to a comment to the November 25, 2011, Wool Fiberglass Manufacturing proposed RTR rule, and offers the author's view on the technology review for wool fiberglass furnaces. We conclude his use of the term 'mineral wool' in this context may have been either an error (the author advises on both industries) or an inclusion of wool fiberglass as a sub-classification under the overall classification (see NAICS codes) of mineral wool.

mixture. While the technology basis for the final standard is more frequent furnace rebuilds, wool fiberglass furnace operators may choose among a variety of options, as explained in section III.D of the 2014 preamble. Commenters previously identified several options to meet the final standard, including raw material substitution, *i.e.,* reducing the amount of cullet processed in the furnace. In addition to raw material substitution, industry commenters included the furnace rebuild and installation of a control technology at the outlet of the DESP as potential chromium reduction measures.

Regarding the prediction of the commenters that negative environmental impacts will result from the chromium limits because green glass will be landfilled instead of remelted by the wool fiberglass industry, we disagree for the following reasons. First, glass recycling in the past was accomplished through the color segregation of glass materials: Brown, or amber glass for amber containers; clear, or ''flint'' for flint containers; and green glass for green containers. Recycling centers no longer segregate their glass by color, but instead separate recyclable materials according to type: Paper, aluminum, steel, and glass, where glass of all colors is combined together in a single stream. Therefore, we disagree with the commenter that vast amounts of green glass would be landfilled because glass recycling no longer segregates waste glass by color.

Second, we acknowledge that while mixed glass from single stream recycling may be difficult to sell as a raw material, recyclers now decolorize used glass for resale into all glass markets (container glass in particular). One recycler (GMG) in particular shared a description of their process: ''GMG's basic technology provides for the de-colorization and subsequent recolorization of mixed color cullet in the production of glass containers. In so doing, it allows the glass manufacturer to use multiple colored cullet (amber, green, flint) to produce a single color glass, matching rigorous color and transmissivity standards required for many glass products. It accomplishes this in a manner that allows the glass manufacturer to replace virgin raw materials with a former waste product (mixed cullet). GMG's Batch Formulation System (BFS) is a user-friendly software program based upon a GMG proprietary series of algorithms representing the full spectrum of furnace batch materials and their chemistry. The BFS technology, combined with the optical scanning equipment, enables the manufacturer to further increase savings through the use of start-of-the-art optical scanner/feeder with advanced software that instantaneously reports color distribution weights and cullet chemistry in each batch sent to the furnace. Using these real time reports on the incoming cullet stream, the furnace operator can make formula modifications in chemicals and virgin materials to ensure uniform colored glass production.''

Third, the wool fiberglass industry is one of several glass industries, including mineral wool, container glass, pressed and blown glass, and flat glass, that purchase glass cullet as an inexpensive and energy efficient raw material. Therefore, we disagree that glass cullet would necessarily be landfilled instead of used in one of any number of glass industries.

Fourth, because chromium does not readily leach out of vitrified materials such as glasses, and would not further pollute the environment if disposed in a landfill, we believe that even if green glass cullet were landfilled in some areas, that would not result in a worse environmental impact than for chromium (particularly in its hexavalent form, as is most of the chromium from wool fiberglass) to be released into the air upon remelting.

Finally, according to the commenter, the use of cullet is required by Executive Order, and wool fiberglass companies avail themselves of cullet as a low-cost, energy efficient raw material which is also used to increase wool fiberglass production rates due to the lower melting temperature and eutectic point (as compared to all raw minerals). Wool fiberglass manufacturers have stated that they would need to greatly reduce or eliminate their use of cullet in the oxyfuel furnaces in order to meet the proposed chromium limit (0.00006 lb/ton of glass pulled), but that it is a moot point at the final chromium limit (0.00025 lb/ton of glass pulled). During meetings held in December 2014 and March 2015, industry stated that reducing or eliminating the use of cullet in the oxyfuel furnaces as a way to meet the chromium emission limit was no longer a concern to them. Furthermore, use of cullet in electric furnaces (which are not impacted by the chromium limit) does not seem to increase emissions of chromium as it does in gas-fired furnaces. Therefore, this is not an issue for electric furnaces, which will continue to use cullet. Therefore, we disagree with the commenter that cullet providers will be adversely affected by these final rules.

For the reasons stated above, we disagree with the commenter that there are environmental impacts associated with glass recycling that should be included in the impacts analysis. However, changing the content and mixture of raw materials used in a process can be a viable option for regulated sources to meet emissions limits.

4. What is the rationale for our final approach for the technology review?

In our technology review under CAA section 112(d)(6), for PM we found that while the use of ESPs is not new to this industry, the use of the DESPs in combination with gas-fired furnaces is more prevalent. We found that, in general, baghouses are no longer used for gas-fired glass-melting furnaces. We also found that all glass-melting furnaces were achieving emissions reductions that were well below the existing MACT standards regardless of the control technology in use.

Therefore, we determined that emissions controls on furnaces are capable of reducing PM to levels below those in the MACT standard, and, as previously proposed in our April 2013 supplemental proposal, we are finalizing under CAA section 112(d)(6) the PM limit for new and existing glass-melting furnaces.

Section 112(d)(6) of the CAA provides that the agency must review and revise ''as necessary'' existing MACT standards taking into consideration developments in practices, processes and control technologies by affected sources. The ''as necessary'' language must be read in the context of the provision, which focuses on the review of developments that have occurred in the industry since the time of the original promulgation of the MACT standard. Thus, our technology review was for all glass-melting furnaces located at both area and major sources, since all area sources were originally major sources. As explained in our April 2013 supplemental proposal, the number of area sources is continually increasing as a result of the definition of ''wool fiberglass facility'' in 40 CFR 63, subpart NNN. For example in 2002, two out of 33 facilities were area sources, but by December 2012, 20 facilities were area sources (78 FR 22377). As also previously explained, there are no differences between gas-fired glass-melting furnaces used at major and area sources (78 FR 22377). Therefore, we believe it was appropriate to consider all furnaces in our technology review under CAA section 112(d)(6).

Based on public comments and test data, we found that the DESP achieves an average of 97.5-percent efficiency in reducing PM, a fraction of which is

chromium compounds. Test data indicate that the majority of this chromium is in the hexavalent state, which is the most toxic form of this pollutant. We concluded that, as earlier discussed, the mechanism of formation, the increasing rate of emission release (due to refractory degradation), and the pollutant toxicity warrant additional investigation. Our technology review indicates that options effective in reducing the chromium compound emissions from the furnaces are available to wool fiberglass companies. We, therefore, conclude that it is appropriate for us to set standards for the fraction of chromium in the total PM that is still emitted from the DESP.

Based on comments we received on the November 2014 supplemental proposal, we again reviewed the cost and control options and found using new cost information that the limit as proposed was not as cost effective as we initially believed. We reviewed the data to determine whether a higher limit than previously proposed would be more cost effective while still significantly reducing chromium emissions from wool fiberglass gas-fired glass-melting furnaces. We found that most wool fiberglass gas-fired glass-melting furnaces and all recently rebuilt gas-fired furnaces currently emit chromium compounds at rates below 0.00025 pounds chromium per ton of glass pulled. Two furnaces located at major sources, which together emit 583 pounds of chromium compounds per year after DESP control, would still have to reduce chromium emissions to meet the limit.

We compared the chromium emission reductions that would have resulted under the previously proposed emission limit of 0.00006 pounds chromium per ton of glass pulled to the reductions that result from the final limit of 0.00025 pounds chromium per ton of glass pulled. We found that the proposed limit would have reduced chromium from major sources by 567 pounds per year, and that the final limit reduces chromium by 524 pounds per year. These are comparable and substantial reductions in chromium due to two high-emitting furnaces at major sources. Moreover, the final limit sets a backstop so that another high-chromium-emitting, gas-fired glass-melting furnace cannot be operated again at a major source in this industry.

We revised our technology review to reflect our conclusions on the most cost-effective ways to meet the final chromium limit. We find that two approaches are likely to be used by industry to reduce chromium emissions from gas-fired furnaces. One approach is to rebuild the furnace early (instead of a furnace life of 10 or more years, rebuild the furnace after 7 years of service) at an annualized cost of $462,000 per year, and the other approach is to replace one raw material (cullet) with another material (raw minerals), which the industry stated would result in lower chromium emissions, at an average cost of about $620,000 per year. Industry test data show that major sources will reduce chromium emission by 524 pounds per year to meet the 0.00025 pounds chromium per ton of glass pulled limit. The cost effectiveness of both approaches is reasonable, and the option to rebuild the furnace has a cost effectiveness of approximately $880 per pound of chromium, which appears for most companies to be the most cost-effective option. This cost is extremely affordably compared to costs for chromium control in other rules. For example, in the Chromium Electroplating RTR (77 FR 58226, September 19, 2012), we accepted a cost effectiveness of $11,000 per pound of hexavalent chromium reduced. We also note that section 112(d) neither specifies nor mandates a cost methodology. We note that in *Husqvarna AB* v. *EPA,* 254 F.3d 195, 200 D.C. Cir. 2001), the DC Circuit Court found the EPA's chosen methodology ''reasonable'' because the statute ''did not mandate a specific method of cost analysis.''

Sources may choose a combination of these approaches to meet the final chromium limit: Raw material substitution may be used as the furnace begins to show refractory wear (and associated increase in chromium emissions), and then, toward the end of the useful life of the furnace, sources may choose to rebuild their process equipment. We discuss the technology review in more detail in the November 2011 (76 FR 72803–72804) and the April 2013 (78 FR 22379–382) proposals; in the ''Technology Review Memorandum for the Wool Fiberglass Manufacturing NESHAP''; and in the paper titled, ''Mechanisms of Chromium Emissions From Wool Fiberglass Glass-Melting Furnaces,'' June 2015; which are available in the docket to this rule.

C. MACT Standards for Pollutants Previously Regulated Under a Surrogate and Previously Unregulated Pollutants for the Wool Fiberglass Manufacturing Source Category (Major Sources)

1. What did we propose pursuant to CAA sections 112(d)(2) and (3) for the Wool Fiberglass Manufacturing source category (major sources)?

In the November 2011 proposal, we proposed to establish emissions limits for formaldehyde, methanol, and phenol from FA and RS manufacturing lines that were previously regulated under a surrogate, and previously unregulated HCl and HF from glass-melting furnaces. In the April 2013 supplemental proposal, we retained the proposed emission limits for formaldehyde, methanol, and phenol for FA and RS manufacturing lines; however, we proposed work practice standards under CAA section 112(h) for control of HF and HCl emissions from furnaces, instead of the numeric emission limits in the November 2011 proposal (see section V.D of this preamble). In the November 2014 supplemental proposal, we proposed revised emissions limits for formaldehyde, methanol, and phenol from RS and FA lines for new sources as a result of our updated approach to evaluate limited datasets. The emission limits for existing RS and FA lines in the November 2014 supplemental proposal remained the same as in the April 2013 supplemental proposal because the size of these datasets was sufficiently large that the limits were not changed by the updated approach.

For the sake of simplicity, we discuss these pollutants together in the following sections.

2. How did the formaldehyde, methanol, and phenol emission limits change for the Wool Fiberglass Manufacturing source category?

We have not changed any aspect of the emission limits for formaldehyde, methanol, and phenol for existing and new FA manufacturing lines since the November 2014 supplemental proposal. However, as explained in section V.H of this preamble, we are deferring evaluation of emissions limits for RS lines pending collection of new process and emissions data from the industry.

3. What key comments did we receive on the formaldehyde, methanol, and phenol emission limits, and what are our responses?

We received comments in support of and against our proposed formaldehyde, methanol, and phenol emission limits for FA lines. The following is a summary of the key comments received

regarding the revised formaldehyde, methanol, and phenol emission limits for FA lines in the Wool Fiberglass Manufacturing source category and our responses to these comments. Additional comments on the standards and our responses can be found in the comment summary and response document available in the docket for this action (EPA–HQ–OAR–2010–1042).

Comment: One commenter expressed concern that the EPA is changing the applicability of the MACT standard for products made on FA manufacturing lines, as the 2013 supplemental proposal (78 FR 22370, April 15, 2013) indicated that the limits apply to all products manufactured on an FA line, not only to pipe and heavy density products. The commenter interpreted this to expand applicability of MACT to lines not previously regulated, which is beyond the EPA's authority under section 112 of the CAA. In the commenter's opinion, the limits for FA lines should continue to apply only to pipe and heavy density products, and not to any other product made on an FA line.

Response: The EPA changed the applicability of the MACT standard for products made on FA manufacturing lines for two reasons. First, the EPA determined under this rulemaking that the EPA established the 1999 MACT floor as no control (*i.e.,* no limit was established) for formaldehyde emissions from FA lines producing light density products (new and existing), automotive products (new and existing), and heavy density products (existing). As stated in the March 31, 1997, proposal for the Wool Fiberglass Manufacturing NESHAP (61 FR 15230), we divided FA lines into four subcategories: light density, automotive, heavy density, and pipe products. In that proposal (61 FR 15239), we noted that we did not establish emission limits for existing FA manufacturing lines producing light-density, automotive or heavy-density products or emission limits for new FA manufacturing lines producing light-density or automotive products because the MACT floor was no control and because the cost effectiveness of additional controls beyond the floor was not reasonable. The DC Circuit Court explicitly rejected this approach—establishing the MACT floor as no control—in both *National Lime Association* v. *EPA,* 233 F. 3d at 633–34 and in *Portland Cement Association* v. *EPA,* 665 F.3d 177, 189 (D.C. Cir. 2011). Therefore, the EPA has both the authority and the obligation to change applicability for FA lines to ensure that all sources of HAP are regulated.

Furthermore, we believe that the data for these facilities clearly support the establishment of MACT floors that assure emissions controls. The standards are based on data we received on tested FA lines. The commenter did not provide additional test data or information on ''any other product made on an FA line'' that would lead us to change to the emission limits previously proposed for FA lines.

Second, in our April 2013 supplemental proposal, in response to comments on our November 2011 proposal, and consistent with our intent in the 2011 proposal, we stated that we were eliminating the subcategories for FA bonded lines because we believe that the technical or design differences that distinguished these subcategories in 1999 no longer exist (78 FR 22387). We stated in the 2013 preamble that, as part of rule development, industry provided test data that they claimed were representative of products manufactured on FA lines (refer to industry's May 10, 2010, letter to the EPA, available in the docket). The 2011 and 2012 ICR response data indicate that only one company uses FA processes to manufacture wool fiberglass products. This is the company that provided the test data on which the limits for FA lines are based. In comments, companies asked that the limits for FA lines apply only to pipe and heavy density, and not to ''any other product made on an FA line.'' However, no other companies provided additional data that could serve as a basis for a change to the proposed limits for FA lines for any other products being produced on FA lines. The data provided by industry, therefore, indicate that this one company is the only company engaged in manufacturing wool fiberglass products on an FA line. Because test data exist for multiple products from this one company reporting these activities, we disagree with the commenter that the limits for FA lines should continue to apply only to pipe and heavy density products, and we are finalizing limits developed for FA lines that are representative of all product types made on FA lines. Consistent with our 2013 supplemental proposal, we are establishing standards at the MACT floor level of control for phenol, formaldehyde and methanol emissions from FA bonded lines.

In 2007, the D.C. Circuit Court found that the EPA had erred in establishing emissions standards for sources of HAP in the NESHAP for Brick and Structural Clay Products Manufacturing and Clay Ceramics Manufacturing, 67 FR 26690 (May 16, 2003), and consequently vacated the rules. (*Sierra Club* v. *EPA,* 479 F. 3d 875 (D.C. Cir. March 13, 2007)). Among other things, the Court found the EPA erred by failing to regulate processes that emitted HAP. As required by CAA section 112, we must establish emission limits for all processes that emit HAP based on the information available to us. The data available to the EPA indicate that FA lines producing products other than pipe and heavy density products do emit HAP. Therefore, the EPA is obligated to set limits for formaldehyde, phenol, and methanol for any such FA lines.

Comment: One commenter expressed concerns regarding the EPA's proposed limits for formaldehyde, phenol, and methanol. Regarding the 2011 proposal, the commenter asked the EPA to consider the example of one company whose compliance test data indicate that after switching to a non-phenol/formaldehyde binder, the level of formaldehyde and methanol for its RS line would exceed the 2011 proposed standard of 0.02 pounds per ton for formaldehyde for RS lines and the proposed standard for methanol of 0.00067 pounds per ton for new and reconstructed RS lines. According to the commenter, the data also suggested that an RS line at an existing source using non-phenol/formaldehyde binders would not meet the 2011 proposed formaldehyde standard of 0.17 pounds per ton for RS lines. The commenter also contended that the phenol limit of 0.0011 pounds per ton in the 2011 proposal for RS lines is so low that it cannot be measured with normal test times or with the proposed method if the process is performing close to the limit. The commenter concluded that the sources that switch to non-phenol/formaldehyde binders would not be able to comply with the proposed standards without installing controls such as a thermal oxidizer, which suggested the proposed standards are inappropriate. The commenter objected to the EPA's calculating the MACT floor using data for RS lines using non-phenol/formaldehyde binders. The commenter asserted that non-phenol/formaldehyde binder lines are not representative of emissions in the affected units within the industry, and non-phenol/formaldehyde binder lines should not be used to set the MACT floor for formaldehyde, phenol, and methanol. The commenter requested that the EPA confirm that all test data used to set new and revised limits are based only on data from sources running a bonded product, and to confirm that none of the test data used to set the new and revised limits are based on data from sources

running a non-phenol/formaldehyde binder or unbonded product.

Regarding the 2013 supplemental proposal, the commenter maintained that formaldehyde and methanol standards are not feasible for certain RS lines without installing both non-phenol/formaldehyde binder and additional controls such as thermal oxidizers, because of the formaldehyde created through combustion of natural gas. The commenter specifically mentioned the formaldehyde standard of 0.19 pounds per ton for RS lines as being borderline achievable for non-phenol/formaldehyde binders in RS lines for existing sources.

Regarding the 2014 supplemental proposal, the commenter indicated that the level of formaldehyde and methanol emitted by RS lines would exceed the 2014 proposed standard of 0.087 pounds per ton for formaldehyde and the 2014 proposed standard for methanol of 0.61 pounds per ton for new and reconstructed sources because of the formaldehyde created through combustion of natural gas. The commenter added that the data also suggest that the formaldehyde standard of 0.19 pounds per ton is borderline passing for non-phenol/formaldehyde binder on some existing sources. The commenter explained that formaldehyde is a by-product of natural gas combustion from burners used in the process. The commenter indicated that the proposed phenol limit of 0.26 pounds per ton is greatly improved since the 2011 proposed limit, but that it is still not consistently achievable. The commenter concluded that the proposed standards may not be able to be achieved even after switching to non-phenol/formaldehyde binders without installing controls such as a thermal oxidizer, which themselves will emit additional formaldehyde as a result of the combustion of natural gas to operate the control device.

Response: We agree with the commenter that the data used to calculate MACT for major sources must not include data for RS lines that run a non-phenol/formaldehyde binder or unbonded product. As discussed in the 2013 supplemental proposal (78 FR 22387), in response to the comment on the 2011 proposed emission limits for RS lines, we recalculated the emission limits after removing the emission test data for RS lines using non-phenol/formaldehyde binders, and we re-proposed emission limits for RS lines. However, based on this comment, we determined that our proposed formaldehyde, phenol, and methanol limits for RS lines may not accurately represent the average performance of the best performing sources. In 2015, after considering further information provided by industry representatives, we determined that the limits proposed in 2014 for RS lines likely included RS lines using non-phenol/formaldehyde binders and that the EPA could not determine (based on the 2011 ICR data) which data represented manufacturing lines that were using phenol/formaldehyde binders, and which data represented manufacturing lines that were not using the phenol/formaldehyde binder. As a result, we are not establishing in this final action RTR standards for formaldehyde, phenol, and methanol for RS manufacturing lines at wool fiberglass manufacturing facilities. We have issued an ICR under section 114 of the CAA to collect updated emissions and process information from the industry, and we will analyze the ICR data and evaluate limits for RS lines at wool fiberglass manufacturing facilities at a future date.

Comment: One commenter argued that the EPA should not recalculate the MACT floor for formaldehyde emissions and that the current MACT floor for formaldehyde emissions is still valid. The commenter contended that the EPA should not set a MACT floor for formaldehyde for the second time, explaining that (1) the EPA has not provided an explanation or asserted any rational basis for choosing to calculate a new MACT floor and standard for formaldehyde, as opposed to using its discretion under CAA section 112(d)(6) to make an appropriate adjustment without recalculating the floor and standard; and (2) there is no basis under the technology review to recalculate a MACT floor.

The commenter stated that nothing in CAA section 112(d) suggests that the EPA is required to establish a floor under CAA section 112(d)(3) more than once in issuing or revising MACT standards under CAA section 112(d). The commenter pointed out that this proposal is not consistent with other RTRs, for which the EPA has taken the position that Congress did not intend EPA to establish MACT floors for a second time when it revised a standard. The commenter provided the example of the Coke Oven RTR rulemaking, in which the EPA stated its rationale for CAA section 112(d)(6) not requiring additional floor determinations because this would ''effectively convert existing source standards into new source standards . . . The EPA sees no indication that section 112(d)(6) was intended to have this type of inexorable downward ratcheting effect.'' The commenter further pointed out litigation challenging the Hazardous Organic NESHAP RTR rule, in which the DC Circuit Court upheld the position that there should not be an inexorable downward ratcheting effect for the MACT floors (*NRDC* v. *EPA*, 529 F.3d 1077, 1083–84 (D.C. Cir. 2008)). The commenter urged the EPA to consider the statutorily-prescribed factors in recalculating the MACT floor.

The commenter stated that the EPA is conducting a MACT on MACT analysis by recalculating the MACT floor, citing *NRDC* v. *EPA*, 529 F.3d 1077, 1083–84 (D.C. Cir. 2008), where the U.S. Court of Appeals for the D.C. Circuit upheld the position that there should not be an inexorable downward ratcheting effect for the MACT floors. The commenter agreed that the EPA should calculate the floor for phenol and methanol, since standards for these HAP were missing from the NESHAP.

The commenter urged the EPA to retain the 1999 formaldehyde limit, saying that the 1999 limit is still the MACT floor and lowering the limit would be ''beyond-the-floor'' and would need to be justified accordingly. The commenter noted that in the proposal for the 1999 MACT rule, the EPA found that the floor for FA lines making both heavy density and pipe products was no control. The commenter observed that the EPA had also considered controls beyond-the-floor at the time, but concluded that the cost effectiveness was unreasonable. According to the commenter, nothing has changed since this proposal for FA lines. The commenter noted that because no new HAP controls have been added, the floor is still no control for these products.

Response: The EPA does not agree that CAA section 112(d)(6) provides the exclusive authority to address MACT standards when a MACT determination has already been issued for the source category. The D.C. Circuit Court has held that the EPA may permissibly amend improper MACT determinations, including amendments to improperly promulgated floor determinations, using its authority under CAA sections 112(d)(2) and (3). *Medical Waste Institute and Energy Recovery Council* v. *EPA*, 645 F. 3d 420, 425–27 (D.C. Cir. 2011). The absence of standards for these HAP is not proper. *National Lime Association* v. *EPA*, 233 F. 3d at 633–34; see also *Medical Waste Institute and Energy Recovery Council* v. *EPA*, 645 F. 3d at 426 (resetting MACT floor, based on post-compliance data, is permissible when originally-established floor was improperly established, and permissibility of EPA's action does not turn on whether the prior standard was remanded or vacated). Similarly, the D.C. Circuit Court's December 9, 2011

decision in *Portland Cement Association* v. *EPA*, 665 F.3d 177, 189 (D.C. Cir. 2011) confirms that CAA section 112(d)(6) does not constrain the EPA and it may reassess its standards more often, including revising existing floors if need be. The commenter is, thus, incorrect in arguing that CAA section 112(d)(6) provides the exclusive authority to address MACT standards when a MACT determination has already been issued for the source category. Further, CAA section 112(d)(6) itself provides that the agency must review and revise ''as necessary.'' The ''as necessary'' language must be read in the context of CAA section 112(d)(6), which focuses on the review of developments that have occurred since the time of the original promulgation of the MACT standard and, thus, can be used as an opportunity to correct flaws that existed at the time of the original promulgation.

The EPA is amending the 1999 formaldehyde MACT floor for FA lines because the floor was improperly determined. First, the EPA determined under this rulemaking that the MACT floor for formaldehyde emissions for new FA lines making heavy density products and for new and existing FA lines making pipe products were set at the highest measured value for each of the subcategories. As such, the 1999 MACT floor for formaldehyde was improperly set at a level achievable by all sources within the Wool Fiberglass Manufacturing source category and not at a level defined by the CAA. Again, as explained in the November 2011 proposal, when the EPA had in the past (incorrectly) interpreted CAA section 112(d) as requiring standards that can be achieved by all sources, the D.C. Circuit Court has rejected that interpretation. ''EPA may not deviate from section 7413(d)(3)'s requirement that floors reflect what the best performers actually achieve by claiming that floors must be achievable by all sources using MACT technology.'' *Cement Kiln Recycling Coalition* v. *EPA*, 255 F.3d at 861. ''EPA may not deviate from section 7413(d)(3)'s requirement that floors reflect what the best performers actually achieve by claiming that floors must be achievable by all sources using MACT technology.'' *Cement Kiln Recycling Coalition* v. *EPA*, 255 F.3d at 861 (''EPA cannot circumvent *Cement Kiln's* holding that section 7412(d)(3) requires floors based on the emission level actually *achieved* by the best performers (those with the lowest emission levels), not the emission level achievable by all sources, simply by redefining ''best performing'' to mean those sources with emission levels *achievable* by all sources.'' *Sierra Club* v. *EPA*, 479 F. 3d at 881. (Emphasis in original). In revising the MACT floor for formaldehyde, the EPA is ensuring that the floor reflects the method established in CAA section 112(d) for establishing the MACT floor for major sources of HAP: (1) For existing sources, MACT standards must be at least as stringent as the average emissions limitation achieved by the best performing 12 percent of existing sources (for which the Administrator has emissions information) or the best performing five sources for source categories with less than 30 sources, as is the case here; and (2) for new sources, the MACT standards must be at least as stringent as the control level achieved in practice by the best controlled similar source (CAA section 112(d)(3)).

Second, the EPA determined under this rulemaking that the EPA established the MACT floor for the formaldehyde limits for FA lines producing light density products (new and existing), automotive products (new and existing), and heavy density products (existing) as no control (*i.e.*, no limit was established). Therefore, these sources of HAP emissions are unregulated under the NESHAP, which is an approach soundly rejected by the D.C. Circuit Court in both *National Lime Association* v. *EPA*, 233 F. 3d at 633–34 and in *Portland Cement Association* v. *EPA*, 665 F.3d 177, 189 (D.C. Cir. 2011). The EPA disagrees with the commenter that the EPA should retain the current MACT floor of ''no control'' and that the EPA's recalculating the floor represents a level ''beyond the floor.'' Put another way, since the EPA did not adopt a proper MACT standard initially, it is not amending a MACT standard but adopting one for the first time. Consequently, the EPA is not barred from making MACT floor determinations and issuing MACT standards for formaldehyde pursuant to CAA sections 112(d)(2) and (3).

Third, the EPA is removing formaldehyde as a surrogate for phenol and methanol emissions, as supported by the commenter. The EPA may attribute characteristics of a subclass of substances to an entire class of substances if doing so is scientifically reasonable. *Dithiocarbamate Task Force* v. *EPA*, 98 F.3d 1394, 1399 (D.C. Cir. 1996). We no longer believe that there is a correlation and, therefore, reasonable bases, between formaldehyde and phenol and methanol. Further discussion of the EPA's rationale for removing formaldehyde as a surrogate for phenol and methanol emissions is provided in the preamble to the 2011 proposal (76 FR 72788, 72791, and 72796) for.

Regarding the comment that this proposal is not consistent with other RTRs, we note that in several recent rulemakings we have chosen to fix underlying defects in existing MACT standards under CAA sections 112(d)(2) and (3), provisions that directly govern the initial promulgation of MACT standards (see National Emission Standards for Hazardous Air Pollutants From Petroleum Refineries, October 28, 2009, 74 FR 55670; and National Emission Standards for Hazardous Air Pollutants: Group I Polymers and Resins; Marine Tank Vessel Loading Operations; Pharmaceuticals Production; and the Printing and Publishing Industry, April 21, 2011, 76 FR 22566). Regarding the comment that the EPA had not provided an explanation or asserted any rational basis for choosing to calculate a new MACT floor and standard for formaldehyde, in our 2011 proposal, we explained that the D.C. Circuit Court had found that we erred in establishing emissions standards for sources of HAP in the NESHAP for Brick and Structural Clay Products Manufacturing and Clay Ceramics Manufacturing, and, consequently, vacated the rule. *Sierra Club* v. *EPA*, 479 F. 3d 875 (D.C. Cir. 2007). These errors included incorrectly calculating MACT emissions limit, failure to set emission limits and failure to regulated processes that emitted HAP. We explained that we were taking action to correct similar errors in the 1999 Wool Fiberglass Manufacturing NESHAP. We identified certain HAP that we failed to establish standards for in these rules. We also explained that we had not established standards for phenol and methanol because they were represented by a surrogate (*i.e.*, formaldehyde).

With regard to formaldehyde emissions from the Wool Fiberglass Manufacturing source category, we explained we were proposing MACT limits for existing, new, and reconstructed RS and FA manufacturing lines and presented these limits in Tables 4–6 of the 2011 proposal (76 FR 72791). We also explained that we had a ''clear obligation to set emissions standards for each listed HAP.'' *National Lime Association* v. *EPA*, 233 F. 3d 625, 634 (D.C. Cir. 2000).

4. What is the rationale for our final approach for the formaldehyde, methanol, and phenol emission limits?

As explained elsewhere in this preamble, we are eliminating the subcategories for FA bonded lines because we believe that the technical or

design differences that distinguished these subcategories when the original rule was developed no longer exist (CAA section 112(d)(1)). We are also establishing standards at the MACT floor level of control for formaldehyde, methanol, and phenol emissions from FA bonded lines.

The data available to us at proposal were emissions test data from various products within the heavy density products subcategory only, and industry indicated that the test data for this subcategory were representative of all products manufactured on FA bonded lines. Since our various proposals, no additional source test data have been provided to support continued subcategorization of FA lines. We, therefore, concluded in the various proposals that the limits developed for FA lines were representative of all products made on FA lines and that further subcategorization was no longer supportable.

As also explained in our November 25, 2011 proposal, we examined the 1999 MACT rule and found that it does not include emissions standards for certain products manufactured on FA lines which do not fall into the regulated subcategories ''pipe'' and ''heavy density.'' [21] The EPA has a ''clear statutory obligation to set emission standards for each listed HAP. Although *Sierra Club* v. *EPA* permits the Agency to look at technological controls to set emissions standards, it does not say that the EPA may avoid setting standards for HAP not controlled with technology.'' *National Lime Association* v. *EPA*, 233 F.3d 625, 634 (D.C. Cir. 2000) (internal citation omitted). In our review, we found that the foundation supporting the 1999 MACT standard for formaldehyde was developed incorrectly. Instead of being based upon the emission limit achieved by the average of the best performing 12 percent of existing sources, it was set at a level that was achievable by all existing sources. As explained in our November 25, 2011 proposal, this approach has been consistently rejected by the D.C. Circuit. ''EPA may not deviate from section 7413(d)(3)'s requirement that floors reflect what the best performers actually achieve by claiming that floors must be achievable by all sources using MACT technology.'' *Cement Kiln Recycling Coalition* v. *EPA*, 255 F.3d at 861.

For the reasons provided above, as proposed in the November 2014 supplemental proposal and in the comment summary and response document available in the docket, we are eliminating the subcategories for FA lines and finalizing emissions limits at the MACT level of control for formaldehyde, phenol, and methanol, as shown in Table 3 of this preamble.

D. Work Practice Standards for HCl and HF Emissions From Furnaces in the Wool Fiberglass Manufacturing Source Category (Major Sources)

1. What did we propose pursuant to CAA section 112(h) for wool fiberglass manufacturing (major sources)?

In our November 2011 proposal, we proposed emission limits for HF and HCl from glass-melting furnaces. In our April 2013 supplemental proposal, we proposed work practice standards in lieu of numeric emission limits, under CAA section 112(h), in response to comments and our evaluation of test data from industry regarding our November 2011 proposed limits. We explained that in response to comments on the November 2011 proposed limits, we re-evaluated test data that we used to calculate the MACT floor for the proposed HCl and HF standards and found that most of the test data reflected values below the detection limit of the test method. Specifically, over 80 percent of the test results were values indicating that either HCl or HF, or both pollutants, in the exhaust gas stream were below the detection limit of the test methods. We, therefore, proposed work practice standards for the control of HCl and HF emissions from furnaces. However, in the 2013 supplemental proposal we did not specifically identify the work practice standards. In our November 2014 supplemental proposal, we noted that the source of HF and HCl in furnace emissions was cullet made from glass used in products such as cathode ray tubes (CRTs), microwave ovens, televisions, computer screens, and other electronics. Therefore, we proposed work practice standards that would require owners and operators of wool fiberglass glass-melting furnaces to ensure that the cullet did not contain glass from these types of sources either by conducting their own internal inspection and recordkeeping program, or by receiving certification from their cullet suppliers.

2. How did the work practice standards change for the Wool Fiberglass Manufacturing source category since proposal?

In the November 2014 supplemental proposal, we explained the proposed work practice standards for HF and HCl in the preamble, but received comment that because the rule language did not accurately reflect the preamble language, that it left to interpretation the other sources of fluoride in the cullet (such as municipal water supply used to wash cullet). We did not intend that interpretation, which would be beyond the purposes of the NESHAP. In this final rule, we are correcting that deficiency in the November 2014 supplemental proposal, withdrawing that previously proposed rule language and specifying in the rule text at 40 CFR 63.1382(a)(1)(iii) the correct requirements, as previously proposed and as indicated above.

3. What key comments did we receive on the work practice standards, and what are our responses?

We received comments in support of and against our work practice standards for HCl and HF emissions from furnaces at wool fiberglass facilities. The following is a summary of the key comments received regarding the work practice standards and our responses to these comments. Additional comments on the work practice standards and our responses can be found in the comment summary and response document available in the docket for this action (EPA–HQ–OAR–2010–1042).

Comment: One commenter objected to the EPA establishing work practice standards for HCl and HF instead of numerical emission limits without first establishing that ''measuring emission levels is technologically or economically impracticable'' (*Sierra Club* v. *EPA*, 479 F.3d at 883–84) or that setting work practice standards ''is consistent with the provisions of subsection (d) or (f).'' 42 U.S.C. 7412(h)(1). The commenter understands that 80 percent of emission tests were below the detection limit, but contends that this fact demonstrates that measuring emissions is difficult, not technologically impracticable. The commenter argues that the EPA must explain why it cannot use the 20 percent of the tests above that limit, taking the detection level into account, to set appropriate emission limits.

Another commenter requested that the EPA remove all of these sources from the calculation for the MACT floor because data that are below the minimum detection limit (MDL) of the

[21] We divided the FA lines into four subcategories: 1. Light density, 2. automotive, 3. heavy density and 4. pipe products, but set standards for only two subcategories—heavy density (new) and pipe product (new and existing). We explained that ''[b]ecause no controls are currently used, the MACT floor is no control and because the cost effectiveness of additional controls beyond the floor is not reasonable, the Agency is not setting emission limits for existing FA manufacturing lines producing light-density, automotive or heavy-density products or new FA manufacturing lines producing light-density or automotive products.'' 61 FR 15239 (March 31, 1997).

test method (BDL) are unquantifiable and that using BDL data are likely to set limits so stringent that the best performing sources cannot even meet those limits. The commenter observed that the data for every source in the MACT floor ranking is BDL; and the majority of HCl data points are BDL. The commenter contended that facilities will have difficulty showing compliance with an emission limit that is based on data from testing that was BDL. The commenter cited a memorandum from RMB Consulting about relying on BDL data.[22]

According to the commenter, the EPA should only use values that are above the MDL (*i.e.*, actual values) in calculating the MACT floor, and that the emissions floor must be determined by quantifiable data. According to the commenter, in the Boiler MACT, the EPA reassessed the proposed emission limits for dioxins/furans. The commenter noted that, as explained by the EPA, a large amount of the emission measurement used to set the dioxin/furan limits were below the level that could be accurately measured.

Alternatively, the commenter stated that the EPA could propose a work practice standard in order for facilities to show compliance. Under the Boiler MACT, the commenter noted that the EPA chose to regulate dioxins/furans by using a work practice standard. In that case, the commenter stated that 55 percent of facilities tested had dioxin/furan emissions below the MDL for EPA Method 23. The commenter stated that a work practice standard would allow facilities to decrease HCl and HF emissions and be able to show compliance.

In addition, the commenter stated that the EPA has made no effort to take into account reductions achieved as a result of the original MACT implementation as part of establishing the MACT floor. If a MACT floor is calculated, the commenter contended that it must consider what the emissions would have been at the time of the initial MACT promulgation in establishing the floor.

Response: The EPA did not set any standard for HCl and HF in the original 1999 MACT rule and is rectifying that deficiency (see *National Lime Association* v. *EPA,* 233 F. 3d at 634) here by establishing standards pursuant to CAA sections 112(d)(2) and (3). Sections 112(h)(1) and (2)(B) of the CAA indicate that the EPA may adopt a work practice standard rather than a numeric standard when ''the application of measurement methodology to a particular class of sources is not practicable due to technological and economic limitations.'' We evaluated test data that we originally used to calculate the MACT floor limits for HCl and HF in response to comments such as this one. Industry conducted testing in an attempt to obtain data for the acid gases HF and HCl, under the terms of the voluntary survey. Emissions tests were conducted over three 1-hour test runs, which is, for similar industries, sufficient time to detect these acid gases when they are emitted. However, we found that most of the test data reflected values that were BDL. Specifically, over 80 percent of the test results were values BDL for both HF and HCl, indicating that neither HF nor HCl are present in measurable amounts in the exhaust gas stream for these sources.

Because of the high percentage on non-detect test runs, we proposed work practice standards for HF and HCl in our April 2013 supplemental proposal. As explained in our April 2013 supplemental proposal, the EPA regards situations where, as here, the majority of measurements are BDL as being a situation where measurement is not ''technologically practicable'' within the meaning of CAA section 112(h). The EPA also believes that unreliable measurements raise issues of practicability, feasibility and enforceability. The application of measurement methodology in this situation would also not be ''practicable due to . . . economic limitation'' within the meaning of CAA section 112(h) because it would result in cost expended to produce analytically suspect measurements (78 FR 22387).

As discussed in the preamble to the 2013 supplemental proposal (78 FR 22387, April 15, 2013), under these circumstances, the EPA does not believe that it is technologically and economically practicable to measure HCl and HF emissions from this source category. ''[A]pplication of measurement methodologies'' (CAA section 112(h)(2)(B)) means more than taking a measurement. It must also mean that a measurement has some reasonable relation to what the source is emitting (*i.e.,* that the measurement yields a meaningful value). That is not the case here and the EPA does not believe it reasonable to establish numeric emission limits for HCl and HF in this rule. Therefore, in the final rule, we are promulgating work practice standards consistent with our April 2013 supplemental proposal.

However, we disagree with the comment that in revising or promulgating MACT standards, the EPA may not use current test data showing that sources may have achieved much lower emissions levels as a result of complying with earlier standards. ''EPA acted lawfully, in resetting the MACT floors based on post-compliance emissions data.'' *Medical Waste Institute and Energy Recovery Council* v. *EPA,* 645 F. 3d 420, 426–27 (D.C. Cir. 2011). In addition to the work practice standards in the final rule, control of HCl and HF can also occur as a ''cobenefit'' of conventional control technologies that have been installed for other purposes. These acid gases may be absorbed and neutralized when a scrubber is present. We, thus, believe that the work practice standards will result in the level of control of the exceedingly small amounts of HCl and HF present in wool fiberglass furnace emissions achieved by the best performing facilities in the source category.

When testing for indications that a pollutant is emitted by a source, if the results are below the detection limits of the method, that means that the pollutant was not, in fact, detected. We do not set emission limits for all 188 HAP on the list in CAA section 112(b), but only for those that are emitted from the processes. We required sources to test for HF and HCl, and most (over 80 percent) of sources did not detect either of those HAP in their emissions streams. When this is the case for over half the sources in the category, we believe it is not appropriate to set numerical limits for such pollutants.

Comment: One commenter stated that glass cullet cannot be guaranteed by providers or facilities to be ''free of chloride-, fluoride-, and fluorine-bearing constituents,'' as we proposed because (1) cullet must be cleaned before use and city supplied water contains chloride and fluoride; (2) non-glass materials in cullet (including coatings on the glass) contain fluorides or chlorides; (3) recycled cullet currently used by the industry may contain trace amounts of chlorides and fluorides; and (4) to meet product performance requirements, certain glass formulations require glass fibers to contain small levels of fluoride. The commenter argued that the proposed requirement goes beyond what the industry is currently doing to achieve HF and HCl emissions below the detection limit, and to achieve the requirement, facilities would need to cease cullet use and substitute with other materials.

The commenter recommended revising the rule to require facilities to ''maintain internal documentation that work practices are in place that

[22] RMB Consulting & Research, Inc. Memorandum, Comments on Proposed EGU MACT Rule, July 19, 2011, p. 18.

maintain low HF and HCl emissions,'' for 5 years, including but not limited to the following options:

- Record that cullet is reasonably consistent with previous cullet used that has sustained low to non-detect HF and HCl emissions; or
- Monitor chloride and/or fluoride content of the cullet or finished glass to verify and maintain insignificant trace levels of emissions using standard chemical analytic techniques; or
- Use feedstock of raw materials having a 12-month rolling average of chloride content at or below 0.1 percent as measured once a year using methods similar to ASTM 1152C/1152M or company-developed methods; or
- Maintain glass formulation records that show that no ingredient contains intentionally added chloride; or
- Maintain records from a sampling program, or obtain annual certification from cullet providers verifying that the cullet does not contain excessive CRT glass; or
- Monitor fluoride content of the finished glass to verify that the content is consistent with historic levels of similar glass formulations; or
- In lieu of work practices, measure HF and HCl emissions during emission testing once every 5 years to confirm that the level of HF and HCl emissions is not a statistically significant higher level than the level measured for the furnace during the rulemaking process.

The commenter also expressed support for the proposed requirement that these records would be maintained for inspection by a permitting authority.

Response: We acknowledge that municipal water can contain chloride and fluoride; however, our prohibition on chlorides and fluorides pertains to the cullet composition. In the final rule, we are revising the proposed work practice standards for the Wool Fiberglass Manufacturing source category to address this comment. Specifically, we are replacing the proposed requirement that cullet be ''free of chloride-, fluoride-, and fluorine-bearing constituents'' with work practice standards that require wool fiberglass facilities to maintain records from either cullet suppliers or their internal inspections showing that cullet is free of the following components that would form HF or HCl in the furnace exhaust (*i.e.,* chlorides, fluorides, and fluorine): Glass from industrial (also known as continuous strand, or textile) fiberglass, CRTs, computer monitors that include CRTs, and glass from microwave ovens, televisions or other electronics. Wool fiberglass facilities would ensure their feedstock does not contain chloride-, fluoride-, or fluorine-bearing cullet by one of two approaches: (1) Require the providers of external cullet to verify that the cullet does not include waste glass from the chloride-, fluoride- or fluorine-bearing sources mentioned above, or (2) Sample their raw materials to show the cullet entering the furnace does not contain glass from these types of sources. To demonstrate compliance, facilities would maintain quality assurance records for raw materials and/or records of glass formulations indicating the facility does not process fluoride-, fluorine-, or chloride-bearing materials in their furnaces, and that they thereby maintain low HF and HCl emissions. Major source facilities would be required to make these records available for inspection by the permitting authority upon demand.

4. What is the rationale for our final decisions for the work practice standards?

The EPA may adopt a work practice standard rather than a numeric standard when ''the application of measurement methodology to a particular class of sources is not practicable due to technological and economic limitations.'' CAA sections 112(h)(1) and (2)(B). As previously explained, in response to comments, we had re-evaluated test data that we used to calculate the MACT floor for the proposed HCl and HF standards in our November 2011 proposal, and found that most of the test data reflected values below the detection limit of the test method. Specifically, over 80 percent of the test results were values indicating that both HCl and HF in the exhaust gas stream were below the detection limit of the methods. We believe such values are not a measurement of pollutants but rather an indication that such pollutants are not present in measurable concentrations. The EPA regards situations where, as here, the majority of measurements are below the detection limit as being a situation where measurement is not ''technologically practicable'' within the meaning of CAA section 112(h). The EPA also believes that unreliable measurements raise issues of practicability, feasibility and enforceability. The application of measurement methodology in this situation would also not be ''practicable due to . . . economic limitation'' within the meaning of CAA section 112(h) because it would result in cost expended to produce analytically suspect measurements. Therefore, for the reasons provided above, in the preambles for the 2013 and 2014 supplemental proposals, and in the comment summary and response document available in the docket, we are finalizing the work practice standards for HCl and HF emissions from furnaces at wool fiberglass manufacturing facilities that are major sources.

As we explained in our November 2014 supplemental proposal (79 FR 68012 at 68023), in order to protect furnace components, wool fiberglass facilities identify, isolate and screen out fluoride- and chloride-bearing materials such as glass from industrial (also known as continuous strand, or textile) fiberglass, CRTs, computer monitors that include CRTs, glass from microwave ovens and glass from televisions. The furnace emissions testing shows this is an effective work practice to reduce emissions of these acid gases. HF and HCl emissions occur when recycled glass from these types of materials enters the external cullet stream from the recycling center.

Owners/operators have two options for work practice standards. The first option is to require the providers of the external cullet to verify that the cullet does not include waste glass from the chloride-, fluoride, or fluorine-bearing sources mentioned above. The second option is to sample the raw materials to show the cullet entering the furnace does not contain glass from these types of sources.

We are finalizing work practice standards for the Wool Fiberglass Manufacturing source category that require wool fiberglass facilities to maintain records from either cullet suppliers or their internal inspections showing that the external cullet is free of components that can form HF or HCl in the furnace exhaust (*i.e.,* chlorides, fluorides and fluorine). Facilities are required to maintain quality assurance records for raw materials and/or records of glass formulations indicating the facility does not process fluoride-, fluorine-, or chloride-bearing materials in their furnaces, and that they thereby maintain low HF and HCl emissions. Major source facilities are required to make these records available for inspection by the permitting authority upon demand. Failure to maintain such records constitutes a violation from the requirement.

E. Startup, Shutdown, and Malfunction Provisions for the Wool Fiberglass Manufacturing Source Category (Major and Area Sources)

1. What SSM provisions did we propose for the Wool Fiberglass Manufacturing source category (major and area sources)?

In its 2008 decision in *Sierra Club* v. *EPA,* 551 F.3d 1019 (D.C. Cir. 2008), the DC Circuit Court vacated portions of

two provisions in the EPA's CAA section 112 regulations governing the emissions of HAP during periods of SSM. Specifically, the Court vacated the SSM exemption contained in 40 CFR 63.6(f)(1) and 40 CFR 63.6(h)(1), holding that under section 302(k) of the CAA, emissions standards or limitations must be continuous in nature and that the SSM exemption violates the CAA's requirement that some CAA section 112 standards apply continuously. We proposed eliminating the SSM exemption in the Wool Fiberglass Manufacturing rules for major sources (40 CFR part 63, subpart NNN). Consistent with *Sierra Club* v. *EPA,* the EPA proposed work practice standards in these rules (both 40 CFR part 63, subpart NNN and the new 40 CFR part 63, subpart NN) for periods of startup and shutdown. We proposed the incorporation of work practice standards at startup and shutdown for major sources into the GACT standards for area sources. This would mean that gas-fired glass-melting furnaces at area sources would have to comply with an alternative compliance provision for startup and shutdown that would require sources to keep records showing that emissions were routed to the air pollution control devices and that these control devices were operated at the parameters established during the most recent performance test that showed compliance with the applicable emission limits.

We also provided proposed regulatory text in the General Provisions applicability tables in each subpart in several respects consistent with vacatur of the SSM exemption. For example, we proposed eliminating the incorporation of the General Provisions' requirement in 40 CFR part 63, subpart NNN that the source develop an SSM plan. We also proposed eliminating and revising certain recordkeeping and reporting requirements that are related to the SSM exemption.

In our November 2014 supplemental proposal, we proposed that affected sources comply with practices that are used by the best performers in the source category (7968016).

2. How did the SSM provisions change for the Wool Fiberglass Manufacturing source category (major and area sources)?

We have not changed any aspect of the proposed SSM provisions for 40 CFR part 63, subparts NN and NNN since the 2014 supplemental proposal.

3. What key comments did we receive on the SSM provisions for the Wool Fiberglass Manufacturing source category (major and area sources), and what are our responses?

We received comments for and against the proposed revisions to remove the SSM exemptions for the Wool Fiberglass Manufacturing source category. The commenters who were against the proposed revisions did not provide new information or a basis for the EPA to change the proposed provisions and did not provide sufficient information to show that facilities cannot comply with the work practice standards during periods of startup and shutdown. The comments and our specific responses to those comments can be found in the comment summary and response document available in the docket for this action (EPA–HQ–OAR–2010–1042).

4. What is the rationale for our final decisions for the SSM provisions for the Wool Fiberglass Manufacturing source category (major and area sources)?

For the reasons provided above, in the preamble for the proposed rules, and in the comment summary and response document available in the docket, we have removed the SSM exemption from the Wool Fiberglass Manufacturing NESHAP for major and area sources; eliminated or revised certain recordkeeping and reporting requirements related to the eliminated SSM exemption; and removed or modified inappropriate, unnecessary, or redundant language in the absence of the SSM exemption. We are, therefore, finalizing our proposed determination that facilities comply with the work practice standards for periods of startup and shutdown for gas-fired glass-melting furnaces in 40 CFR part 63, subparts NN and NNN.

F. Other Changes Made to the Wool Fiberglass Manufacturing NESHAP (Major and Area Sources)

1. What other changes did we propose for the Wool Fiberglass Manufacturing NESHAP (major and area sources)?

a. Electronic Reporting (Wool Fiberglass Manufacturing Major and Area Sources)

As stated in the preamble to the November 2011 proposal, the EPA is taking a step to increase the ease and efficiency of data submittal and data accessibility. Specifically, the EPA is requiring owners and operators of wool manufacturing facilities to submit electronic copies of certain required performance test reports. See the discussion in section III.G of this preamble for more detail.

b. Test Methods and Testing Frequency (Wool Fiberglass Manufacturing Major and Area Sources)

For both major and area sources, we are finalizing, as proposed, the addition of EPA Method 29 for measuring the concentrations of chromium.

For major sources only, we are finalizing requirements for methods to measure PM, phenol, formaldehyde, and methanol. We are finalizing the requirement, as proposed, to maintain the filter temperature at 248 ± 25 degrees Fahrenheit when using Method 5 to measure PM emissions from furnaces. We are also amending the NESHAP to allow owners or operators to measure PM emissions from furnaces using either EPA Method 5 or Method 29.

We are finalizing, as proposed, the addition of EPA Method 318 for measuring the concentration of phenol and alternative test methods for measuring the concentration of methanol (EPA Methods 318 or 308). We are finalizing, as proposed, the replacement of a minimum sampling time of 1 hour with the specification to collect 10 spectra when using EPA Method 318. For Method 316, we are finalizing, as proposed, the requirement to collect a minimum sampling volume of 2 dscm; however, we are not finalizing the proposed minimum sampling run time for EPA Method 316 of 2 hours. We are also finalizing editorial changes to the performance testing and compliance procedures to specify formaldehyde, methanol, phenol, and chromium; and compliance procedures for HF and HCl.

Additionally, we are finalizing, as proposed, the requirement for existing sources to conduct performance tests to demonstrate compliance with the chromium emission limit for gas-fired furnaces no later than July 31, 2017, and annually thereafter. We are also finalizing, as proposed, the requirement for existing sources to conduct performance tests to demonstrate compliance with the phenol, formaldehyde, and methanol emissions limits for FA lines no later than July 31, 2017, and every 5 years thereafter. We are finalizing the requirement for new sources to conduct performance tests to demonstrate compliance with the emissions limits no later than January 25, 2016 or 180 days after initial startup, whichever is later. Gas-fired glass-melting furnaces must demonstrate compliance with the chromium emission limits annually after the first compliance test, and whenever the amount of cullet increases from that used in the most recent performance test

showing compliance with the standard, and all other processes must demonstrate compliance with the other emission limits every 5 years after the first successful compliance test.

c. Applicability and Compliance Period (Wool Fiberglass Manufacturing Major and Area Sources)

For major sources, we are clarifying, as proposed, that 40 CFR part 63, NNN applies to FA lines regardless of the product being manufactured on the FA line and we are finalizing the compliance period of 2 years for existing sources subject to the chromium, formaldehyde, HCl, HF, phenol, PM, and methanol emission limits.

For area sources, we are finalizing, as proposed, the compliance period of 2 years for existing sources subject to the chromium emission limits.

d. Definitions (Wool Fiberglass Manufacturing Major and Area Sources)

In this action, we are finalizing, as proposed, definitions that apply to both major and area sources. These include a definition for ''gas-fired glass-melting furnace'', revisions to the definition of ''new source'', and the notification requirements to update the citation to the November 2011 proposal. We are finalizing, as proposed, a definition for ''incinerator'' in 40 CFR part 63, NNN (major sources).

e. Parameter Monitoring (Wool Fiberglass Manufacturing Major and Area Sources)

For both major and area sources, we are finalizing, as proposed, the monitoring requirements for furnaces to provide flexibility in establishing appropriate monitoring parameters. We are also requiring that facilities operating gas-fired furnaces maintain a 30-day rolling average of the percentage of cullet used in the raw materials fed to the furnace. To demonstrate compliance with this operating parameter, owners or operators must record a daily average value of the percentage of cullet used for each operating day and must include all of the daily averages recorded during the previous 30 operating days in calculating the rolling 30-day average.

For major sources only, we are also finalizing, as proposed, the monitoring requirements for FA lines, to provide flexibility in establishing appropriate monitoring parameters.

f. General Provisions Applicability Table (Wool Fiberglass Manufacturing Major and Area Sources)

For major sources, we are also making minor corrections to the citations in Table 1 (40 CFR part 63 General Provision applicability table) to reflect the final amendments in this action, and the revisions that have been made to the General Provisions since 1999.

For area sources, we are identifying the applicability of part 40 CFR part 63 General Provisions to subpart NN.

2. How did the provisions regarding these other changes to the Wool Fiberglass Manufacturing NESHAP (major and area sources) change since proposal?

We have not made any changes to the proposed provisions for electronic reporting; testing methods and frequency; applicability; compliance period; definitions; or the General Provision applicability table. However, we are revising the parameter monitoring standards of 40 CFR part 63, subpart NNN to require daily monitoring and recording of the percentage of cullet used in the raw materials fed to gas-fired glass-melting furnaces and calculation of a rolling 30-day average. The parameter monitoring requirements for area sources regulated by subpart NN reference the same requirements for major sources in 40 CFR part 63, subpart NNN.

3. What key comments did we receive on the other changes to the Wool Fiberglass Manufacturing NESHAP (major and area sources), and what are our responses?

We received several comments received regarding electronic reporting; testing methods and frequency; applicability; compliance period; parameter monitoring; definitions or revisions to the General Provisions applicability table. The following is a summary of the key comments received regarding the technology review and our responses to these comments. Additional comments regarding these changes to the NESHAP and our responses can be found in the comment summary and response document available in the docket for this action (EPA–HQ–OAR–2010–1042).

Comment: For both the major (NNN) and the area (NN) source rules, one commenter requested a one-time performance test, or alternatively a 5-year testing requirement for furnaces, instead of the proposed annual performance tests, and asked that sources be allowed to test one 'representative' furnace instead of having to test every furnace subject to the rule. The commenter contended that the EPA's rationale that chromium emissions increase with age has no factual basis because age is not a causative factor for increased chromium emissions. The commenter also pointed out that annual testing is not consistent with other MACT (the Hazardous Waste MACT requires testing every 5 years), GACT, and NSPS standards, as well as state performance testing requirements.

Response: In our April 2013 supplemental proposal (72 FR 22378), the EPA proposed reduced testing requirements for sources with emissions that are 75 percent or less of the proposed chromium limit. Subsequent to that proposal, the EPA determined that this reduced testing frequency would not provide sufficient information to determine compliance with the rule for either the plant operator or the EPA because chromium emissions increase with furnace age. Refer to the EPA's memorandum ''Chromium Emissions and Furnace Age'' (EPA–HQ–OAR–2010–1042–0332) for a summary of the data and information that EPA used to determine that furnace age causes and increase in chromium emissions for gas-fired furnaces. Regarding the comment that there are some federal and state regulations that require only initial testing, there are also federal and state regulations that require annual testing (*e.g.,* Portland Cement NESHAP, 40 CFR part 63, subpart LLL). Each regulation establishes a testing frequency based on the particular characteristics of the industry that will allow the EPA to ensure compliance with the standards. We have determined that annual testing is appropriate here because the data and the technical literature show that a furnace's chromium emissions can increase over a period of a few years. The wool fiberglass furnace refractory products degrade due to the corrosive and erosive nature of the wool fiberglass furnace environment. The wool fiberglass oxyfuel furnaces operate continuously over the furnace campaign of 10–12 years, and, according to industry statements, as the furnace ages, it loses an average of 20,000 pounds annually from the refractory. The pattern of refractory erosion is semi-spherical, and the exposed refractory surface area increases exponentially because it is constantly being eroded in a curved 3-dimensional surface pattern. This pattern of furnace refractory wear is responsible for the exponential increase in chromium emissions from wool fiberglass furnaces. For more information on the relationship between

wool fiberglass furnace age and increasing chromium emissions, see the paper ''Mechanisms of Chromium Emissions From Wool Fiberglass Furnaces,'' June 2015, in the docket to this rule).

Comment: One commenter disagreed with the EPA's listing all gas-fired furnaces for regulation under the area source rule for chromium emissions, and asserted that for both the major source rule and the area source rule, only certain gas-fired furnaces, oxyfuel furnaces, should be regulated for emissions of chromium compounds. The commenter suggested that the furnace type and design, not the chromium content of furnace refractories, impacts chrome emissions, and only oxyfuel furnaces have the specific design features associated with high chromium emissions. The commenter listed the following factors as responsible for oxyfuel furnaces emitting high hexavalent chromium: Higher flame temperature, high bulk wall temperature (oxyfuel temperatures peak at 5,000 degrees Fahrenheit; other gas furnaces peak at 3,560 degrees Fahrenheit), more chrome refractory brick above glass level, higher water vapor concentration, and an oxidizing atmosphere. The commenter argued that some of the air-gas furnaces that are not oxyfuel have lower surface temperature, and the surface temperature above the glass line is the single most influential variable influencing hexavalent chromium emissions, not the fuel type. In the commenter's opinion, air-gas furnaces should not be regulated in the area source rule alongside oxyfuel furnaces.

The commenter noted that one air-gas furnace was measured emitting high levels of chromium compounds, pointing out that it is different from other non-oxyfuel air-gas furnaces because it is not standard construction and it was at the end of its life. The commenter also added that furnace has now been shut down.

The commenter also indicated that, despite their potential for increased chrome emissions, oxyfuel furnaces will continue to be used for a number of important reasons, including environmental benefits: (1) Oxyfuel furnaces reduce NO_X and CO emissions because they emit less of these pollutants than does combustion with air, and some state and local regulations require reduced NO_X emissions; (2) oxyfuel firing reduces NO_X emissions because it does not introduce nitrogen from combustion air into the furnace; (3) oxyfuel furnaces use less energy than air-gas furnaces by obviating the need to heat nitrogen contained in ambient air and, thus, produce less greenhouse gas emissions; and (4) oxyfuel firing also produces a reduced volume of flue gases which lowers the gas velocity in the furnace combustion zone and lowers the potential to entrain PM.

Response: We note that this is a comment addressing the furnace technology of the wool fiberglass manufacturing industry, and as such applies to both major sources (under NNN) and area sources (under NN). This comment is addressed here as it first applies to major sources. We note that the same principles apply to area sources in this source category.

We disagree with the commenter that air-gas furnaces do not warrant a chromium emission limit. Furnace emissions test data were collected from all wool fiberglass manufacturing facilities to determine the scope and extent of the area source rule limits. The data collected for gas-fired furnaces show that oxyfuel furnaces, as the commenter correctly points out, have the greatest potential to emit chromium compounds, followed by air-gas furnaces. This is because both types of gas-fired furnaces operate at elevated temperatures (exceeding 3,000 degrees Fahrenheit) at and above the level of the glass melt (well in excess of the temperature required to liberate and oxidize chromium compounds from the chromium refractory of the furnace vessel), are heated with natural gas and air (air-gas) or natural gas and oxygen (oxyfuel), and are constructed using chromium refractories that are capable of resisting the corrosive and erosive wear inherent in wool fiberglass furnace environment.

In addition, as the commenter acknowledged, one air-gas furnace constructed using what the commenter described as a ''non-standard design,'' measured chromium emissions at levels higher than most of the oxyfuel furnaces that were tested. Additionally, according to industry comments and the information we collected under the 2012 ICR, all the oxyfuel furnaces in the source category are constructed using materials similar in type and chromium content to those used to construct the highest emitting oxyfuel furnace. There is nothing to prevent a similar furnace from being constructed at any site. However, as required, we set emissions limits based on the information available to us, and we find that both oxyfuel furnaces and air-gas furnaces have greater propensity than electric furnaces, by virtue of their construction, design, and operating temperatures, to form and emit chromium compounds.

As explained in the preamble to the 2013 supplemental proposal, these conditions (high temperatures, available chromium and corrosive furnace gases) are factors that contribute to higher chromium emissions at wool fiberglass furnaces. As stated by the commenter and by other industry representatives, wool fiberglass companies intend to expand their use of chromium refractories in furnace designs.

We disagree with the commenter's view that we should address specific facilities only for this regulation. First, we note that NESHAP are national rules that apply to source categories rather than individual facilities, and while we do have the ability to subcategorize by process size, type, or class, we cannot simply target an individual facility or facilities. Second, nothing prevents an oxyfuel or air-gas furnace similar to the high emitting furnaces to be constructed at any existing or new wool fiberglass facility, and it is incumbent upon the EPA to prevent the danger to public health that would result from such a furnace being located at other sites. As the commenter pointed out, ''Despite their potential for increased chrome emissions, oxyfuel furnaces will continue to be used for a number of important reasons . . ..'', and as discussed in our 2011 proposal, we considered the resulting impact if the same furnace were to be constructed at any other existing wool fiberglass manufacturing site. As documented in our auxiliary risk characterization ''Draft Residual Risk Assessment for the Mineral Wool Production and Wool Fiberglass Manufacturing Source Categories'' and ''Maximum Predicted HEM–3 Chronic Risks (Wool Fiberglass Manufacturing) based on Revised—What If Analysis,'' available in the docket for this rulemaking (EPA–HQ–OAR–2010–1042–0086 and EPA–HQ–OAR–2010–1042–0263, respectively), we found that the CertainTeed facility in Athens, Georgia would have a risk of 400-in-1 million if it were to install a furnace similar to the high-chromium emitting furnace at Kansas City; and that the Athens, GA facility is now an area source that will be subject to the new area source standard (having recently phased out the use of phenol/formaldehyde on the bonded lines). While most wool fiberglass furnaces at area sources currently emit chromium at levels well below the proposed level of the chromium emission limits, the limits serve as a backstop to prevent high emitters from emitting chromium compounds in an uncontrolled manner.

Comment: One commenter expressed concern about the proposed changes to Method 5 that reduced the testing temperature of the probe by 100 degrees to improve the accuracy of the method,

and whether this change will increase the potential for noncompliance with the PM standard. Specifically, the commenter stated that ''what once may have passed through the apparatus now may become filterable'' and, thus, be counted as PM because of the temperature difference. Further, the commenter pointed out that the data used to establish MACT for PM were collected at the higher temperature specified in 40 CFR 63.1385(a)(5) of subpart NNN.

Response: In the final regulation, we are requiring that owners or operators conduct annual emissions tests for chromium, and to test for PM emissions every 5 years. To reduce the testing burden on facilities, the final rule specifies that owners or operators can measure PM emissions from furnaces using either EPA Method 5 or Method 29. Consequently, for the years when the facility must test for both chromium and filterable PM emissions, owners or operators can use Method 29 to obtain measurements for both chromium and filterable PM, rather than having to use Methods 5 and 29 separately.

The 1999 NESHAP specified that owners or operators must use EPA Method 5 with the filter temperature maintained at 350 ± 25 degrees Fahrenheit during for the test. However, Method 29 refers to the filter temperature specifications in Method 5 which requires that the filter be maintained at 248 ± 25 degrees Fahrenheit during testing. To maintain consistency with Method 29, we are amending the NESHAP to specify that owners or operators must maintain the filter temperature at 248 ± 25 degrees Fahrenheit when using Method 5 to measure filterable PM concentrations. We acknowledge that maintaining the Method 5 filter at 248 ± 25 degrees Fahrenheit during testing has the potential capture to more PM than would be captured at the higher filter temperature; however, we do not believe that the change in filter temperature that we are specifying in the final rule will result in wool fiberglass manufacturing facilities being in noncompliance with the final PM standards. As noted in the 2013 supplemental proposal (78 FR 22383), the data submitted to EPA, which includes filterable PM data collected using Method 29 and a filter temperature operating at 248 ± 25 degrees Fahrenheit, show that all gas-fired glass-melting furnaces are currently meeting the PM standard, as proposed, of 0.33 pounds of PM per ton of glass pulled.

Comment: One commenter disagreed with the EPA's proposal to reduce testing frequency to every 3 years. Due to the past history of unknown and unreported chromium emissions, innovation and changes within the wool fiberglass industry, the potential for unpredictable changes in chromium emissions, and the environmental justice impacts of the industry, the commenter requested the EPA to increase the frequency and quality of the monitoring and reporting requirements of the rules.

Response: The EPA is finalizing annual testing, and removing the option proposed in 2013 to test every 3 years. The EPA agrees with the commenter that annual testing is required due to the fact that emission test data show that emissions can significantly increase with furnace age. Refer to section III.D.4 of this preamble and to the 2014 supplemental proposal for further discussion about the EPA's rationale for requiring annual testing.

4. What is the rationale for our final decisions regarding these other changes to the Wool Fiberglass Manufacturing NESHAP (major and area sources)?

For the reasons provided above and in the preamble for the proposed rule, we are finalizing the proposed provisions regarding electronic reporting; testing methods and frequency; applicability; compliance period; parameter monitoring; definitions; and the General Provision applicability table.

VII. What is included in the final Wool Fiberglass Manufacturing Rule for area sources?

A. Generally Available Control Technology (GACT) Analysis for Wool Fiberglass Manufacturing Area Sources

We are finalizing, as described in this final action, the chromium emission limits for both new and existing gas-fired glass-melting furnaces at area sources in the Wool Fiberglass Manufacturing source category (see Table 4 in section V.E of this preamble).

1. What did we propose pursuant to CAA sections 112(c)(3) and (d)(5) for area sources in the Wool Fiberglass Manufacturing source category?

We initially proposed GACT standards for area sources in the Wool Fiberglass Manufacturing source category on April 15, 2013 (78 FR 22377). In that proposal, we proposed emission limits for chromium (0.00006 pounds per ton of glass pulled) and PM (0.33 pounds per ton of glass pulled) for gas-fired glass-melting furnaces at area sources. To maintain consistency with the major source rule, we proposed that facilities use the same requirements for PM and chromium test methods and monitoring, reporting and recordkeeping specified in 40 CFR part 63, subpart NNN. We also proposed to include an affirmative defense to civil penalties for violations of emission limits that are caused by malfunctions. In the 2014 supplemental proposal (79 FR 68024), we proposed removal of the PM emission limit based on public comments the EPA received asserting that setting both PM and chromium limits was not necessary. We reviewed the technologies and emissions test data for controls that are in place at wool fiberglass furnaces. In some test reports, we had both inlet and outlet measurements of both PM and chromium. From these tests we saw that, in order for furnaces to meet the chromium limit, they would have to control PM, a fraction of which is chromium compounds. Because chromium is the specific pollutant of concern from the furnace process, and because under the Strategy we may either address pollutants of concern through an appropriate surrogate, or directly regulate the pollutant of concern, we are setting emission limits only for chromium from area sources. However, affected sources will still need to achieve PM reductions in order to meet the chromium limit. The PM controls in place at gas-fired glass-melting furnaces achieve an average efficiency of 98 percent. PM in the furnace exhaust includes chromium, and due to the high production rate of the continuous furnace process, this can be a significant amount of chromium emitted during the course of a year. Source testing conducted on two wool fiberglass furnaces at one facility [23] measured chromium at both the inlet and the outlet of the DESP. This test showed chromium entering the DESP averaged 1,500 pounds per year. Both PM and chromium were measured at the outlet of the DESP: Emissions of PM averaged 1.5 tons per year, and emissions of chromium averaged 11.4 pounds per year. This indicates to us that if sources attempted to remove their PM controls they would not be able to meet the chromium limit.

In the 2014 supplemental proposal, we also withdrew our proposal to include an affirmative defense to civil penalties for violations of emission limits that are caused by malfunctions (79 FR 68015).

[23] Testing was conducted at the Certainteed, Inc. facility in Mountaintop, PA in December 1991, October 1995, and during several tests conducted during the 1998–1999 time period for the state compliance reports.

2. How did the GACT analysis change for Wool Fiberglass Manufacturing area sources?

In response to comments on our proposed chromium compounds limits, and as discussed in section VI.A of this preamble, we are finalizing a chromium compounds emission limit for gas-fired glass-melting furnaces for major sources at wool fiberglass manufacturing facilities of 0.00025 pounds per ton of glass pulled. Consistent with our November 2014 supplemental proposal, we are not finalizing a PM emissions limit for gas-fired glass-melting furnaces at area sources.

Based on comments we received in response to the November 2014 supplemental proposal, we again reviewed the cost and control options and found using new cost information that the limit as proposed was not as cost effective as we initially believed. We determined that it was appropriate to modify the proposed limit of 0.00006 pounds per ton of glass pulled because the cost effectiveness for the emission reduction option was $660,000 per pound of chromium reduced for the raw material substitution option, and $620,000 per pound chromium reduced for the furnace rebuild option. We believe these costs are not reasonable compared to other cases where the EPA has regulated highly toxic pollutants, such as hexavalent chromium. We, therefore, reviewed the data to determine whether a higher limit than previously proposed would be more cost effective while still significantly reducing chromium emissions from wool fiberglass gas-fired glass-melting furnaces. We found that all gas-fired glass-melting furnaces located at wool fiberglass area sources currently emit chromium compounds at rates below 0.00025 pounds per ton of glass pulled. These area sources together emit 18 pounds of chromium compounds annually.

We compared the chromium emission reductions that would have resulted under the previously proposed emission limit of 0.00006 pounds per ton of glass pulled to the reductions that result from the final limit of 0.00025 pounds per ton of glass pulled. The limit of 0.00006 pounds per ton of glass pulled would have resulted in a chromium emissions reduction of 8.5 pounds per year at area sources. The final limit of 0.00025 pounds per ton of glass pulled does not result in any chromium emissions reductions. This is due to the overall low emissions of chromium at area sources based on the most recent test data. The furnaces at area sources are mostly new furnaces of advanced design. While immediate emission reductions would not be realized, this final limit sets a backstop so that another high-chromium-emitting, gas-fired glass-melting furnace cannot be operated at an area source in this industry. This is important for this industry because certain furnaces have been shown to emit increasing amounts of chromium as their high-chromium refractory lining begins to degrade.

We revised our GACT analysis as two approaches could be used by industry to reduce chromium emissions from gas-fired furnaces. One approach is to rebuild the furnace at an annualized cost of $462,000 per year per furnace, and the other is to replace one raw material (cullet) with another material (raw minerals), which the industry stated would result in lower chromium emissions, at an average cost of about $1.3 million per year, depending on the production rate of each area source facility. Industry test data show that area sources will need to maintain their currently low levels of chromium emissions to meet the 0.00025 pounds per ton limit.

Further, in evaluating available technology at area sources, we also considered the furnace technology for gas-fired glass-melting furnaces in use at major sources. Under CAA section 112(d)(5), we may set the GACT emission limit for area sources that provides for the use of generally available control technologies to reduce HAP, and we are not precluded from setting the limits for area sources equivalent to the limits for major sources. In this instance, as previously explained, there are no differences between gas-fired glass-melting furnaces in use at area and major sources. Moreover, major sources become area sources only by virtue of eliminating formaldehyde from their processes. Therefore, we believe that the control measure for reducing chromium emissions (*i.e.,* furnace rebuild) used by major sources is generally available for area sources, and we are finalizing the same emission limit of 0.00025 pounds total chromium per ton of glass pulled for gas-fired glass-melting furnaces at area sources, under CAA section 112(d)(5).

3. What key comments did we receive on the GACT analysis for Wool Fiberglass Manufacturing area sources, and what are our responses?

We received comments in support of and against our GACT analyses. The following is a summary of the key comments received regarding the GACT analysis for area sources in the Wool Fiberglass Manufacturing source category and our responses to these comments. Additional comments on the risk assessment and our responses can be found in the comment summary and response document available in the docket for this action (EPA–HQ–OAR–2010–1042).

Comment: One commenter asserted that the EPA has not met procedural requirements necessary to regulate area sources under CAA section 112. The commenter contended that the EPA does not have the authority to list or regulate area sources under CAA section 112 unless the agency first finds that the source category presents a threat of adverse effects to human health or the environment. The commenter argued that the EPA's own risk assessment indicates ''risks due to hexavalent chromium and formaldehyde are acceptable.'' In the commenter's opinion ''all the EPA has done is claim that: (1) Because area sources, like major sources, contribute chromium compounds, and (2) because many sources that once were major sources have since become area sources, it follows that area sources should also be regulated.'' Further, the commenter stated that the EPA, in listing area sources, has not complied with section 307 of the CAA, which requires the EPA to provide to the public a summary of the basis for its decision to list the wool fiberglass industry as an area source (*i.e.,* factual data underlying the decision, methodology used in obtaining data, and the major legal interpretations and policy considerations underlying the proposal). The commenter also argued that section 553 of the Administrative Procedures Act (APA) mandates a ''notice and comment'' period for the EPA's decision to list this industry as an area source due to an ''adverse effects'' finding, to give stakeholders an opportunity to comment on findings that form the basis of the proposed rulemaking.

Response: In section II.D of the preamble to our 2013 supplemental proposal (78 FR 22375, April 15, 2013), we presented the legal basis for our decision to add gas-fired glass-melting furnaces to the list of area source categories to be regulated. Sections 112(c) and 112(k) of the CAA require the EPA to identify and list the area source categories that represent not less than 90 percent of the emissions of the 30 urban air toxics associated with area sources and subject them to standards under the CAA section 112(d). Specifically, sections 112(c)(3) and 112(k)(3)(B)(ii) of the CAA require the EPA to list area sources representing 90 percent or more of emissions of the 30 urban HAP regardless of whether the EPA has

issued an adverse effects finding for each individual area source category that contributes to achieving the 90 percent emissions goal.

As documented in the preamble to the 2013 supplemental proposal (78 FR 22375, April 15, 2013) and in the memorandum ''Technical Memorandum—Emission Standards for Meeting the 90 Percent Requirement under Section 112(c)(3) and Section 112(k)(3)(B) of the Clean Air Act'' (February 18, 2011; EPA–HQ–OAR–2010–1042–0262), the EPA has achieved the 90 percent reduction of national chromium emissions required by the Strategy; however, as further stated in the 2013 supplemental proposal, nothing in the CAA prevents the agency from going beyond the statutory minimum of 90 percent, especially if generally available control technology for the source category is available at a reasonable cost. Indeed, to date, we have established emission standards for sources accounting for almost 100 percent of area source emissions of certain urban HAP (*e.g.,* 99 percent of arsenic and beryllium compound emissions).

Regarding the commenter's opinion that the reason the EPA is regulating gas-fired glass-melting furnaces as area sources is that these sources were once regulated under the NESHAP and that they are similar to major sources, the EPA did discuss these facts in the preamble to the 2013 supplemental proposal (78 FR 22382, April 15, 2013). These facts serve to inform the EPA's understanding of this area source category, but they are not the reason the EPA is regulating these area sources. The EPA is regulating gas-fired furnaces located at area sources to comply with the Strategy to address the annual emissions of chromium from these sources, as the EPA explained in the preamble to the 2013 supplemental proposal (78 FR 22375, April 15, 2013). In doing so, the EPA is addressing the high levels of chromium emissions, in particular hexavalent chromium emissions. As explained in the 2013 supplemental proposal preamble, gas-fired glass-melting furnaces in this source category have the potential to emit high emissions of chromium and to experience emission increases in the future:

> ''. . . we have determined that gas-fired glass-melting furnaces at wool fiberglass manufacturing facilities can emit higher levels of metal HAP, and also higher than expected levels of chromium than electric glass-melting furnaces. This is due to the use of high chromium refractories above the glass melt line, and use of these refractories is essential to obtain the desired glass-melting furnace life. Also, the industry has indicated that the current trend is to replace air-gas glass-melting furnaces with oxyfuel glass-melting furnaces. Oxyfuel glass-melting furnaces have the highest potential for elevated chromium emissions as discussed further in section IV.A of this preamble. Accordingly, we believe it is appropriate to add gas-fired glass-melting furnaces at wool fiberglass manufacturing facilities that are located at area sources to the list of area sources regulated in the Urban Air Toxics Program.'' (78 FR 22377, April 15, 2013)

Based on the chromium emissions data for gas-fired glass-melting furnaces in the source category available to the EPA, we have established that emissions for a furnace can vary according to its type, design, operation, and age. The EPA provided an example in the preamble to the 2013 supplemental proposal of such variability for the CertainTeed's Kansas City facility, the highest-emitting glass-melting furnace, for which chromium emissions (93 percent of which were in the hexavalent state) increased from 5 pounds per year to 540 pounds per year over a period of 7 years (78 FR 22381). These facts demonstrate the current and potential future high levels of chromium emitted from area sources. Further, the EPA has clearly indicated the high level of health risk associated with chromium emissions. In the preamble to the 2013 supplemental proposal, the EPA stated ''Hexavalent chromium inhalation is associated with lung cancer, and EPA has classified it as a Class A known human carcinogen, per EPA's classification system for the characterization of the overall weight of evidence for carcinogenicity'' (78 FR 22374, April 15, 2013).

Regarding the comment that the EPA has not complied with section 307 of the CAA because it has not provided to the public a summary of the basis for its decision to list gas-fired glass-melting furnaces as area sources (*i.e.,* factual data underlying the decision, methodology used in obtaining data, and the major legal interpretations and policy considerations underlying the proposal), the EPA disagrees. We stated our intention in our 2013 supplemental proposal to exceed the 90 percent threshold for chromium emissions under the Strategy by listing gas-fired glass-melting furnaces at area sources (78 FR 22376, April 15, 2013), and we made clear our intent to regulate chromium due to the toxicity of the substance (78 FR 22374, April 15, 2013). We did not conduct a health assessment and finding for chromium from this area source category because we are not obligated to do so under sections 112(c)(3), (d)(5), or (k) of the CAA. For example, in our notice of revision to the area source category list in 2002 (67 FR 70427, November 22, 2002), we listed 23 new source categories as area sources to meet or exceed the 90 percent threshold for all 30 HAP addressed by the Strategy, and the document included no risk-based rationale for listing each source category that exceeded the 90 percent target.

Further, regarding the comment that the EPA has not complied with APA section 553 and section 307 of the CAA, we described our methodology for collecting these emissions data, as described in section II.E of the 2013 supplemental proposal preamble (78 FR 22376, April 15, 2013), and provided an opportunity for comment following that supplemental proposal. Regarding the legal basis for our listing area sources in section II.D, we presented this information in section II.E of the preamble to the 2013 supplemental proposal (78 FR 22376, April 15, 2013) in compliance with section 307.

Comment: One commenter objected to the proposed regulation of area sources because it is inappropriate and unjustified for the EPA to draw firm conclusions at this time about the need to regulate area sources, in particular regarding a threat of adverse effects to human health from area sources. The commenter contended that the EPA's assessment of chromium emissions from the major source category in the 2011 proposal was fundamentally flawed and did not support the 2011 proposal, and that the EPA admitted in the 2011 proposal preamble that it must collect more information before drawing a conclusion regarding the wool fiberglass area source category and ''a threat of adverse effects to human health or the environment.'' The commenter argued that both of these facts reflect on the EPA's readiness to regulate area sources. The commenter further observed that the EPA may regulate a category of area sources only after making a finding under CAA section 112(c)(3) that HAP emissions from such source category present ''a threat of adverse effects to human health or the environment'' that warrant regulation.

Another commenter objected to the proposed regulation of area sources, given the limited value such a rule would provide. The commenter stated that the majority of wool fiberglass manufacturers are no longer major sources, observing that the most significant change since 1999 is the voluntary substitution of phenol/formaldehyde binders with non-phenol/formaldehyde binders, resulting in reduction in HAP emissions from this industry of the chief HAP regulated by the Wool Fiberglass MACT Standard.

The commenter suggested that the health risk arising from the production of wool fiber glass insulation products has been significantly and sufficiently reduced and that any remaining residual risk does not justify subjecting the industry to additional regulatory requirements in the form of an area source standard.

Response: As described in the preamble to the April 2013 supplemental proposal (78 FR 22379), the EPA conducted a CAA section 114 survey to collect additional test data on chromium emissions from glass-melting furnaces, so that the EPA would have test data for all glass-melting furnaces. The area source standards proposed in 2013 and being finalized in this rulemaking are based on this complete set of emission data. Regarding the comments that there is insufficient health risk to warrant regulation of area sources and that the EPA is required to establish a ''threat of adverse health effects'' to regulate area sources, as noted in the comment above, the legal basis for our decision to add gas-fired glass-melting furnaces to the list of area source categories to be regulated is based on sections 112(c) and 112(k) of the CAA which require the EPA to identify and list the area source categories that represent not less than 90 percent of the emissions of the 30 urban air toxics associated with area sources and subject them to standards under the CAA section 112(d), and is not based on CAA section 112(c)(3).

4. What is the rationale for our final approach for the GACT analysis for Wool Fiberglass Manufacturing area sources?

Because of the considerations discussed above in this preamble, as well as in the preamble for the November 2014 supplemental proposal and in the comment summary and response document available in the docket (EPA–HQ–OAR–2010–1042), we are finalizing revised GACT standards.

B. What are the final requirements for the Wool Fiberglass Manufacturing area sources?

In this action, we are revising the proposed chromium emission limit for gas-fired, glass-melting furnaces from 0.00006 to 0.00025 pounds of total chromium per ton of glass pulled, based on our re-assessment of emissions data for newly-rebuilt furnaces (see section VI.A.2 of this preamble for a discussion of the basis of the revised emission limit for chromium compounds). We are also requiring that facilities at both major and area sources establish the materials mix, including the percentages of raw minerals and cullet used in gas-fired glass-melting furnaces during the performance test conducted to demonstrate compliance with the chromium emission limit. The source must maintain the percentage of cullet in the raw material mixture at or below the level established during the most recent performance test showing compliance with the standard. If the gas-fired glass-melting furnace uses 100-percent cullet during the performance test and is in compliance with the chromium emissions limit, then the source is not required to monitor cullet usage. Other requirements for Wool Fiberglass Manufacturing area sources, including startup and shutdown, compliance dates, test methods, monitoring, recordkeeping, and reporting are the same requirements as those specified for major source facilities in 40 CFR part 63, subpart NNN. Therefore, 40 CFR part 63, subpart NN cites 40 CFR part 63, subpart NNN, for these requirements.

C. What are the effective and compliance dates of the standards for Wool Fiberglass Manufacturing area sources?

The GACT standards for gas-fired glass-melting furnaces located at Wool Fiberglass Manufacturing area sources being promulgated in this action are effective on July 29, 2015. The compliance date for existing sources is July 31, 2017. New sources must comply with the all of the standards immediately upon the effective date of the standard, July 29, 2015, or upon initial startup, whichever is later.

The effective and compliance dates finalized in this action are consistent with the dates we presented in the 2014 supplemental proposal.

D. What are the requirements for submission of performance test data to the EPA for Wool Fiberglass Manufacturing area sources?

The requirements for electronic reporting of performance test data for wool fiberglass manufacturing area sources are the same as the requirements for the mineral wool production source category. See section III.G of this preamble for a description of the requirements.

VIII. Summary of Cost, Environmental and Economic Impacts and Additional Analyses Conducted

A. What are the affected facilities?

1. Mineral Wool Production Source Category

We estimate that there are eight mineral wool facilities that are major sources and, therefore, would be subject to the final NESHAP provisions.

2. Wool Fiberglass Manufacturing Source Category (Major and Area Sources)

We estimate that there are 30 facilities in this source category (10 major sources and 20 area sources). Based on the responses to the CAA section 114 ICR, we believe that two of the 10 wool fiberglass manufacturing facilities that are major sources would rebuild two furnaces before the end of their operational lifecycles. We believe that all furnaces at area sources can comply with the final chromium emission limit without rebuilding before the end of their operational lifecycles.

B. What are the air quality impacts?

1. Mineral Wool Production Source Category

Emissions of HAP from mineral wool production facilities have declined over the last decade as a result of federal and state rules and the industry's own initiatives. The amendments we are finalizing in this action would maintain COS, formaldehyde, phenol, and methanol emissions at their current low levels.

2. Wool Fiberglass Manufacturing Source Category (Major and Area Sources)

We expect that these final RTR amendments would result in reductions of 524 pounds of chromium compounds, 490 pounds of which is in the hexavalent form. Available information indicates that all affected facilities will be able to comply with the final work practice standards for HF and HCl without additional controls, and that there will be no measurable reduction in emissions of these gases.

Also, we anticipate that there will be continued reductions in PM emissions due to these final PM standards, which all sources currently are meeting due to the use of well-performing PM controls. Industry comments, statements, and sources in the technical literature indicate that as sources of industrial oxygen become available in areas proximate to wool fiberglass facilities, such sources will convert their existing furnaces to oxyfuel technology. As described in the ''Mechanisms of Chromium Emissions From Wool Fiberglass Glass-Melting Furnaces,'' June 2015, PM emissions are greatly reduced compared to electric furnaces and air-gas furnace technology.

Indirect or secondary air quality impacts include impacts that will result from the increased electricity usage

associated with the operation of control devices. We do not anticipate significant secondary impacts from the final amendments to the Wool Fiberglass Manufacturing MACT.

C. What are the cost impacts?

1. Mineral Wool Production Source Category

All lines currently in operation can meet the emission limits finalized in this action without installing new control equipment or using different input materials. The total annualized costs for these final amendments are estimated at $48,800 (2013 dollars) for additional testing and monitoring.

2. Wool Fiberglass Manufacturing Source Category (Major and Area Sources)

The capital costs for each facility were estimated based on the ability of each facility to meet the final emissions limits for PM, chromium compounds, formaldehyde, phenol, and methanol. The memorandum, ''Cost Impacts of the Final NESHAP RTR Amendments for the Wool Fiberglass Manufacturing Source Category,'' includes a complete description of the cost estimate methods used for this analysis and is available in the docket.

There are a total of eight gas-fired glass-melting furnaces located at five major source facilities. Compliance testing is $10,000 per furnace, resulting in total testing costs for glass-melting furnaces of $80,000. At this time, there are two facilities with a total of two gas-fired glass-melting furnaces that do not meet the final emissions limit for chromium compounds. We anticipate that these facilities would opt to reduce the operational lifecycle for both of the gas-fired glass-melting furnaces.

Based on the public comments and information received in response to November 2014 supplemental proposal, we revised our cost estimate from reducing the operational furnace lifecycle (from 10 to 7 years), to a cost estimate for rebuilding gas-fired glass-melting furnaces. In this cost estimate, we included the cost of transferring production to another facility while the furnace is being rebuilt.

For major sources, the estimated capital cost of rebuilding the furnace is $10.7 million per furnace with a total annualized cost of $462,000 per furnace.

Two major source facilities operate 13 FA manufacturing lines, and, therefore, would incur testing costs (annualized cost of $10,400 in 2013 dollars). The total annualized costs for the final amendments to the Wool Fiberglass Manufacturing NESHAP for major sources are estimated at $1.01 million (2013 dollars).

Of the 20 area source facilities, five facilities operate a total of eight gas-fired glass-melting furnaces. Under these final amendments, none of the area source wool fiberglass facilities will incur any capital costs to comply with the final chromium compounds emissions limit. Five area source facilities would be subject to new costs for compliance testing on gas-fired glass-melting furnaces, which will total $80,000 annually (2013 dollars).

D. What are the economic impacts?

1. Mineral Wool Production Source Category

As noted in the November 2014 supplemental proposal (79 FR 68025), we performed an economic impact analysis for mineral wool consumers and producers nationally. The impacts to producers affected by this final rule are annualized costs of less than 0.01 percent of their revenues, using 2013 year revenue data to be consistent with the cost year for our analysis. Prices and output for mineral wool products should increase by no more than the impact of cost to revenues for producers; thus, mineral wool prices should increase by less than 0.01 percent. Hence, the overall economic impact of this final rule would be negligible to the affected industries and their consumers. For more information, please refer to the ''Economic Impact and Small Business Analysis'' for this final rulemaking that is in the docket (EPA–HQ–OAR–2010–1042).

2. Wool Fiberglass Manufacturing Source Category (Major and Area Sources)

We performed an economic impact analysis for wool fiberglass consumers and producers nationally, using the annual compliance costs estimated for both the RTR and area source final rules. The impacts to producers affected by this final rule are annualized costs of less than 0.01 percent of their revenues, using 2013 revenue data to be consistent with the cost year for our analysis. Prices and output for wool fiberglass products should increase by no more than the impact on cost to revenues for producers; thus, wool fiberglass prices should increase by less than 0.01 percent. Hence, the overall economic impact of this final rule would be negligible on the affected industries and their consumers. For more information, please refer to the ''Economic Impact and Small Business Analysis'' for this final rulemaking that is in the docket (EPA–HQ–OAR–2010–1042).

E. What are the benefits?

1. Mineral Wool Production Source Category

The amendments we are finalizing in this action will maintain the reductions in COS, formaldehyde, phenol, and methanol emissions that the industry has achieved over time at their currently low levels.

2. Wool Fiberglass Manufacturing Source Category (Major and Area Sources)

We estimate that this action will achieve HAP emissions reduction of 524 pounds per year of chromium compounds from the Wool Fiberglass Manufacturing source category. The final standards will result in significant reductions in the actual and MACT-allowable emissions of chromium compounds and will reduce the actual and potential cancer risks and non-cancer health effects due to emissions of chromium compounds from this source category.

In the November 2014 supplemental proposal (79 FR 68026), we estimated that the proposed emission limits for FA and RS manufacturing lines would reduce organic HAP emissions by 123 tons per year. Based on the available data, we believe that all FA lines currently meet the final emission limits; therefore, all of the emission reductions of organic HAP presented in the 2014 supplemental proposal were attributed to RS lines. As discussed in section V.H of this preamble, we are not establishing emission limits for RS manufacturing lines in this final action. Consequently, the emissions limits for formaldehyde, methanol, and phenol finalized in this action do not achieve reductions of organic HAP; however, the emission limits codify the reductions in organic HAP from FA lines that have been achieved by the industry since the 1999 NESHAP was promulgated. We have issued a CAA section 114 ICR to obtain process and emissions data for RS manufacturing lines and we will evaluate RTR limits for these sources, based on the CAA section 114 ICR data, at a future date.

F. What analysis of environmental justice did we conduct?

The EPA is making environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority populations and low income populations in the United States. The EPA has established policies regarding the integration of

environmental justice into the agency's rulemaking efforts, including recommendations for the consideration and conduct of analyses to evaluate potential environmental justice concerns during the development of a rule.

Following these recommendations, to gain a better understanding of the source category and near source populations, the EPA conducted a proximity analysis for mineral wool production and wool fiberglass manufacturing facilities prior to proposal to identify any overrepresentation of minority, low income, or indigenous populations. This analysis gives an indication of the prevalence of sub-populations that may be exposed to air pollution from the sources.

The EPA also conducted a risk-based socio-economic analysis for populations living near wool fiberglass facilities titled ''Risk and Technology Review—Analysis of Socio-Economic Factors for Populations Living Near Wool Fiberglass Facilities,'' which is available in the docket. The analysis indicated that 1,207,000 individuals living within 50 km of the wool fiberglass facilities have a cancer risk of 1-in-1 million or greater due to emissions from wool fiberglass facilities. The specific demographic results indicate that the percentage of minority population potentially impacted by emissions from wool fiberglass facilities (*i.e.,* within 50 km) is greater than the national minority percentage (44 percent for the source category compared to 28-percent nationwide). Furthermore, other demographic groups with source category percentages greater than the corresponding national percentage include: The population over 25 without a high school diploma (18 percent compared to 15 percent); the population from 18 to 64 years of age (66 percent compared to 63 percent), and the population below the poverty level (15 percent compared to 14 percent). The other demographic categories potentially impacted by emissions from wool fiberglass facilities (*i.e.,* African American, Native American, ages less than 18, and ages 65 and up) are less than or equal to the corresponding national percentage.

The EPA's integration of environmental justice into the agency's rulemaking efforts was also thoroughly demonstrated by EPA's Region 7 response to emissions data obtained through this rulemaking. Region 7 proactively engaged the local community and identified potential environmental concerns; conducted air monitoring and modeling; and opened lines of communication and launched several opportunities for the community to voice concerns, ask questions, and receive additional information. Additionally, EPA Headquarters and Region 7 worked together to provide resources for communities, as well as to ensure that feedback received from the Region 7 communities was being considered in this rulemaking.

Through our analyses, the EPA has determined that these final rules for 40 CFR part 63, subparts NN, DDD, and NNN will not have disproportionately high and adverse human health or environmental effects on minority, low income, or indigenous populations. Additionally, the final changes to the NESHAP for Mineral Wool Production and Wool Fiberglass Manufacturing source categories increase the level of environmental protection for all affected populations by reducing emissions of chromium compounds by over 524 pounds per year and will not cause any disproportionately high and adverse human health or environmental effects on any population, including any minority, low income, or indigenous populations. Our demographic analysis shows that disproportionately impacted minority areas will benefit from the lower emissions. Further details concerning this analysis are presented in the memorandum titled, ''Updated Environmental Justice Review: Mineral Wool Production and Wool Fiberglass Manufacturing RTR,'' a copy of which is available in the dockets for this action.

G. What analysis of children's environmental health did we conduct?

As part of the health and risk assessments, risk-based demographic analysis conducted for this action, risks to infants and children were assessed. This analysis is documented in the following memoranda which are available in the dockets for this action:

- ''Residual Risk Assessment for the Mineral Wool Production and Wool Fiberglass Manufacturing Source Categories in Support of the June 2015 Final Rule''
- ''Risk and Technology Review—Analysis of Socio-Economic Factors for Populations Living Near Wool Fiberglass Facilities''

The results of the risk-based socio-economic analysis for populations living near wool fiberglass facilities indicates that there are 1,207,000 individuals living within 50 km of the wool fiberglass facilities have a cancer risk of 1-in-1-million or greater (based on actual emissions). The distribution of the population with risks above 1-in-1 million is 24 percent for ages 0 to 17, 66 percent for ages 18 to 64, and 10 percent for ages 65 and up. Children ages 0 to 17 also constitute 24 percent of the population nationwide. Therefore, the analysis shows that actual emissions from wool fiberglass facilities do not have a disproportionate impacts on children ages 0 to 17.

The results of the demographic analysis show that the average percentage of children 17 years and younger in close proximity to mineral wool production and wool fiberglass manufacturing facilities is similar to the percentage of the national population in this age group. The difference in the absolute number of percentage points of the population 17 years and younger from the national average indicates a 7-percent over-representation near mineral wool production and wool fiberglass manufacturing facilities.

Consistent with the EPA's ''Policy on Evaluating Health Risks to Children'', we conducted inhalation and multipathway risk assessments for the Mineral Wool Production and Wool Fiberglass Manufacturing source categories considering risk to infants and children.[24] Children are exposed to chemicals emitted to the atmosphere via two primary routes: Either directly via inhalation, or indirectly via ingestion or dermal contact with various media that have been contaminated with the emitted chemicals. The EPA considers the possibility that children might be more sensitive than adults might be to toxic chemicals, including chemical carcinogens.

For our multipathway screening assessment (*i.e.,* ingestion), we assessed risks for adults and various age groups of children to determine what age group was most at risk for purposes of developing the screening/emission threshold for each persistent and bioaccumulative—HAP (PB–HAP). Childrens' exposures are expected to differ from exposures of adults due to differences in body weights, ingestion rates, dietary preferences, and other factors. It is important, therefore, to evaluate the contribution of exposures during childhood to total lifetime risk using appropriate exposure factor values, applying age-dependent adjustment factors (ADAF) as appropriate. The EPA developed a health protective exposure scenario whereby the receptor, at various lifestages, receives ingestion exposure via both the farm food chain and the fish ingestion pathways.

Based on the analyses described above, the EPA has determined that the

[24] Policy on Evaluating Health Risks to Children, U.S. Environmental Protection Agency, Washington, DC. May 2014. Available at *http://www2.epa.gov/sites/production/files/2014-05/documents/1995_childrens_health_policy_statement.pdf.*

changes to these rules, which will reduce emissions of chromium compounds by over 524 pounds per year, will lead to reduced risk to children and infants. The final amendments will also codify the reductions in emissions (COS, formaldehyde, phenol, and methanol from mineral wool facilities, and formaldehyde, methanol, and phenol from wool fiberglass facilities) that the industries have achieved since the NESHAP for the respective source categories were promulgated in 1999.

IX. Statutory and Executive Order Reviews

Additional information about these statutes and Executive Orders can be found at *http://www2.epa.gov/lawsregulations/laws-and-executive-order.*

A. Executive Orders 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review

This action is not a significant regulatory action and was, therefore, not submitted to the Office of Management and Budget (OMB) for review.

B. Paperwork Reduction Act (PRA)

The information collection activities in these rules have been submitted for approval to the OMB under the PRA. The ICR document that the EPA prepared for the Mineral Wool Production source category has been assigned EPA ICR number 1799.06. The ICR document that the EPA prepared for the Wool Fiberglass Manufacturing source category has been assigned EPA ICR number 1160.10. You can find a copy of these ICRs in the dockets for these rules, and they are briefly summarized here. The information collection requirements are not enforceable until OMB approves them.

The information requirements in these rulemakings are based on the notification, recordkeeping and reporting requirements in the NESHAP General Provisions (40 CFR part 63, subpart A), which are mandatory for all operators subject to national emission standards. These notifications, reports and records are essential in determining compliance, and are specifically authorized by CAA section 114 (42 U.S.C. 7414).

Mineral Wool Production source category:

Respondents/affected entities: Existing, new, or reconstructed mineral wool production facilities that are major sources.

Respondent's obligation to respond: Mandatory (42 U.S.C 7414).

Estimated number of respondents: 8.

Frequency of response: Annual.

Total estimated burden: 123 hours (per year). Burden is defined at 5 CFR 1320.3(b).

Total estimated cost: $25,150 (per year), includes $0 annualized capital or operation and maintenance costs.

Wool Fiberglass Manufacturing source category (major sources):

Respondents/affected entities: Existing, new, or reconstructed wool fiberglass manufacturing facilities that are major sources.

Respondent's obligation to respond: Mandatory (42 U.S.C 7414).

Estimated number of respondents: 10.

Frequency of response: Annual.

Total estimated burden: 156 hours (per year). Burden is defined at 5 CFR 1320.3(b).

Total estimated cost: $46,142 (per year), includes $0 annualized capital or operation & maintenance costs.

Wool Fiberglass Manufacturing source category (area sources):

Respondents/affected entities: Existing, new, or reconstructed gas-fired glass-melting furnaces at a wool fiberglass manufacturing facility that are located at a plant site that is an area source.

Respondent's obligation to respond: Mandatory (42 U.S.C 7414).

Estimated number of respondents: 5.

Frequency of response: Annual.

Total estimated burden: 78 hours (per year). Burden is defined at 5 CFR 1320.3(b).

Total estimated cost: $32,334 (per year), includes $0 annualized capital or operation and maintenance costs.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for the EPA's regulations in 40 CFR are listed in 40 CFR part 9. When OMB approves this ICR, the Agency will announce that approval in the **Federal Register** and publish a technical amendment to 40 CFR part 9 to display the OMB control number for the approved information collection activities contained in this final rule.

C. Regulatory Flexibility Act (RFA)

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. Five of the eight mineral wool production parent companies affected in the final rule are considered to be small entities per the definition provided in this section. There are no small businesses in the Wool Fiberglass Manufacturing source category. We estimate that these final rules will not have a significant economic impact on any of those companies.

While there are some costs imposed on affected small businesses as a result of these rulemakings, the costs associated with this action are less than the costs associated with the limits proposed on November 25, 2011. Specifically, the cost to small entities in the Mineral Wool Production source category due to the changes in COS, HF, and HCl are lower as compared to the limits proposed on November 25, 2011, and April 15, 2013. None of the five small mineral wool parent companies is expected to have an annualized compliance cost of greater than 1 percent of its revenues. All other affected parent companies are not small businesses according to the SBA small business size standard for the affected NAICS code (NAICS 327993). Therefore, we have determined that the impacts for this final rule do not constitute a significant economic impact on a substantial number of small entities.

Although these final rules would not have a significant economic impact on a substantial number of small entities, the EPA nonetheless has tried to mitigate the impact that these rules would have on small entities. The actions we took to mitigate impacts on small businesses include less frequent compliance testing for the entire mineral wool industry and subcategorizing the Mineral Wool Production source category in developing the proposed COS, HF and HCl emissions limits. For more information, please refer to the economic impact and small business analysis that is in the docket.

D. Unfunded Mandates Reform Act (UMRA)

This action does not contain an unfunded mandate of $100 million or more as described in UMRA, 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments. The action imposes no enforceable duty on any state, local, or tribal governments, or on the private sector.

E. Executive Order 13132: Federalism

This action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

This action does not have tribal implications, as specified in Executive Order 13175. These final rules impose requirements on owners and operators of specified area and major sources, and not tribal governments. There are no wool fiberglass manufacturing facilities or mineral wool production facilities owned or operated by Indian tribal governments. Thus, Executive Order 13175 does not apply to this action.

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

This action is not subject to Executive Order 13045 because it is not economically significant as defined in Executive Order 12866, and because the EPA does not believe the environmental health or safety risks addressed by this action present a disproportionate risk to children. This action's health and risk assessments are contained in sections IV.A, VI.A, VIII.F, VIII.G of this preamble and in the ''Residual Risk Assessment for the Mineral Wool Production and Wool Fiberglass Manufacturing Source Categories'' memorandum available in the dockets for this rulemaking.

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

This action is not subject to Executive Order 13211 because it is not a significant regulatory action under Executive Order 12866.

I. National Technology Transfer and Advancement Act (NTTAA)

This rulemaking involves technical standards. Therefore, the EPA conducted searches for the Wool Fiberglass Manufacturing Area Source NESHAP through the Enhanced National Standards Systems Network (NSSN) Database managed by the American National Standards Institute (ANSI). We also contacted voluntary consensus standards (VCS) organizations and accessed and searched their databases.

As discussed in the November 2014 supplemental proposal (79 FR 68029), under 40 CFR part 63 subpart DDD, we conducted searches for EPA Methods 5, 318, and 320 of 40 CFR part 60, Appendix A. Under 40 CFR part 63, subpart NNN, we conducted searches for EPA Methods 5, 318, 320, 29, and 0061 of 40 CFR part 60, Appendix A. Under 40 CFR part 63, subpart NN, we conducted searches for EPA Methods 5 and 29. These searches did not identify any VCS that were potentially applicable for this rule in lieu of EPA reference methods. The EPA solicited comments on VCS and invited the public to identify potentially-applicable VCS; however, we did not receive comments regarding this aspect of 40 CFR part 63, subparts NN, DDD, or NNN.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

The EPA believes the human health or environmental risk addressed by this action will not have potential disproportionately high and adverse human health or environmental effects on minority, low-income, or indigenous populations because it does not affect the level of protection provided to human health or the environment. As explained in the November 2014 supplemental proposal (79 FR 68029), the EPA determined that this final rule will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations, because it increases the level of environmental protection for all affected populations without having any disproportionately high and adverse human health or environmental effects on any population, including any minority or low-income population. Further details concerning this analysis are presented in the memorandum titled, ''Updated Environmental Justice Review: Mineral Wool Production and Wool Fiberglass Manufacturing RTR'', a copy of which is available in the dockets for this action. Additionally, the EPA engaged meaningfully with communities throughout this rulemaking process, to help them engage in the rulemaking process and to get their feedback on the proposed rulemaking. Also, EPA worked closely with Region 7, to ensure that communities that raised concerns by the sectors covered in this rulemaking, were being adequately engaged throughout this process.

K. Congressional Review Act (CRA)

This action is subject to the CRA, and the EPA will submit a rule report to each House of the Congress and to the Comptroller General of the United States. This action is not a ''major rule'' as defined by 5 U.S.C. 804(2).

List of Subjects in 40 CFR Part 63

Environmental protection, Administrative practice and procedures, Air pollution control, Hazardous substances, Incorporation by reference, Intergovernmental relations, Mineral wool production, Reporting and recordkeeping requirements, Wool fiberglass manufacturing.

Dated: June 25, 2015.

Gina McCarthy,

Administrator.

For the reasons stated in the preamble, part 63 of title 40, chapter I, of the Code of Federal Regulations is amended as follows:

PART 63—NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR SOURCE CATEGORIES

■ 1. The authority citation for part 63 continues to read as follows:

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

■ 2. Subpart NN is added to part 63 to read as follows:

Subpart NN—National Emission Standards for Hazardous Air Pollutants for Wool Fiberglass Manufacturing at Area Sources

Sec.

Subpart NN—National Emission Standards for Hazardous Air Pollutants for Wool Fiberglass Manufacturing at Area Sources

§ 63.880 Applicability.

(a) The requirements of this subpart apply to the owner or operator of each wool fiberglass manufacturing facility that is an area source or is located at a facility that is an area source.

(b) The requirements of this subpart apply to emissions of chromium compounds, as measured according to the methods and procedures in this subpart, emitted from each new and existing gas-fired glass-melting furnace located at a wool fiberglass manufacturing facility that is an area source.

(c) The provisions of subpart A of this part that apply and those that do not apply to this subpart are specified in Table 1 to this subpart.

(d) Gas-fired glass-melting furnaces that are not subject to subpart NNN of this part are subject to this subpart.

(e) Gas-fired glass-melting furnaces using electricity as a supplemental energy source are subject to this subpart.

§ 63.881 Definitions.

Terms used in this subpart are defined in the Clean Air Act, in § 63.2, or in this section as follows:

Bag leak detection system means systems that include, but are not limited to, devices using triboelectric, light scattering, and other effects to monitor relative or absolute particulate matter emissions.

Gas-fired glass-melting furnace means a unit comprising a refractory vessel in which raw materials are charged, melted at high temperature using natural gas and other fuels, refined, and conditioned to produce molten glass. The unit includes foundations, superstructure and retaining walls, raw material charger systems, heat exchangers, exhaust system, refractory brick work, fuel supply and electrical boosting equipment, integral control systems and instrumentation, and appendages for conditioning and distributing molten glass to forming processes. The forming apparatus, including flow channels, is not considered part of the gas-fired glass-melting furnace. Cold-top electric glass-melting furnaces as defined in subpart NNN of this part are not gas-fired glass-melting furnaces.

Glass pull rate means the mass of molten glass that is produced by a single glass-melting furnace or that is used in the manufacture of wool fiberglass at a single manufacturing line in a specified time period.

Incinerator means an enclosed air pollution control device that uses controlled flame combustion to convert combustible materials to noncombustible gases. For the purposes of this subpart, the term ''incinerator'' means ''regenerative thermal oxidizer''.

Manufacturing line means the manufacturing equipment for the production of wool fiberglass that consists of a forming section where molten glass is fiberized and a fiberglass mat is formed and which may include a curing section where binder resin in the mat is thermally set and a cooling section where the mat is cooled.

New source means any affected source the construction or reconstruction of which is commenced after April 15, 2013.

Wool fiberglass means insulation materials composed of glass fibers made from glass produced or melted at the same facility where the manufacturing line is located.

Wool fiberglass manufacturing facility means any facility manufacturing wool fiberglass.

§ 63.882 Emission standards.

(a) *Emission limits for gas-fired glass-melting furnaces.* For each existing, new, or reconstructed gas-fired glass-melting furnace, on and after the compliance date specified in § 63.887 whichever date is earlier, you must not discharge or cause to be discharged into the atmosphere emissions in excess of 0.00025 lb of chromium compounds per ton of glass pulled (0.25 lb per thousand tons glass pulled).

(b) *Operating limits.* On and after the date on which the performance test required by §§ 63.7 and 63.1384 is completed, you must operate all affected control equipment and processes according to the following requirements.

(1)(i) You must initiate corrective action within one hour of an alarm from a bag leak detection system and complete corrective actions in a timely manner according to the procedures in the operations, maintenance, and monitoring plan.

(ii) You must implement a Quality Improvement Plan consistent with the compliance assurance monitoring provisions of 40 CFR part 64, subpart D when the bag leak detection system alarm is sounded for more than 5 percent of the total operating time in a 6-month block reporting period.

(2)(i) You must initiate corrective action within one hour when any 3-hour block average of the monitored electrostatic precipitator (ESP) parameter is outside the limit(s) established during the performance test as specified in § 63.884 and complete corrective actions in a timely manner according to the procedures in the operations, maintenance, and monitoring plan.

(ii) You must implement a Quality Improvement Plan consistent with the compliance assurance monitoring provisions of 40 CFR part 64, subpart D when the monitored ESP parameter is outside the limit(s) established during the performance test as specified in § 63.884 for more than 5 percent of the total operating time in a 6-month block reporting period.

(iii) You must operate the ESP such that the monitored ESP parameter is not outside the limit(s) established during the performance test as specified in § 63.884 for more than 10 percent of the total operating time in a 6-month block reporting period.

(3)(i) You must initiate corrective action within one hour when any 3-hour block average value for the monitored parameter(s) for a gas-fired glass-melting furnace, which uses no add-on controls, is outside the limit(s) established during the performance test as specified in § 63.884 and complete corrective actions in a timely manner according to the procedures in the operations, maintenance, and monitoring plan.

(ii) You must implement a Quality Improvement Plan consistent with the compliance assurance monitoring provisions of 40 CFR part 64, subpart D when the monitored parameter(s) is outside the limit(s) established during the performance test as specified in § 63.884 for more than 5 percent of the total operating time in a 6-month block reporting period.

(iii) You must operate a gas-fired glass-melting furnace, which uses no add-on technology, such that the monitored parameter(s) is not outside the limit(s) established during the performance test as specified in § 63.884 for more than 10 percent of the total operating time in a 6-month block reporting period.

(4)(i) You must initiate corrective action within one hour when the average glass pull rate of any 4-hour block period for gas-fired glass-melting furnaces equipped with continuous glass pull rate monitors, or daily glass pull rate for glass-melting furnaces not so equipped, exceeds the average glass pull rate established during the performance test as specified in § 63.884, by greater than 20 percent and complete corrective actions in a timely manner according to the procedures in the operations, maintenance, and monitoring plan.

(ii) You must implement a Quality Improvement Plan consistent with the compliance assurance monitoring provisions of 40 CFR part 64, subpart D when the glass pull rate exceeds, by more than 20 percent, the average glass pull rate established during the performance test as specified in § 63.884 for more than 5 percent of the total operating time in a 6-month block reporting period.

(iii) You must operate each gas-fired glass-melting furnace such that the glass pull rate does not exceed, by more than 20 percent, the average glass pull rate established during the most recent successful performance test as specified in § 63.884 for more than 10 percent of the total operating time in a 6-month block reporting period.

(5)(i) You must initiate corrective action within one hour when the average pH (for a caustic scrubber) or pressure drop (for a venturi scrubber) for any 3-hour block period is outside the limits established during the performance tests as specified in § 63.884 for each wet scrubbing control

device and complete corrective actions in a timely manner according to the procedures in the operations, maintenance, and monitoring plan.

(ii) You must implement a Quality Improvement Plan consistent with the compliance assurance monitoring provisions of 40 CFR part 64, subpart D when any scrubber parameter is outside the limit(s) established during the performance test as specified in § 63.884 for more than 5 percent of the total operating time in a 6-month block reporting period.

(iii) You must operate each scrubber such that each monitored parameter is not outside the limit(s) established during the performance test as specified in § 63.884 for more than 10 percent of the total operating time in a 6-month block reporting period.

§ 63.883 Monitoring requirements.

You must meet all applicable monitoring requirements contained in subpart NNN of this part.

§ 63.884 Performance test requirements.

(a) If you are subject to the provisions of this subpart you must conduct a performance test to demonstrate compliance with the applicable emission limits in § 63.882. For existing sources, compliance is demonstrated when the emission rate of the pollutant is equal to or less than each of the applicable emission limits in § 63.882 by July 31, 2017. For new sources compliance is demonstrated when the emission rate of the pollutant is equal to or less than each of the applicable emission limits in § 63.882 by January 25, 2016 or 180 days after initial startup, whichever is later. You must conduct the performance test according to the procedures in subpart A of this part and in this section.

(b) You must meet all applicable performance test requirements contained in subpart NNN of this part.

§ 63.885 Test methods and procedures.

(a) You must use the following methods to determine compliance with the applicable emission limits:

(1) Method 1 at 40 CFR part 60, appendix A–1 for the selection of the sampling port location and number of sampling ports;

(2) Method 2 at 40 CFR part 60, appendix A–1 for volumetric flow rate;

(3) Method 3 or 3A (40 CFR part 60, appendix A–2) for oxygen and carbon dioxide for diluent measurements needed to correct the concentration measurements to a standard basis;

(4) Method 4 at 40 CFR part 60, appendix A–4 for moisture content of the stack gas;

(5) Method 29 (40 CFR part 60, appendix A–8) for the concentration of chromium compounds. Each run must consist of a minimum sample volume of two dry standard cubic meters.

(6) An alternative method, subject to approval by the Administrator.

(b) Each performance test must consist of three runs. You must use the average of the three runs in the applicable equation for determining compliance.

§ 63.886 Notification, recordkeeping, and reporting requirements.

You must meet all applicable notification, recordkeeping and reporting requirements contained in subpart NNN of this part.

§ 63.887 Compliance dates.

(a) *Compliance dates.* The owner or operator subject to the provisions of this subpart must be in compliance with the requirements of this subpart by no later than:

(1) Except as noted in paragraph (a)(3) of this section, the compliance date for an owner or operator of an existing source subject to the provisions in this subpart would be July 31, 2017.

(2) Except as noted in paragraph (a)(3) of this section, the compliance date for new and reconstructed sources is upon initial startup of a new gas-fired glass-melting furnace or on July 29, 2015, whichever is later.

(3) The compliance date for the provisions related to the electronic reporting provisions of § 63.886 is on July 29, 2015.

(b) *Compliance extension.* The owner or operator of an existing source subject to this subpart may request from the Administrator an extension of the compliance date for the emission standards for one additional year if such additional period is necessary for the installation of controls. You must submit a request for an extension according to the procedures in § 63.6(i)(3).

§ 63.888 Startups and shutdowns.

You must meet all applicable startup and shutdown provisions contained in subpart NNN of this part.

§§ 63.889–63.899 [Reserved]

TABLE 1 TO SUBPART NN OF PART 63—APPLICABILITY OF GENERAL PROVISIONS (40 CFR PART 63, SUBPART A) TO SUBPART NN

General provisions citation	Requirement	Applies to subpart NN	Explanation
§ 63.1(a)(1)–(5)	Applicability	Yes	
§ 63.1(a)(6)		Yes	
§ 63.1(a)(7)–(9)		No	[Reserved].
§ 63.1(a)(10)–(12)		Yes	
§ 63.1(b)(1)	Initial Applicability Determination	Yes	
§ 63.1(b)(2)		No	[Reserved].
§ 63.1(b)(3)		Yes	
§ 63.1(c)(1)–(2)		Yes	
§ 63.1(c)(3)–(4)		No	[Reserved].
§ 63.1(c)(5)–(e)		Yes	
§ 63.2	Definitions	Yes	Additional definitions in § 63.881.
§ 63.3	Units and Abbreviations	Yes	
§ 63.4(a)(1)–(2)	Prohibited Activities	Yes	
§ 63.4(a)(3)–(5)		No	[Reserved].
§ 63.4(b)–(c)		Yes	
§ 63.5(a)–(b)(2)	Construction/Reconstruction Applicability	Yes	
§ 63.5(b)(3)–(4)		Yes	
§ 63.5(b)(5)		No	[Reserved].
§ 63.5(b)(6)		Yes	
§ 63.5(c)		No	[Reserved].
§ 63.5(d)	Application for Approval of Construction/Reconstruction.	Yes	

TABLE 1 TO SUBPART NN OF PART 63—APPLICABILITY OF GENERAL PROVISIONS (40 CFR PART 63, SUBPART A) TO SUBPART NN—Continued

General provisions citation	Requirement	Applies to subpart NN	Explanation
§ 63.5(e)	Approval of Construction/Reconstruction	Yes	
§ 63.5(f)	Approval of Construction/Reconstruction Based on State Review.	Yes	
§ 63.6(a)–(d)	Compliance with Standards and Maintenance Requirements.	Yes	
§ 63.6(e)(1)(i)	General Duty to Minimize Emissions	No	See § 63.882 for general duty requirements.
§ 63.6(e)(1)(ii)	Requirement to Correct Malfunctions As Soon As Possible.	No	
§ 63.6(e)(1)(iii)		Yes	
§ 63.6(e)(2)		No	[Reserved].
§ 63.6(e)(3)	Startup, Shutdown, and Malfunction (SSM) Plan.	No	Startups and shutdowns addressed in § 63.888.
§ 63.6(f)(1)	SSM Exemption	No	
§ 63.6(f)(2)–(3)	Methods for Determining Compliance	Yes	
§ 63.6(g)	Use of an Alternative Nonopacity Emission	Yes	
§ 63.6(h)(1)	SSM Exemption	No	
§ 63.6(h)(2)–(j)		Yes	
§ 63.7(a)–(d)		Yes	§ 63.884 has specific requirements.
§ 63.7(e)(1)	Performance Testing	No	See § 63.882.
§ 63.7(e)(2)–(4)		Yes	
§ 63.7(f)	Alternative Test Method	Yes	
§ 63.7(g)(1)	Data Analysis	Yes	
§ 63.7(g)(2)		No	[Reserved].
§ 63.7(g)(3)		Yes	
§ 63.7(h)	Waiver of Performance Test	Yes	
§ 63.8(a)–(b)	Monitoring Requirements	Yes	
§ 63.8(c)(1)(i)	General Duty to Minimize Emissions and CMS Operation.	No	See § 63.882(b) for general duty requirement.
§ 63.8(c)(1)(ii)		Yes	
§ 63.8(c)(1)(iii)	Requirement to Develop SSM Plan for CMS	No	
§ 63.8(c)(2)–(d)(2)		Yes	
§ 63.8(d)(3)	Written Procedures for CMS	Yes, except for last sentence, which refers to SSM plan. SSM plans are not required	
§ 63.8(e)–(g)		Yes	
§ 63.9(a)	Notification Requirements	Yes	
§ 63.9(b)(1)–(2)	Initial Notifications	Yes	
§ 63.9(b)(3)		No	[Reserved].
§ 63.9(b)(4)–(5)		Yes	
§ 63.9(c)–(j)		Yes	
§ 63.10(a)	Recordkeeping and Reporting-Requirements	Yes	
§ 63.10(b)(1)	General Recordkeeping Requirements	Yes	
§ 63.10(b)(2)(i)	Recordkeeping of Occurrence and Duration of Startups and Shutdowns.	No	
§ 63.10(b)(2)(ii)	Recordkeeping of Malfunctions	No	See § 63.886 for recordkeeping of occurrence and duration of malfunctions and recordkeeping of actions taken during malfunction.
§ 63.10(b)(2)(iii)	Maintenance Records	Yes	
§ 63.10(b)(2)(iv)–(v)	Actions Taken to Minimize Emissions During SSM.	No	
§ 63.10(b)(2)(vi)	Recordkeeping for CMS Malfunctions	Yes	
§ 63.10(b)(2)(vii)–(xiv)	Other CMS Requirements	Yes	
§ 63.10(b)(3)	Recordkeeping Requirement for Applicability Determinations.	Yes	
§ 63.10(c)(1)–(6)	Additional Recordkeeping Requirements for Sources with CMS.	Yes	
§ 63.10(c)(7)–(8)	Additional Recordkeeping Requirements for CMS—Identifying Exceedances and Excess Emissions.	Yes	
§ 63.10(c)(9)		No	[Reserved].
§ 63.10(c)(10)–(11)		No	See § 63.886 for recordkeeping of malfunctions.
§ 63.10(c)(12)–(14)		Yes	
§ 63.10(c)(15)	Use of SSM Plan	No	
§ 63.10(d)(1)–(4)	General Reporting Requirements	Yes	
§ 63.10(d)(5)	SSM Reports	No	See § 63.886(c)(2) for reporting of malfunctions.

TABLE 1 TO SUBPART NN OF PART 63—APPLICABILITY OF GENERAL PROVISIONS (40 CFR PART 63, SUBPART A) TO SUBPART NN—Continued

General provisions citation	Requirement	Applies to subpart NN	Explanation
§ 63.10(e)–(f)	Additional CMS Reports Excess Emission/ CMS Performance Reports COMS Data Reports Recordkeeping/Reporting Waiver.	Yes	
§ 63.11(a)–(b)	Control Device Requirements Applicability Flares.	No	Flares will not be used to comply with the emissions limits.
§ 63.11(c)	Alternative Work Practice for Monitoring Equipment for Leaks.	Yes	
§ 63.11(d)	Alternative Work Practice Standard	Yes	
§ 63.11(e)	Alternative Work Practice Requirements	Yes	
§ 63.12	State Authority and Delegations	Yes	
§ 63.13	Addresses	Yes	
§ 63.14	Incorporation by Reference	Yes	
§ 63.15	Information Availability/Confidentiality	Yes	
§ 63.16	Performance Track Provisions	Yes	

Subpart DDD—National Emission Standards for Hazardous Air Pollutants for Mineral Wool Production

■ 3. Section 63.1178 is amended by revising paragraphs (a) and (b)(3) to read as follows:

§ 63.1178 For cupolas, what standards must I meet?

(a) You must control emissions from each cupola as specified in Table 2 to this subpart.

(b) * * *

(3) Additionally, on or after the applicable compliance date for each new or reconstructed cupola, you must either:

(i) Maintain the operating temperature of the incinerator so that the average operating temperature for each three-hour block period never falls below the average temperature established during the performance test, or

(ii) Maintain the percent excess oxygen in the cupola at or above the level established during the performance test. You must determine the percent excess oxygen using the following equation:

$$\text{Percent excess oxygen} = \left(\left(\frac{\text{Oxygen available}}{\text{Fuel demand for oxygen}}\right) - 1\right) * 100$$

Where:

Percent excess oxygen = Percentage of excess oxygen present above the stoichiometric balance of 1.00, (%).

1.00 = Ratio of oxygen in a cupola combustion chamber divided by the stoichiometric quantity of oxygen required to obtain complete combustion of fuel.

Oxygen available = Quantity of oxygen introduced into the cupola combustion zone.

Fuel demand for oxygen = Required quantity of oxygen for stoichiometric combustion of the quantity of fuel present.

■ 4. Section 63.1179 is amended by revising the section heading, paragraph (a), and paragraph (b) introductory text to read as follows:

§ 63.1179 For curing ovens or combined collection/curing operations, what standards must I meet?

(a) You must control emissions from each curing oven or combined collection/curing operations as specified in Table 2 to this subpart.

(b) You must meet the following operating limits for each curing oven or combined collection/curing operation:

* * * * *

■ 5. Section 63.1180 is revised to read as follows:

§ 63.1180 When must I meet these standards?

(a) Cupolas and curing ovens or combined collection/curing operations. You must comply with the emissions limits specified in Table 2 to this subpart no later than the dates specified in Table 2 to this subpart.

(b) At all times, you must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

■ 6. Section 63.1182 is amended by revising the section heading, the introductory text, and paragraphs (a) and (b) to read as follows:

§ 63.1182 How do I comply with the carbon monoxide, carbonyl sulfide, hydrogen fluoride, and hydrogen chloride standards for existing, new, and reconstructed cupolas?

To comply with the carbon monoxide, carbonyl sulfide, hydrogen fluoride, and hydrogen chloride standards, you must meet the following:

(a) Install, calibrate, maintain, and operate a device that continuously measures the operating temperature in the firebox of each thermal incinerator.

(b) Conduct a performance test as specified in § 63.1188 that shows compliance with the carbon monoxide, carbonyl sulfide, hydrogen fluoride, and hydrogen chloride emissions limits specified in Table 2 to this subpart, while the device for measuring incinerator operating temperature is installed, operational, and properly calibrated. Establish the average operating temperature based on the performance test as specified in § 63.1185(a).

* * * * *

■ 7. Section 63.1183 is amended by revising the section heading, the introductory text, and paragraphs (b) and (d) to read as follows:

§ 63.1183 How do I comply with the formaldehyde, phenol, and methanol standards for existing, new, and reconstructed combined collection/curing operations?

To comply with the formaldehyde, phenol, and methanol standards, you must meet all of the following:

* * * * *

(b) Conduct a performance test as specified in § 63.1188 while manufacturing the product that requires a binder formulation made with the resin containing the highest free-formaldehyde content specification range. Show compliance with the formaldehyde, phenol, and methanol emissions limits, specified in Table 2 to this subpart, while the device for measuring the control device operating parameter is installed, operational, and properly calibrated. Establish the average operating parameter based on the performance test as specified in § 63.1185(a).

* * * * *

(d) Following the performance test, monitor and record the free-formaldehyde content of each resin lot and the formulation of each batch of binder used, including the formaldehyde, phenol, and methanol content.

* * * * *

■ 8. Section 63.1188 is amended by revising paragraphs (b), (c), (d), (e), and (f) to read as follows:

§ 63.1188 What performance test requirements must I meet?

* * * * *

(b) Conduct a performance test, consisting of three test runs, for each cupola and curing oven or combined collection/curing operation subject to this subpart at the maximum production rate to demonstrate compliance with each of the applicable emissions limits specified in Table 2 to this subpart.

(c) Following the initial performance or compliance test to be conducted within 180 days of the effective date of this rule, you must conduct a performance test to demonstrate compliance with each of the applicable emissions limits specified in Table 2 to this subpart, at least once every 5 years.

(d) To demonstrate compliance with the applicable emission limits specified in Table 2 to this subpart, measure emissions of PM, carbon monoxide, carbonyl sulfide, hydrogen fluoride, and hydrogen chloride from each existing, new, or reconstructed cupola.

(e) To demonstrate compliance with the applicable emission limits specified in Table 2 to this subpart, measure emissions of formaldehyde, phenol, and methanol from each existing, new, or reconstructed curing oven or combined collection/curing operation.

(f) To demonstrate compliance with the applicable emission limits specified in Table 2 to this subpart, measure emissions at the outlet of the control device for PM, carbon monoxide, carbonyl sulfide, hydrogen fluoride, hydrogen chloride, formaldehyde, phenol, and methanol.

* * * * *

■ 9. Section 63.1189 is amended by revising paragraph (g) and adding paragraph (i) to read as follows:

§ 63.1189 What test methods do I use?

* * * * *

(g) Method 318 at 40 CFR part 60, appendix A to this part for the concentration of formaldehyde, phenol, methanol, and carbonyl sulfide.

* * * * *

(i) Method 26A or 320 at 40 CFR part 60, appendix A to this part for the concentration of hydrogen fluoride and hydrogen chloride.

■ 10. Section 63.1190 is amended by revising paragraph (b) introductory text and the definition of ''MW,'' and by removing paragraph (c) to read as follows:

§ 63.1190 How do I determine compliance?

* * * * *

(b) Using the results from the performance tests, you must use the following equation to determine compliance with the carbon monoxide, carbonyl sulfide, hydrogen fluoride, hydrogen chloride, formaldehyde, phenol, and methanol numerical emissions limits as specified in Table 2 to this subpart:

* * * * *

MW = Molecular weight of measured pollutant, g/g-mole: Carbon monoxide = 28.01, carbonyl sulfide = 60.07, hydrogen fluoride = 20.01, hydrogen chloride = 36.46, Formaldehyde = 30.03, Phenol = 94.11, Methanol = 32.04.

* * * * *

■ 11. Section 63.1191 is amended by revising the introductory text to read as follows:

§ 63.1191 What notifications must I submit?

You must submit written or electronic notifications to the Administrator as required by § 63.9(b) through (h). Electronic notifications are encouraged when possible. These notifications include, but are not limited to, the following:

* * * * *

■ 12. Section 63.1192 is amended by revising paragraph (d) to read as follows:

§ 63.1192 What recordkeeping requirements must I meet?

* * * * *

(d) Records must be maintained in a form suitable and readily available for expeditious review, according to § 63.10 of the General Provisions that are referenced in Table 1 to this subpart. Electronic recordkeeping is encouraged.

* * * * *

■ 13. Section 63.1193 is amended by revising paragraph (a), removing and reserving paragraph (b), and adding a new paragraph (g) to read as follows:

§ 63.1193 What reports must I submit?

* * * * *

(a) Within 60 days after the date of completing each performance test (as defined in § 63.2) required by this subpart, you must submit the results of the performance tests, including any associated fuel analyses, following the procedure specified in either paragraph (a)(1) or (2) of this section.

(1) For data collected using test methods supported by the EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT Web site (*http://www.epa.gov/ttn/chief/ert/index.html*), you must submit the results of the performance test to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI). CEDRI can be accessed through the EPA's Central Data Exchange (CDX) (*http://cdx.epa.gov/epa_home.asp*). Performance test data must be submitted in a file format generated through the use of the EPA's ERT. Alternatively, you may submit performance test data in an electronic file format consistent with the extensible markup language (XML) schema listed on the EPA's ERT Web site, once the XML schema is available. If you claim that some of the performance test information being submitted is confidential business information (CBI), you must submit a complete file generated through the use of the EPA's ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT Web site, including information claimed to be CBI, on a compact disc, flash drive, or other commonly used electronic storage media to the EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAPQS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404–

02, 4930 Old Page Rd., Durham, NC 27703. The same ERT or alternate file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described earlier in this paragraph.

(2) For data collected using test methods that are not supported by the EPA's ERT as listed on the EPA's ERT Web site, you must submit the results of the performance test to the Administrator at the appropriate address listed in § 63.13.

(b) [Reserved]

* * * * *

(g) All reports required by this subpart not subject to the requirements in paragraph (a) of this section must be sent to the Administrator at the appropriate address listed in § 63.13. If acceptable to both the Administrator and the owner or operator of a source, these reports may be submitted on electronic media. The Administrator retains the right to require submittal of reports subject to paragraph (a) of this section in paper format.

■ 14. Section 63.1196 is amended by:

■ a. Adding in alphabetical order definitions for ''Closed-top cupola'', ''Combined collection/curing operations'', ''Open-top cupola'', and ''Slag''; and

■ b. Revising the definition of ''Incinerator'' and ''New Source''.

The additions and revision read as follows:

§ 63.1196 What definitions should I be aware of?

* * * * *

Closed-top cupola means a cupola that operates as a closed (process) system and has a restricted air flow rate.

* * * * *

Combined collection/curing operations means the combination of fiber collection operations and curing ovens used to make bonded products.

* * * * *

Incinerator means an enclosed air pollution control device that uses controlled flame combustion to convert combustible materials to noncombustible gases. For the purposes of this subpart, the term ''incinerator'' means ''regenerative thermal oxidizer''.

* * * * *

New Source means any affected source that commences construction or reconstruction after May 8, 1997 for purposes of determining the applicability of the emissions limits in Rows 1–4 of Table 2. For all other emission limits new source means any affected source that commences construction or reconstruction after November 25, 2011.

* * * * *

Open-top cupola means a cupola that is open to the outside air and operates with an air flow rate that is unrestricted and at low pressure.

* * * * *

Slag means the by-product materials separated from metals during smelting and refining of raw ore.

* * * * *

■ 15. Section 63.1197 is added to read as follows:

§ 63.1197 Startups and shutdowns.

(a) The provisions set forth in this subpart apply at all times.

(b) You must not shut down items of equipment that are utilized for compliance with this subpart during times when emissions are being, or are otherwise required to be, routed to such items of equipment.

(c) Startup begins when fuels are ignited in the cupola. Startup ends when the cupola produces molten material.

(d) Shutdown begins when the cupola has reached the end of the melting campaign and is empty. No molten material continues to flow from the cupola during shutdown.

(e) During periods of startups and shutdowns you must operate your cupola according to one of the following methods:

(1) You must keep records showing that your emissions were controlled using air pollution control devices operated at the parameters established by the most recent performance test that showed compliance with the standard; or

(2) You must keep records showing the following:

(i) You used only clean fuels during startup and shutdown; and

(ii) You operate the cupola during startup and shutdown with three percent oxygen over the fuel demand for oxygen.

■ 16. Table 1 to subpart DDD of part 63 is revised to read as follows:

TABLE 1 TO SUBPART DDD OF PART 63—APPLICABILITY OF GENERAL PROVISIONS (40 CFR PART 63, SUBPART A) TO SUBPART DDD

General provisions citation	Requirement	Applies to subpart DDD?	Explanation
§ 63.1(a)(1)–(6)	General Applicability	Yes.	
§ 63.1(a)(7)–(9)		No	[Reserved].
§ 63.1(a)(10)–(12)		Yes.	
§ 63.1(b)(1)	Initial Applicability Determination	Yes.	
§ 63.1(b)(2)		No	[Reserved].
§ 63.1(b)(3)		Yes.	
§ 63.1(c)(1)–(2)	Applicability After Standard Established	Yes.	
§ 63.1(c)(3)–(4)		No	[Reserved].
§ 63.1(c)(5)–(e)		Yes.	
§ 63.2	Definitions	Yes.	
§ 63.3	Units and Abbreviations	Yes.	
§ 63.4(a)(1)–(2)	Prohibited Activities	Yes.	
§ 63.4(a)(3)–(5)		No	[Reserved].
§ 63.4(b)–(c)		Yes.	
§ 63.5(a)(1)–(b)(2)	Construction/Reconstruction Applicability	Yes.	
§ 63.5(b)(3)–(4)		Yes.	
§ 63.5(b)(5)		No	[Reserved].
§ 63.5(b)(6)		Yes.	
§ 63.5(c)		No	[Reserved].
§ 63.5(d)–(f)		Yes.	
§ 63.6(a)–(d)		Yes.	
§ 63.6(e)(1)(i)	General Duty to Minimize Emissions	No	See § 63.1180(d) for general duty requirement.

TABLE 1 TO SUBPART DDD OF PART 63—APPLICABILITY OF GENERAL PROVISIONS (40 CFR PART 63, SUBPART A) TO SUBPART DDD—Continued

General provisions citation	Requirement	Applies to subpart DDD?	Explanation
§ 63.6(e)(1)(ii)	Requirement to Correct Malfunctions As Soon As Possible.	No	§ 63.1187(b) specifies additional requirements.
§ 63.6(e)(1)(iii)		Yes.	
§ 63.6(e)(2)		No	[Reserved].
§ 63.6(e)(3)	Startup, Shutdown, Malfunction (SSM) Plan	No	Startups and shutdowns addressed in § 63.1197.
§ 63.6(f)(1)	SSM Exemption	No.	
§ 63.6(f)(2)–(g)		Yes.	
§ 63.6(h)(1)	SSM Exemption	No.	
§ 63.6(h)(2)–(j)		Yes.	
§ 63.7(a)–(d)	Performance Testing Requirements	Yes.	
§ 63.7(e)(1)	Conduct of Performance Tests	No	See § 63.1180.
§ 63.7(e)(2)–(f)		Yes.	
§ 63.7(g)(1)	Data Analysis, Recordkeeping, and Reporting	Yes.	
§ 63.7(g)(2)		No	[Reserved].
§ 63.7(g)(3)–(h)		Yes.	
§ 63.8(a)–(b)	Monitoring Requirements	Yes.	
§ 63.8(c)(1)(i)	General Duty to Minimize Emissions and CMS Operation.	No	See § 63.1180(e) for general duty requirement.
§ 63.8(c)(1)(ii)		Yes.	
§ 63.8(c)(1)(iii)	Requirement to Develop SSM Plan for CMS	No.	
§ 63.8(c)(2)–(d)(2)		Yes.	
§ 63.8(d)(3)	Written Procedures for CMS	Yes, except for last sentence, which refers to SSM plan. SSM plans are not required..	
§ 63.8(e)–(g)		Yes.	
§ 63.9(a)	Applicability and General Information	Yes.	
§ 63.9(b)(1)–(2)	Initial Notifications	Yes.	
§ 63.9(b)(3)		No	[Reserved].
§ 63.9(b)(4)–(b)(5)		Yes.	
§ 63.9(c)–(j)		Yes.	
§ 63.10(a)	Recordkeeping and Reporting Requirements	Yes.	
§ 63.10(b)(1)	General Recordkeeping Requirements	Yes.	
§ 63.10(b)(2)(i)	Recordkeeping of Occurrence and Duration of Startups and Shutdowns.	No.	
§ 63.10(b)(2)(ii)	Recordkeeping of Malfunctions	No	See § 63.1193(c) for recordkeeping of (ii) occurrence and duration and (iii) actions taken during malfunction.
§ 63.10(b)(2)(iii)	Maintenance Records	Yes.	
§ 63.10(b)(2)(iv)–(v)	Actions Taken to Minimize Emissions During SSM.	No.	
§ 63.10(b)(2)(vi)	Recordkeeping for CMS Malfunctions	Yes.	
§ 63.10(b)(2)(vii)–(xiv)	Other CMS Requirements	Yes.	
§ 63.10(b)(3)	Recordkeeping Requirement for Applicability Determinations.	Yes.	
§ 63.10(c)(1)–(6)	Additional Recordkeeping Requirements for Sources with CMS.	Yes.	
§ 63.10(c)(7)–(8)	Additional Recordkeeping Requirements for CMS—Identifying Exceedances and Excess Emissions.	Yes.	
§ 63.10(c)(9)		No	[Reserved].
§ 63.10(c)(10)–(11)		No	See § 63.1192 for recordkeeping of malfunctions.
§ 63.10(c)(12)–(14)		Yes.	
§ 63.10(c)(15)	Use of SSM Plan	No.	
§ 63.10(d)(1)–(4)	General Reporting Requirements	Yes.	
§ 63.10(d)(5)	SSM Reports	No	See § 63.1193(f) for reporting of malfunctions.
§ 63.10(e)–(f)	Additional CMS Reports Excess Emission/CMS Performance Reports COMS Data Reports Recordkeeping/Reporting Waiver.	Yes.	
§ 63.11(a)–(b)	Control Device Requirements Applicability Flares.	No	Flares will not be used to comply with the emissions limits.
§ 63.11(c)	Alternative Work Practice for Monitoring Equipment for Leaks.	Yes.	
§ 63.11(d)	Alternative Work Practice Standard	Yes.	
§ 63.11(e)		Yes.	
§ 63.12	State Authority and Delegations	Yes.	
§ 63.13	Addresses	Yes.	

TABLE 1 TO SUBPART DDD OF PART 63—APPLICABILITY OF GENERAL PROVISIONS (40 CFR PART 63, SUBPART A) TO SUBPART DDD—Continued

General provisions citation	Requirement	Applies to subpart DDD?	Explanation
§ 63.14	Incorporation by Reference	Yes.	
§ 63.15	Information Availability/Confidentiality	Yes.	
§ 63.16	Performance Track Provisions	Yes.	

■ 17. Subpart DDD is amended by adding Table 2 to read as follows:

TABLE 2 TO SUBPART DDD OF PART 63—EMISSIONS LIMITS AND COMPLIANCE DATES

If your source is a:	And you commenced construction:	Your emission limits are: [1]	And you must comply by: [2]
1. Cupola	On or before May 8, 1997	0.10 lb PM per ton of melt	June 2, 2002.
2. Cupola	After May 8, 1997	0.10 lb PM per ton of melt	June 1, 1999.
3. Cupola	On or before May 8, 1997	a. 0.10 lb carbon monoxide (CO) per ton of melt,[3] or b. Reduction of uncontrolled CO by at least 99 percent [3].	June 2, 2002.
4. Cupola	After May 8, 1997 but on or before November 25, 2011.	a. 0.10 lb CO per ton of melt,[3] or b. Reduction of uncontrolled CO by at least 99 percent.[3]	June 1, 1999.
5. Closed-top cupola	On or before November 25, 2011	3.4 lb of carbonyl sulfide (COS) per ton melt.	July 30, 2018.
6. Closed-top cupola	After November 25, 2011	0.062 lb of COS per ton melt	July 29, 2015.[4]
7. Open-top cupola	On or before November 25, 2011	6.8 lb of COS per ton melt	July 30, 2018.
8. Open-top cupola	After November 25, 2011	3.2 lb of COS per ton melt	July 29, 2015.[4]
9. Cupola using slag as a raw material	On or before November 25, 2011	0.16 lb of hydrogen fluoride (HF) per ton melt. 0.44 lb of hydrogen chloride (HCl) per ton melt.	July 30, 2018.
10. Cupola using slag as a raw material.	After November 25, 2011	0.015 lb of HF per ton melt 0.012 lb of HCl per ton melt.	July 29, 2015.[4]
11. Cupola not using slag as a raw material.	On or before November 25, 2011	0.13 lb of HF per ton melt 0.43 lb of HCl per ton melt.	July 30, 2018.
12. Cupola not using slag as a raw material.	After November 25, 2011	0.018 lb of HF per ton melt 0.015 lb of HCl per ton melt.	July 29, 2015.[4]
17. Curing oven	On or before May 8, 1997	a. 0.06 lb of formaldehyde per ton of melt,[3] or b. Reduction of uncontrolled formaldehyde by at least 80 percent.[3]	June 2, 2002.
18. Curing oven	After May 8, 1997 but before November 25, 2011.	a. 0.06 lb of formaldehyde per ton of melt,[3] or b. Reduction of uncontrolled formaldehyde by at least 80 percent.[3]	June 1, 1999.
19. Combined drum collection/curing operation.	On or before November 25, 2011	0.17 lb of formaldehyde per ton of melt. 0.28 lb of methanol per ton melt. 0.85 lb of phenol per ton melt.	July 30, 2018.
20. Combined drum collection/curing operation.	After November 25, 2011	0.17 lb of formaldehyde per ton of melt. 0.28 lb of methanol per ton melt. 0.85 lb of phenol per ton melt.	July 29, 2015.[4]
21. Combined horizontal collection/curing operation.	On or before November 25, 2011	0.63 lb of formaldehyde per ton of melt. 0.049 lb of methanol per ton melt. 0.12 lb of phenol per ton melt.	July 30, 2018.
22. Combined horizontal collection/curing operation.	After November 25, 2011	0.63 lb of formaldehyde per ton of melt. 0.049 lb of methanol per ton melt. 0.12 lb of phenol per ton melt.	July 29, 2015.[4]
23. Combined vertical collection/curing operation.	On or before November 25, 2011	2.4 lb of formaldehyde per ton melt 0.92 lb of methanol per ton melt. 0.71 lb of phenol per ton melt.	July 30, 2018.
24. Combined vertical collection/curing operation.	After November 25, 2011	2.4 lb of formaldehyde per ton melt 0.92 lb of methanol per ton melt. 0.71 lb of phenol per ton melt.	July 29, 2015.[4]

[1] The numeric emissions limits do not apply during startup and shutdown.

[2] Existing sources must demonstrate compliance by the compliance dates specified in this table. New sources have 180 days after the applicable compliance date to demonstrate compliance.

[3] This emissions limit does not apply after July 30, 2018.

[4] Or upon initial startup, whichever is later.

Subpart NNN—National Emission Standards for Hazardous Air Pollutants for Wool Fiberglass Manufacturing

■ 18. Section 63.1380 is amended by revising paragraph (b)(3) to read as follows:

§ 63.1380 Applicability.

* * * * *

(b) * * *

(3) Each new and existing flame attenuation wool fiberglass manufacturing line producing a bonded product.

* * * * *

■ 19. Section 63.1381 is amended by:

■ a. Adding in alphabetical order a definition for ''Gas-fired glass-melting furnace''; and

■ b. Revising the definitions of ''Incinerator'' and ''New source''.

The addition and revisions read as follows:

§ 63.1381 Definitions.

* * * * *

Gas-fired glass-melting furnace means a unit comprising a refractory vessel in which raw materials are charged, melted at high temperature using natural gas and other fuels, refined, and conditioned to produce molten glass. The unit includes foundations, superstructure and retaining walls, raw material charger systems, heat exchangers, exhaust system, refractory brick work, fuel supply and electrical boosting equipment, integral control systems and instrumentation, and appendages for conditioning and distributing molten glass to forming processes. The forming apparatus, including flow channels, is not considered part of the gas-fired glass-melting furnace. Cold-top electric furnaces as defined in this subpart are not gas-fired glass-melting furnaces.

* * * * *

Incinerator means an enclosed air pollution control device that uses controlled flame combustion to convert combustible materials to noncombustible gases. For the purposes of this subpart, the term ''incinerator'' means ''regenerative thermal oxidizer''.

* * * * *

New source means any affected source that commences construction or reconstruction after March 31, 1997 for purposes of determining the applicability of the emission limits in rows 1, 2 and 7 through 11 in Table 2. New source means any affected source that commences construction or reconstruction after November 25, 2011 for purposes of determining the applicability of all other emissions limits.

* * * * *

■ 20. Section 63.1382 is amended by revising paragraph (a), redesignating paragraph (b) as paragraph (c), and adding new pargraph (b) and paragraph (c)(11) to read as follows:

§ 63.1382 Emission standards.

(a) You must control emissions from each glass-melting furnace, rotary spin manufacturing line, and flame attenuation manufacturing line as specified in Table 2 to this subpart.

(b) On or after July 29, 2015 to reduce emissions of hydrogen chloride and hydrogen fluoride from each existing, new, or reconstructed glass-melting furnace, you must either:

(1) Require cullet providers to provide records of their inspections showing that no glass from industrial (also known as continuous strand, or textile) fiberglass, cathode ray tubes (CRT), computer monitors that include CRT, and glass from microwave ovens, televisions or other electronics is included in the cullet; or

(2) Sample your raw materials and maintain records of your sampling showing that the cullet is free of glass from industrial fiberglass, cathode ray tubes, computer monitors that include cathode ray tubes, and glass from microwave ovens, televisions or other electronics.

(c) * * *

(11) The owner or operator must maintain the percentage of cullet in the materials mix for each gas-fired glass-melting furnace at or below the level established during the performance test as specified in § 63.1384(a)(4).

■ 21. Section 63.1383 is amended by revising paragraphs (f) and (m) to read as follows:

§ 63.1383 Monitoring requirements.

* * * * *

(f) If you use a control device to control HAP emissions from a glass-melting furnace, RS manufacturing line, or FA manufacturing line, you must install, calibrate, maintain, and operate a monitoring device that continuously measures an appropriate parameter for the control device. You must establish the value of that parameter during the performance test conducted to demonstrate compliance with the applicable emission limit as specified in Table 2 to this subpart.

* * * * *

(m) For all control device and process operating parameters measured during the initial performance tests, including the materials mix used in the test, you may change the limits established during the initial performance tests if you conduct additional performance testing to verify that, at the new control device or process parameter levels, you comply with the applicable emission limits specified in Table 2 to this subpart. You must conduct all additional performance tests according to the procedures in this part 63, subpart A and in § 63.1384.

■ 22. Section 63.1384 is amended by revising paragraphs (a)(4) and (c) introductory text, and the definitions of ''E'', ''C'', and ''MW'', and adding paragraphs (d) and (e) to read as follows:

§ 63.1384 Performance test requirements.

(a) * * *

(4) The owner or operator shall conduct a performance test for each existing and new gas-fired glass-melting furnace. During the performance test of each gas-fired glass-melting furnace, the owner or operator must measure and record the materials mix, including the percentages of raw materials and cullet, melted in the furnace during the performance test.

* * * * *

(c) To determine compliance with the emission limits specified in Table 2 to this subpart, for formaldehyde for RS manufacturing lines; formaldehyde, phenol, and methanol for FA manufacturing lines; and chromium compounds for gas-fired glass-melting furnaces, use the following equation:

* * * * *

E = Emission rate of formaldehyde, phenol, methanol, chromium compounds, kg/Mg (lb/ton) of glass pulled;

C = Measured volume fraction of formaldehyde, phenol, methanol, chromium compounds, ppm;

MW = Molecular weight of formaldehyde, 30.03 g/g-mol; molecular weight of phenol, 94.11 g/g-mol; molecular weight of methanol, 32.04 g/g-mol; molecular weight of chromium compounds tested in g/g-mol.

* * * * *

(d) Following the initial performance or compliance test conducted to demonstrate compliance with the chromium compounds emissions limit specified in Table 2 to this subpart, you must conduct an annual performance test for chromium compounds emissions from each gas-fired glass-melting furnace (no later than 12 calendar months following the previous compliance test).

(e) Following the initial performance or compliance test to demonstrate compliance with the PM, formaldehyde, phenol, and methanol emissions limits specified in Table 2 to this subpart, you must conduct a performance test to

demonstrate compliance with each of the applicable PM, formaldehyde, phenol, and methanol emissions limits in § 63.1382 at least once every five years.

■ 23. Section 63.1385 is amended by revising paragraphs (a)(5) and (6), redesignating paragraph (a)(10) as paragraph (a)(13), and adding paragraphs (a)(10) through (12) to read as follows:

§ 63.1385 Test methods and procedures.

(a) * * *

(5) Method 5 or Method 29 (40 CFR part 60, appendix A–3) for the concentration of total PM. When using Method 5, each run must consist of a minimum sample volume of 2 dry standard cubic meters (dscm). When using Method 29, each run must consist of a minimum sample volume of 3 dscm. When measuring PM concentration using either Method 5 or 29, the probe and filter holder heating system must be set to provide a gas temperature no greater than 120±14°C (248±25 °F).

(6) For measuring the concentration of formaldehyde, use one of the following test methods:

(i) Method 318 (appendix A of this part). Each test run must consist of a minimum of 10 spectra.

(ii) Method 316 (appendix A of this part). Each test run must consist of a minimum of 2 dry standard cubic meters (dscm) of sample volume.

* * * * *

(10) For measuring the concentration of phenol, use Method 318 (appendix A of this part). Each test run must consist of a minimum of 10 spectra.

(11) For measuring the concentration of methanol, use one of the following test methods:

(i) Method 318 (appendix A of this part). Each test run must consist of a minimum of 10 spectra.

(ii) Method 308 (appendix A of this part). Each test run must consist of a minimum of 2 hours.

(12) Method 29 (40 CFR part 60, appendix A–8) for the concentration of chromium compounds. Each test run must consist of a minimum sample volume of 3 dscm.

* * * * *

■ 24. Section 63.1386 is amended by revising paragraphs (a)(2) through (4), removing and reserving paragraph (b), revising paragraph (c), and adding paragraphs (d)(2)(x) and (xi), (f) and (g) to read as follows:

§ 63.1386 Notification, recordkeeping, and reporting requirements.

(a) * * *

(2) Notification that a source is subject to the standard, where the initial startup is before November 25, 2011.

(3) Notification that a source is subject to the standard, where the source is new or has been reconstructed the initial startup is after November 25, 2011, and for which an application for approval of construction or reconstruction is not required;

(4) Notification of intention to construct a new affected source or reconstruct an affected source; of the date construction or reconstruction commenced; of the anticipated date of startup; of the actual date of startup, where the initial startup of a new or reconstructed source occurs after November 25, 2011, and for which an application for approval or construction or reconstruction is required (See § 63.9(b)(4) and (5));

* * * * *

(c) *Records and reports for a failure to meet a standard.* (1) In the event that an affected unit fails to meet a standard, record the number of failures since the prior notification of compliance status. For each failure record the date, time, and duration of each failure.

(2) For each failure to meet a standard record and retain a list of the affected source or equipment, an estimate of the volume of each regulated pollutant emitted over the standard for which the source failed to meet the standard, and a description of the method used to estimate the emissions.

(3) Record actions taken to minimize emissions in accordance with § 63.1382, including corrective actions to restore process and air pollution control and monitoring equipment to its normal or usual manner of operation.

(4) If an affected unit fails to meet a standard, report such events in the notification of compliance status required by § 63.1386(a)(7). Report the number of failures to meet a standard since the prior notification. For each instance, report the date, time, and duration of each failure. For each failure the report must include a list of the affected units or equipment, an estimate of the volume of each regulated pollutant emitted over the standard, and a description of the method used to estimate the emissions.

(d) * * *

(2) * * *

(x) Records of your cullet sampling or records of inspections from cullet providers.

(xi) For each gas-fired glass-melting furnace that uses cullet, records of the daily average cullet percentage, and the 30-day rolling average percent cullet in the materials mix charged to the furnace. The initial daily average should be recorded on the compliance date and the first 30-day rolling average should be calculated 30 days after the compliance date.

* * * * *

(f) Within 60 days after the date of completing each performance test (as defined in § 63.2) required in this subpart, you must submit the results of the performance tests, including any associated fuel analyses, following the procedure specified in either paragraph (f)(1) or (2) of this section.

(1) For data collected using test methods supported by the EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT Web site (*http://www.epa.gov/ttn/chief/ert/index.html*), you must submit the results of the performance test to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI). CEDRI can be accessed through the EPA's Central Data Exchange (CDX) (*http://cdx.epa.gov/epa_home.asp*). Performance test data must be submitted in a file format generated through the use of the EPA's ERT. Alternatively, you may submit performance test data in an electronic file format consistent with the extensible markup language (XML) schema listed on the EPA's ERT Web site, once the XML schema is available. If you claim that some of the performance test information being submitted is confidential business information (CBI), you must submit a complete file generated through the use of the EPA's ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT Web site, including information claimed to be CBI, on a compact disc, flash drive or other commonly used electronic storage media to the EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAPQS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, C404–02, 4930 Old Page Rd., Durham, NC 27703. The same ERT or alternate file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described earlier in this paragraph.

(2) For data collected using test methods that are not supported by the EPA's ERT as listed on the EPA's ERT Web site, you must submit the results of the performance test to the Administrator at the appropriate address listed in § 63.13.

(g) All reports required by this subpart not subject to the requirements in paragraph (f) of this section must be sent to the Administrator at the appropriate address listed in § 63.13. If acceptable to both the Administrator and the owner or

operator of a source, these reports may be submitted on electronic media. The Administrator retains the right to require submittal of reports subject to paragraph (f) of this section in paper format.

■ 25. Section 63.1387 is amended by revising paragraph (a) and adding paragraph (c) to read as follows:

§ 63.1387 Compliance dates.

(a) *Compliance dates.* You must comply with the emissions limits by the dates specified in Table 2 to this subpart.

* * * * *

(c) At all times, you must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

■ 26. Section 63.1389 is added to read as follows:

§ 63.1389 Startups and shutdowns.

(a) The provisions set forth in this subpart apply at all times.

(b) You must not shut down items of equipment that are required or utilized for compliance with the provisions of this subpart during times when emissions are being, or are otherwise required to be, routed to such items of equipment.

(c) Startup begins when the wool fiberglass glass-melting furnace has any raw materials added and reaches 50 percent of its typical operating temperature. Startup ends when molten glass begins to flow from the wool fiberglass glass-melting furnace. For cold-top electric furnaces, startup ends when the batch cover is established and the temperature of the glass batch-cover surface is below 300 °F.

(d) Shutdown begins when the heat sources to the glass-melting furnace are reduced to begin the glass-melting furnace shut down process. Shutdown ends when the glass-melting furnace is empty or the contents are sufficiently viscous to preclude glass flow from the glass-melting furnace.

(e) During periods of startup and shutdown in a cold-top furnace that is routed to a baghouse during normal operation, you must establish the batch cover and operate your furnace according to the following requirements during startup and shutdown:

(1) You must keep records showing that you used only natural gas or other clean fuels to heat each furnace; and

(2) Except after batch cover is established, you must keep records showing that you used only cullet as a raw material during the startup of each cold-top furnace; and

(3) Once a batch cover is established and a control device can be safely operated, you must keep records showing that furnace emissions were controlled using air pollution control devices operated at the parameters established by the most recent performance test that showed compliance with the standard.

(4) During periods of shutdown in a cold-top furnace, until the conditions above the glass reach a point at which the control device may be damaged if it continues to operate, you must keep records showing furnace emissions were controlled using air pollution control devices operated at the parameters established by the most recent performance test that showed compliance with the standard.

(f) During both periods of startups and shutdowns for all furnace types other than cold-top furnaces, you must operate each furnace according to the following requirements:

(1) You must record the type of fuel used to heat the furnace during startup and shutdown to demonstrate that you used only natural gas or other clean fuels; and

(2) You must keep records showing that furnace emissions were controlled using air pollution control devices operated at the parameters established by the most recent performance test that showed compliance with the standard.

■ 27. Table 1 to subpart NNN of part 63 is revised to read as follows:

TABLE 1 TO SUBPART NNN OF PART 63—APPLICABILITY OF GENERAL PROVISIONS (40 CFR PART 63, SUBPART A) TO SUBPART NNN

General provisions citation	Requirement	Applies to subpart NNN?	Explanation
§ 63.1(a)(1)–(5)	Applicability	Yes.	
§ 63.1(a)(6)		Yes.	
§ 63.1(a)(7)–(9)		No	[Reserved].
§ 63.1(a)(10)–(12)		Yes.	
§ 63.1(b)(1)	Initial Applicability Determination	Yes.	
§ 63.1(b)(2)		No	[Reserved].
§ 63.1(b)(3)		Yes.	
§ 63.1(c)(1)–(2)		Yes.	
§ 63.1(c)(3)–(4)		No	[Reserved].
§ 63.1(c)(5)–(e)		Yes.	
§ 63.2	Definitions	Yes.	
§ 63.3	Units and Abbreviations	Yes.	
§ 63.4(a)(1)–(2)	Prohibited Activities	Yes.	
§ 63.4(a)(3)–(5)		No	[Reserved].
§ 63.4(b)–(c)		Yes.	
§ 63.5(a)–(b)(2)	Construction/Reconstruction Applicability	Yes.	
§ 63.5(b)(3)–(4)		Yes.	
§ 63.5(b)(5)		No	[Reserved].
§ 63.5(b)(6)		Yes.	
§ 63.5(c)		No	[Reserved].
§ 63.5(d)	Application for Approval of Construction or Reconstruction.	Yes.	
§ 63.5(e)	Approval of Construction/Reconstruction	Yes.	
§ 63.5(f)	Approval of Construction/Reconstruction Based on State Review.	Yes.	

TABLE 1 TO SUBPART NNN OF PART 63—APPLICABILITY OF GENERAL PROVISIONS (40 CFR PART 63, SUBPART A) TO SUBPART NNN—Continued

General provisions citation	Requirement	Applies to subpart NNN?	Explanation
§ 63.6(a)–(d)	Compliance with Standards and Maintenance Requirements.	Yes.	
§ 63.6(e)(1)(i)	General Duty to Minimize Emissions	No	See § 63.1382(b) for general duty requirement.
§ 63.6(e)(1)(ii)	Requirement to Correct Malfunctions As Soon As Possible.	No	§ 63.1382(b) specifies additional requirements.
§ 63.6(e)(1)(iii)		Yes.	
§ 63.6(e)(2)		No	[Reserved].
§ 63.6(e)(3)	Startup, Shutdown, Malfunction (SSM) Plan	No	Startups and shutdowns addressed in § 63.1388.
§ 63.6(f)(1)	SSM Exemption	No.	
§ 63.6(f)(2)–(3)	Methods for Determining Compliance	Yes.	
§ 63.6(g)	Use of an Alternative Nonopacity Emission Standard.	Yes.	
§ 63.6(h)(1)	SSM Exemption	No.	
§ 63.6(h)(2)–(j)		Yes.	
§ 63.7(a)–(d)		Yes.	
§ 63.7(e)(1)	Performance Testing	No	See § 63.1382(b).
§ 63.7(e)(2)–(e)(4)		Yes.	
§ 63.7(f)	Alternative Test Method	Yes.	
§ 63.7(g)(1)	Data Analysis	Yes.	
§ 63.7(g)(2)		No	[Reserved].
§ 63.7(g)(3)		Yes.	
§ 63.7(h)	Waiver of Performance Test	Yes.	
§ 63.8(a)–(b)	Monitoring Requirements	Yes.	
§ 63.8(c)(1)(i)	General Duty to Minimize Emissions and CMS Operation.	No	See § 63.1382(c) for general duty requirement.
§ 63.8(c)(1)(ii)		Yes.	
§ 63.8(c)(1)(iii)	Requirement to Develop SSM Plan for CMS	No.	
§ 63.8(d)(1)–(2)	Quality Control Program	Yes.	
§ 63.8(d)(3)	Written Procedures for CMS	Yes, except for last sentence, which refers to SSM plan. SSM plans are not required.	
§ 63.8(e)–(g)		Yes.	
§ 63.9(a)	Notification Requirements	Yes.	
§ 63.9(b)(1)–(2)	Initial Notifications	Yes.	
§ 63.9(b)(3)		No	[Reserved].
§ 63.9(b)(4)–(j)		Yes.	
§ 63.10(a)	Recordkeeping and Reporting Requirements	Yes.	
§ 63.10(b)(1)	General Recordkeeping Requirements	Yes.	
§ 63.10(b)(2)(i)	Recordkeeping of Occurrence and Duration of Startups and Shutdowns.	No.	
§ 63.10(b)(2)(ii)	Recordkeeping of Malfunctions	No	See § 63.1386 (c)(1) through (3) for recordkeeping of occurrence and duration and actions taken during a failure to meet a standard.
§ 63.10(b)(2)(iii)	Maintenance Records	Yes.	
§ 63.10(b)(2)(iv)–(v)	Actions Taken to Minimize Emissions During SSM.	No.	
§ 63.10(b)(2)(vi)	Recordkeeping for CMS Malfunctions	Yes.	
§ 63.10(b)(2)(vii)–(xiv)	Other CMS Requirements	Yes.	
§ 63.10(b)(3)	Recordkeeping Requirements for Applicability Determinations.	Yes.	
§ 63.10(c)(1)–(6)	Additional Recordkeeping Requirements for Sources with CMS.	Yes.	
§ 63.10(c)(7)–(8)	Additional Recordkeeping Requirements for CMS—Identifying Exceedances and Excess Emissions.	Yes.	
§ 63.10(c)(9)		No	[Reserved].
§ 63.10(c)(10)–(11)		No	See § 63.1386 for recordkeeping of malfunctions.
§ 63.10(c)(12)–(c)(14)		Yes.	
§ 63.10(c)(15)	Use of SSM Plan	No.	
§ 63.10(d)(1)–(4)	General Reporting Requirements	Yes.	
§ 63.10(d)(5)	SSM Reports	No	See § 63.1386(c)(iii) for reporting of malfunctions.

TABLE 1 TO SUBPART NNN OF PART 63—APPLICABILITY OF GENERAL PROVISIONS (40 CFR PART 63, SUBPART A) TO SUBPART NNN—Continued

General provisions citation	Requirement	Applies to subpart NNN?	Explanation
§ 63.10(e)–(f)	Additional CMS Reports Excess Emission/ CMS Performance Reports COMS Data Reports Recordkeeping/Reporting Waiver.	Yes.	
§ 63.11(a)–(b)	Control Device Requirements Applicability Flares.	No	Flares will not be used to comply with the emissions limits.
§ 63.11(c)	Alternative Work Practice for Monitoring Equipment for Leaks.	Yes.	
§ 63.11(d)	Alternative Work Practice Standard	Yes.	
§ 63.11(e)	Alternative Work Practice Requirements	Yes.	
§ 63.12	State Authority and Delegations	Yes.	
§ 63.13	Addresses	Yes.	
§ 63.14	Incorporation by Reference	Yes.	
§ 63.15	Availability of Information/Confidentiality	Yes.	
§ 63.16	Performance Track Provisions	Yes.	

■ 28. Subpart NNN is amended by adding Table 2 to read as follows:

TABLE 2 TO SUBPART NNN OF PART 63—EMISSIONS LIMITS AND COMPLIANCE DATES

If your source is a:	And you commenced construction:	Your emission limits are: [1]	And you must comply by: [2]
1. Glass-melting furnace	On or before March 31, 1997	0.5 lb PM per ton of glass pulled [3]	June 14, 2002.
2. Glass-melting furnace	After March 31, 1997 but on or before November 25, 2011.	0.5 lb PM per ton of glass pulled [3]	June 14, 1999.
3. Glass-melting furnace	On or before November 25, 2011	0.33 lb PM per ton of glass pulled	July 31, 2017.
4. Glass-melting furnace	After November 25, 2011	0.33 lb PM per ton of glass pulled	July 29, 2015.[4]
5. Gas-fired glass-melting furnace	On or before November 25, 2011	0.00025 lb chromium compounds per ton of glass pulled.	July 31, 2017.
6. Gas-fired glass-melting furnace	After November 25, 2011	0.00025 lb chromium compounds per ton of glass pulled.	July 29, 2015.[4]
7. Rotary spin manufacturing line	On or before March 31, 1997	1.2 lb Formaldehyde per ton of glass pulled.	June 14, 2002.
8. Rotary spin manufacturing line	After March 31, 1997	0.8 lb Formaldehyde per ton of glass pulled.	June 14, 1999.
9. Flame-attenuation line manufacturing a heavy-density product.	After March 31, 1997 but on or before November 25, 2011.	7.8 lb formaldehyde per ton of glass pulled [3].	June 14, 1999.
10. Flame-attenuation line manufacturing a pipe product.	On or before March 31, 1997	6.8 lb formaldehyde per ton of glass pulled [3].	June 14, 2002.
11. Flame-attenuation line manufacturing a pipe product.	After March 31, 1997 but before November 25, 2011.	6.8 lb formaldehyde per ton of glass pulled [3].	June 14, 1999.
12. Flame-attenuation line manufacturing any product.	On or before November 25, 2011	1.4 lb phenol per ton of glass pulled 5.6 lb formaldehyde per ton of glass pulled. 0.50 lb methanol per ton of glass pulled.	July 31, 2017.
13. Flame-attenuation line manufacturing any product.	After November 25, 2011	0.44 lb phenol per ton of glass pulled 2.6 lb formaldehyde per ton of glass pulled. 0.35 lb methanol per ton of glass pulled.	July 29, 2015.[4]

[1] The numeric limits do not apply during startup and shutdown.
[2] Existing sources must demonstrate compliance by the compliance dates specified in this table. New sources have 180 days after the applicable compliance date to demonstrate compliance.
[3] This limit does not apply after July 31, 2017.
[4] Or initial startup, whichever is later.

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