6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 63

[EPA-HQ-OAR-2017-0015; FRL-]

RIN 2060-AT08

National Emission Standards for Hazardous Air Pollutants: Lime Manufacturing Plants Residual Risk and Technology Review

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The Environmental Protection Agency (EPA) is proposing the results of the residual risk and technology reviews (RTR) for the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Lime Manufacturing Plants. We are proposing to find that risks due to emissions of air toxics from this source category are acceptable and that the current NESHAP provides an ample margin of safety to protect public health. Under the technology review, we are proposing to find that there are no developments in practices, processes, or control technologies that necessitate revision of the standards. We are proposing to amend provisions addressing periods of startup, shutdown, and malfunction (SSM) and to add provisions regarding electronic reporting.

DATES: *Comments*. Comments must be received on or before **[INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. Under the Paperwork Reduction Act (PRA), comments on the information collection provisions are best assured of consideration if the Office of Management and Budget (OMB) receives a copy of your comments on or before **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

Public hearing. If anyone contacts us requesting a public hearing on or before **[INSERT DATE 5 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, we will hold a hearing. Additional information about the hearing, if requested, will be published in a subsequent **Federal Register** document and posted at *https://www.epa.gov/stationary-sources-air-pollution/lime-manufacturing-plants-national-emission-standards-hazardous-air*. See **SUPPLEMENTARY INFORMATION** for information on requesting and registering for a public hearing.

ADDRESSES: You may send comments, identified by Docket ID No. EPA-HQ-OAR-2017-0015, by any of the following methods:

- Federal eRulemaking Portal: *https://www.regulations.gov/* (our preferred method). Follow the online instructions for submitting comments.
- Email: *a-and-r-docket@epa.gov*. Include Docket ID No. EPA-HQ-OAR-2017-0015 in the subject line of the message.
- Fax: (202) 566-9744. Attention Docket ID No. EPA-HQ-OAR-2017-0015.
- Mail: U.S. Environmental Protection Agency, EPA Docket Center, Docket ID No. EPA-HQ-OAR-2017-0015, Mail Code 28221T, 1200 Pennsylvania Avenue, NW, Washington, DC 20460.
- Hand/Courier Delivery: EPA Docket Center, WJC West Building, Room 3334, 1301 Constitution Avenue, NW, Washington, DC 20004. The Docket Center’s hours of operation are 8:30 a.m. – 4:30 p.m., Monday – Friday (except federal holidays).

Instructions: All submissions received must include the Docket ID No. for this rulemaking. Comments received may be posted without change to *https://www.regulations.gov/*, including any personal information provided. For detailed instructions on sending comments and additional information on the rulemaking process, see the **SUPPLEMENTARY INFORMATION** section of this document.

FOR FURTHER INFORMATION CONTACT: For questions about this proposed action, contact Jim Eddinger, Sector Policies and Programs Division (D243-01), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541-5426; fax number: (919) 541-4991; and email address: *eddinger.jim@epa.gov*. For specific information regarding the risk modeling methodology, contact James Hirtz, 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) 541-0881; fax number: (919) 541-0840; and email address: *hirtz.james@epa.gov*. For questions about monitoring and testing requirements, contact Mike Ciolek, Sector Policies and Programs Division (D243-05), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541-4921; fax number: (919) 541-4991; and email address: c*iolek.mike@epa.gov*. For information about the applicability of the NESHAP to a particular entity, contact Sara Ayres, Office of Enforcement and Compliance Assurance, U.S. Environmental Protection Agency, USEPA Region 5 (Mail Code E-19), 77 West Jackson Boulevard, Chicago, Illinois 60604; telephone number: (312) 353-6266; and email address: *ayres.sara@epa.gov*.

SUPPLEMENTARY INFORMATION:

Public hearing. Please contact Adrian Gates at (919) 541-4860 or by email at *gates.adrian@epa.gov* to request a public hearing, to register to speak at the public hearing, or to inquire as to whether a public hearing will be held.

Docket. The EPA has established a docket for this rulemaking under Docket ID No. EPA-HQ-OAR-2017-0015. All documents in the docket are listed in Regulations.gov. Although listed, 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. Publicly available docket materials are available either electronically in Regulations.gov or in hard copy at the EPA Docket Center, Room 3334, WJC West Building, 1301 Constitution Avenue, NW, Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the EPA Docket Center is (202) 566-1742.

Instructions. Direct your comments to Docket ID No. EPA-HQ-OAR-2017-0015. The EPA's policy is that all comments received will be included in the public docket without change and may be made available online at *https://www.regulations.gov/*, including any personal information provided, unless the comment includes information claimed to be CBI or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through *https://www.regulations.gov/* or email. This type of information should be submitted by mail as discussed below.

The EPA may publish any comment received to its public docket. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. The EPA will generally not consider comments or comment contents located outside of the primary submission (*i.e.*, on the Web, cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit *https://www.epa.gov/dockets/commenting-epa-dockets*.

The *https://www.regulations.gov/* website allows you to submit your comment anonymously, which means the EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an email comment directly to the EPA without going through *https://www.regulations.gov/*, your email address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, the EPA recommends that you include your name and other contact information in the body of your comment and with any digital storage media you submit. If the EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, the EPA may not be able to consider your comment. Electronic files should not include special characters or any form of encryption and be free of any defects or viruses. For additional information about the EPA's public docket, visit the EPA Docket Center homepage at *https://www.epa.gov/dockets*.

Submitting CBI. Do not submit information containing CBI to the EPA through *https://www.regulations.gov/* or email. Clearly mark the part or all of the information that you claim to be CBI. For CBI information on any digital storage media that you mail to the EPA, mark the outside of the digital storage media as CBI and then identify electronically within the digital storage media the specific information that is claimed as CBI. In addition to one complete version of the comments that includes information claimed as CBI, you must submit a copy of the comments that does not contain the information claimed as CBI directly to the public docket through the procedures outlined in *Instructions* above. If you submit any digital storage media that does not contain CBI, mark the outside of the digital storage media clearly that it does not contain CBI. Information not marked as CBI will be included in the public docket and the EPA's electronic public docket without prior notice. Information marked as CBI will not be disclosed except in accordance with procedures set forth in 40 Code of Federal Regulations (CFR) part 2. Send or deliver information identified as CBI only to the following address: OAQPS Document Control Officer (C404-02), OAQPS, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, Attention Docket ID No. EPA-HQ-OAR-2017-0015.

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:

AEGL	acute exposure guideline level
AERMOD	air dispersion model used by the HEM-3 model
CAA	Clean Air Act
CalEPA	California EPA
CBI	Confidential Business Information
CFR	Code of Federal Regulations
D/F	dioxins and furans
ECHO	Enforcement and Compliance History Online
EPA	Environmental Protection Agency
ERPG	emergency response planning guideline
ERT	Electronic Reporting Tool
g/dscm	grams per dry standard cubic meter
HAP	hazardous air pollutant(s)
HCl	hydrochloric acid
HEM-3	Human Exposure Model, Version 1.5.5
HF	hydrogen fluoride

HI	hazard index
HQ	hazard quotient
IRIS	Integrated Risk Information System
km	kilometer
lb/tsf	pounds per ton of stone feed
MACT	maximum achievable control technology
mg/m^3	milligrams per cubic meter
MIR	maximum individual risk
NAAQS	National Ambient Air Quality Standards
NAICS	North American Industry Classification System
NEI	National Emissions Inventory
NESHAP	national emission standards for hazardous air pollutants
NTTAA	National Technology Transfer and Advancement Act
OAQPS	Office of Air Quality Planning and Standards
OECA	Office of Enforcement and Compliance Assurance
OMB	Office of Management and Budget
PB-HAP	hazardous air pollutants known to be persistent and bio-accumulative in the environment
PM	particulate matter
POM	polycyclic organic matter
ppm	parts per million
PSH	processed stone handling system
REL	reference exposure level
RFA	Regulatory Flexibility Act
RfC	reference concentration
RTR	residual risk and technology review
SAB	Science Advisory Board
SSM	startup, shutdown, and malfunction
TOSHI	target organ-specific hazard index
tpy	tons per year
TRIM.FaTE	Total Risk Integrated Methodology.Fate, Transport, and Ecological Exposure model
UF	uncertainty factor
UMRA	Unfunded Mandates Reform Act
URE	unit risk estimate

Organization of this document. The information in this preamble is organized as follows:

I. General Information

A. Does this action apply to me?

Table 1 of this preamble lists the NESHAP and associated regulated industrial source category that is the subject of this proposal. Table 1 is not intended to be exhaustive, but rather provides a guide for readers regarding the entities that this proposed action is likely to affect. The proposed standards, once promulgated, will be directly applicable to the affected sources. Federal, state, local, and tribal government entities would not be affected by this proposed action. As defined in the *Initial List of Categories of Sources Under Section 112(c)(1) of the Clean Air Act Amendments of 1990* (see 57 FR 31576, July 16, 1992) and *Documentation for Developing the Initial Source Category List, Final Report* (*see* EPA-450/3-91-030, July 1992), the Lime Manufacturing source category is any facility engaged in producing high calcium lime, dolomitic lime, and dead-burned dolomite. However, lime manufacturing plants located at pulp and paper mills or at beet sugar factories are not included in the source category (*see* 69 FR 397, January 5, 2004).

TABLE 1. NESHAP AND INDUSTRIAL SOURCE CATEGORIES AFFECTED BY THIS PROPOSED ACTION

Source Category	**NESHAP**	**NAICS code[1]**
Lime Manufacturing	Lime Manufacturing Plants	32741, 33111, 3314, 327125

[1] North American Industry Classification System.

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 action is available on the Internet. Following signature by the EPA Administrator, the EPA will post a copy of this proposed action at *https://www.epa.gov/lime-manufacturing-plants-national-emission-standards-hazardous-air*. Following publication in the **Federal Register**, the EPA will post the **Federal**

Register version of the proposal and key technical documents at this same website. Information on the overall RTR program is available at *https://www3.epa.gov/ttn/atw/rrisk/rtrpg.html*.

A redline version of the regulatory language that incorporates the proposed changes in this action is available in the docket for this action (Docket ID No. EPA-HQ-OAR-2017-0015).

II. Background

A. What is the statutory authority for this action?

The statutory authority for this action is provided by sections 112 and 301 of the Clean Air Act (CAA), as amended (42 U.S.C. 7401 *et seq*.). Section 112 of the CAA establishes a two-stage regulatory process to develop standards for emissions of hazardous air pollutants (HAP) from stationary sources. Generally, the first stage involves establishing technology-based standards and the second stage involves evaluating those standards that are based on maximum achievable control technology (MACT) to determine whether additional standards are needed to address any remaining risk associated with HAP emissions. This second stage is commonly referred to as the "residual risk review." In addition to the residual risk review, the CAA also requires the EPA to review standards set under CAA section 112 every 8 years to determine if there are "developments in practices, processes, or control technologies" that may be appropriate to incorporate into the standards. This review is commonly referred to as the "technology review." When the two reviews are combined into a single rulemaking, it is commonly referred to as the "risk and technology review." The discussion that follows identifies the most relevant statutory sections and briefly explains the contours of the methodology used to implement these statutory requirements. A more comprehensive discussion appears in the document titled *CAA Section 112 Risk and Technology Reviews: Statutory Authority and Methodology*, in the docket for this rulemaking.

In the first stage of the CAA section 112 standard setting process, the EPA promulgates technology-based standards under CAA section 112(d) for categories of sources identified as emitting one or more of the HAP listed in CAA section 112(b). Sources of HAP emissions are either major sources or area sources, and CAA section 112 establishes different requirements for major source standards and area source standards. "Major sources" are those that emit or have the potential to emit 10 tons per year (tpy) or more of a single HAP or 25 tpy or more of any combination of HAP. All other sources are "area sources." For major sources, CAA section 112(d)(2) provides that the technology-based NESHAP must reflect the maximum degree of emission reductions of HAP achievable (after considering cost, energy requirements, and non-air quality health and environmental impacts). These standards are commonly referred to as MACT standards. CAA section 112(d)(3) also establishes a minimum control level for MACT standards, known as the MACT "floor." The EPA must also consider control options that are more stringent than the floor. Standards more stringent than the floor are commonly referred to as beyond-the-floor standards. In certain instances, as provided in CAA section 112(h), the EPA may set work practice standards where it is not feasible to prescribe or enforce a numerical emission standard. For area sources, CAA section 112(d)(5) gives the EPA discretion to set standards based on generally available control technologies or management practices (GACT standards) in lieu of MACT standards.

The second stage in standard-setting focuses on identifying and addressing any remaining (*i.e.,* "residual") risk according to CAA section 112(f). For source categories subject to MACT standards, section 112(f)(2) of the CAA requires the EPA to determine whether promulgation of additional standards is needed to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect. Section 112(d)(5) of the CAA provides that this residual risk review is not required for categories of area sources subject to GACT standards. Section 112(f)(2)(B) of the CAA further expressly preserves the EPA's use of the two-step approach for developing standards to address any residual risk and the Agency's interpretation of "ample margin of safety" developed in the *National Emissions Standards for Hazardous Air Pollutants: Benzene Emissions from Maleic Anhydride Plants, Ethylbenzene/Styrene Plants, Benzene Storage Vessels, Benzene Equipment Leaks, and Coke By-Product Recovery Plants* (Benzene NESHAP) (54 FR 38044, September 14, 1989). The EPA notified Congress in the Risk Report that the Agency intended to use the Benzene NESHAP approach in making CAA section 112(f) residual risk determinations (EPA–453/R–99–001, p. ES–11). The EPA subsequently adopted this approach in its residual risk determinations and the United States Court of Appeals for the District of Columbia Circuit (the Court) upheld the EPA's interpretation that CAA section 112(f)(2) incorporates the approach established in the Benzene NESHAP. See *NRDC v. EPA*, 529 F.3d 1077, 1083 (D.C. Cir. 2008).

The approach incorporated into the CAA and used by the EPA to evaluate residual risk and to develop standards under CAA section 112(f)(2) is a two-step approach. In the first step, the EPA determines whether risks are acceptable. This determination "considers all health information, including risk estimation uncertainty, and includes a presumptive limit on maximum individual lifetime [cancer] risk (MIR)[1] of approximately 1 in 10 thousand." 54 FR 38045, September 14, 1989. If risks are unacceptable, the EPA must determine the emissions standards necessary to reduce risk to an acceptable level without considering costs. In the second step of the approach, the EPA considers whether the emissions standards provide an ample

---

[1] Although defined as "maximum individual risk," MIR refers only to cancer risk. MIR, one metric for assessing cancer risk, is the estimated risk if an individual were exposed to the maximum level of a pollutant for a lifetime.

margin of safety to protect public health "in consideration of all health information, including the number of persons at risk levels higher than approximately 1 in 1 million, as well as other relevant factors, including costs and economic impacts, technological feasibility, and other factors relevant to each particular decision." *Id.* The EPA must promulgate emission standards necessary to provide an ample margin of safety to protect public health or determine that the standards being reviewed provide an ample margin of safety without any revisions. After conducting the ample margin of safety analysis, we consider whether a more stringent standard is necessary to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect.

CAA section 112(d)(6) separately requires the EPA to review standards promulgated under CAA section 112 and revise them "as necessary (taking into account developments in practices, processes, and control technologies)" no less often than every 8 years. In conducting this review, which we call the "technology review," the EPA is not required to recalculate the MACT floor. *Natural Resources Defense Council (NRDC) v. EPA*, 529 F.3d 1077, 1084 (D.C. Cir. 2008). *Association of Battery Recyclers, Inc. v. EPA*, 716 F.3d 667 (D.C. Cir. 2013). The EPA may consider cost in deciding whether to revise the standards pursuant to CAA section 112(d)(6).

B. What is this source category and how does the current NESHAP regulate its HAP emissions?

The NESHAP for the Lime Manufacturing source category was promulgated on January 5, 2004 (69 FR 394), and codified at 40 CFR part 63, subpart AAAAA. As promulgated in 2004, the NESHAP regulates HAP emissions from all new and existing lime manufacturing plants that are major sources, co-located with major sources, or are part of major sources. However, lime manufacturing plants located at pulp and paper mills or at beet sugar factories are not subject to the NESHAP. Other captive lime manufacturing plants, such as (but not limited to) those at steel mills and magnesia production facilities, are subject to the NESHAP. *See* 67 FR 78053 explaining the basis for these determinations. A lime manufacturing plant is defined as any plant which uses a lime kiln to produce lime product from limestone or other calcareous material by calcination. However, the NESHAP specifically excludes lime kilns that use only calcium carbonate waste sludge from water softening processes as the feedstock. Lime product means the product of the lime kiln calcination process including calcitic lime, dolomitic lime, and dead-burned dolomite.

The NESHAP defines the affected source as follows: each lime kiln and its associated cooler and each individual processed stone handling (PSH) operations system. The PSH operations system includes all equipment associated with PSH operations beginning at the process stone storage bin(s) or open storage pile(s) and ending where the process stone is fed into the kiln. It includes man-made process stone storage bins (but not open process stone storage piles), conveying system transfer points, bulk loading or unloading systems, screening operations, surge bins, bucket elevators, and belt conveyors. The materials processing operations associated with lime products (such as quicklime and hydrated lime), lime kiln dust handling, quarry or mining operations, limestone sizing operations, and fuels are not subject to the NESHAP. Processed stone handling operations are further distinguished in the NESHAP as: (1) whether their emissions are vented through a stack, (2) whether their emissions are fugitive emissions, (3) whether their emissions are vented through a stack with some fugitive emissions from the partial enclosure, and/or (4) whether the source is enclosed in a building. Finally, lime hydrators and cooler nuisance dust collectors are not included under the definition of affected source under the NESHAP.

The NESHAP established particulate matter (PM) emission limits for lime kilns, coolers, and PSH operations with stacks. Particulate matter is measured solely as a surrogate for the non-volatile and semi-volatile metal HAP. The NESHAP also regulates opacity or visible emissions from most of the PSH operations, with opacity also serving as a surrogate for non-volatile and semi-volatile HAP metals.

The PM emission limit for the existing kilns and coolers is 0.12 pounds PM per ton of stone feed (lb PM/tsf) for kilns using dry air pollution control systems prior to January 5, 2004. Existing kilns that have installed and are operating wet scrubbers prior to January 5, 2004, must meet an emission limit of 0.60 lb PM/tsf. Kilns which meet the criteria for the 0.60 lb PM/tsf emission limit must continue to use a wet scrubber for PM emission control in order to be eligible to meet the 0.60 lb PM/tsf limit. If at any time such a kiln switches to a dry control, they would become subject to the 0.12 lb PM/tsf emission limit, regardless of the type of control device used in the future. The PM emission limit for all new kilns and lime coolers is 0.10 lb PM/tsf. As a compliance option, these emission limits (except for the 0.60 lb PM/tsf limit) may be applied to the combined emissions of all the kilns and coolers at the lime manufacturing plant. If the lime manufacturing plant has both new and existing kilns and coolers, then the emission limit would be an average of the existing and new kiln PM emissions limits, weighted by the annual actual production rates of the individual kilns, except that no new kiln may exceed the PM emission level of 0.10 lb PM/tsf. Kilns that are required to meet a 0.60 lb PM/tsf emission limit must meet that limit individually, and may not be included in any averaging calculations.

Emissions from PSH operations that are vented through a stack are subject to a limit of 0.05 grams PM per dry standard cubic meter (g PM/dscm) and 7-percent opacity. Stack emissions from PSH operations that are controlled by wet scrubbers are subject to the 0.05 g

PM/dscm limit but not subject to the opacity limit. Fugitive emissions from PSH operations are subject to a 10-percent opacity limit.

For each building enclosing any PSH operation, each of the affected PSH operations in the building must comply individually with the applicable PM and opacity emission limitations. Otherwise, there must be no visible emissions from the building, except from a vent, and the building's vent emissions must not exceed 0.05 g/dscm and 7-percent opacity. For each fabric filter that controls emissions from only an individual, enclosed processed stone storage bin, the opacity must not exceed 7 percent. For each set of multiple processed stone storage bins with combined stack emissions, emissions must not exceed 0.05 g/dscm and 7-percent opacity.

The final rule does not allow averaging of PSH operations.

C. What data collection activities were conducted to support this action?

During the development of 40 CFR part 63, subpart AAAAA, the EPA collected information on the emissions, operations, and location of lime manufacturing plants. Since this information was collected prior to the 2004 promulgation of 40 CFR part 63, subpart AAAAA, the EPA prepared a questionnaire in 2017 in order to collect current information on the location and number of lime kilns, types and quantities of emissions, annual operating hours, types and quantities of fuels burned, and information on air pollution control devices and emission points. Nine companies completed the 2017 questionnaire for which they reported data for 32 of 35 major source facilities. The EPA used data from the 2017 questionnaires to develop the dataset for the NESHAP risk assessment.

The list of facilities that are subject to the NESHAP was developed using the EPA's Enforcement and Compliance History Online (ECHO) database, the 2014 National Emission Inventory (NEI 2014) and the U.S. Geological Survey's (USGS's) Directory of Lime Plants and

Hydration Plants in the United States in 2014. The list of facilities, as well as which companies would receive the questionnaire, was reviewed by the industry trade association. The final risk modeling datafile included all 35 major source facilities.

D. What other relevant background information and data are available?

In addition to the ECHO and NEI databases, the EPA reviewed the additional information sources listed below and consulted with stakeholders regulated under the Lime Manufacturing NESHAP to determine whether there have been developments in practices, processes, or control technologies by lime manufacturing sources. These include the following:

- Permit limits and selected compliance options from permits submitted by facilities as part of their response to the questionnaire and collected from state agencies;
- Information on air pollution control options in the lime manufacturing industry from the Reasonably Available Control Technology/Best Available Control Technology/Lowest Achievable Emission Rate Clearinghouse (RBLC); and
- Communication with trade groups and associations representing industries in the affected NAICS categories and their members.

III. Analytical Procedures and Decision-Making

In this section, we describe the analyses performed to support the proposed decisions for the RTR and other issues addressed in this action.

A. How do we consider risk in our decision-making?

As discussed in section II.A of this preamble and in the Benzene NESHAP, in evaluating and developing standards under CAA section 112(f)(2), we apply a two-step approach to determine whether or not risks are acceptable and to determine if the standards provide an ample margin of safety to protect public health. As explained in the Benzene NESHAP, “the first step judgment on acceptability cannot be reduced to any single factor" and, thus, "[t]he Administrator believes that the acceptability of risk under section 112 is best judged on the basis of a broad set of health risk measures and information." 54 FR 38046, September 14, 1989. Similarly, with regard to the ample margin of safety determination, "the Agency again considers all of the health risk and other health information considered in the first step. Beyond that information, additional factors relating to the appropriate level of control will also be considered, including cost and economic impacts of controls, technological feasibility, uncertainties, and any other relevant factors." *Id.*

The Benzene NESHAP approach provides flexibility regarding factors the EPA may consider in making determinations and how the EPA may weigh those factors for each source category. The EPA conducts a risk assessment that provides estimates of the MIR posed by the HAP emissions from each source in the source category, the hazard index (HI) for chronic exposures to HAP with the potential to cause noncancer health effects, and the hazard quotient (HQ) for acute exposures to HAP with the potential to cause noncancer health effects.[2] The assessment also provides estimates of the distribution of cancer risk within the exposed populations, cancer incidence, and an evaluation of the potential for an adverse environmental effect. The scope of the EPA's risk analysis is consistent with the EPA's response to comments on our policy under the Benzene NESHAP where the EPA explained that:

> "[t]he policy chosen by the Administrator permits consideration of multiple measures of health risk. Not only can the MIR figure be considered, but also incidence, the presence of non-cancer health effects, and the uncertainties of the risk estimates. In this way, the effect on the most exposed individuals can be reviewed as well as the impact on the general public. These factors can then be weighed in each individual case. This approach

---

[2] The MIR is defined as the cancer risk associated with a lifetime of exposure at the highest concentration of HAP where people are likely to live. The HQ is the ratio of the potential HAP exposure concentration to the noncancer dose-response value; the HI is the sum of HQs for HAP that affect the same target organ or organ system.

> complies with the *Vinyl Chloride* mandate that the Administrator ascertain an acceptable level of risk to the public by employing his expertise to assess available data. It also complies with the Congressional intent behind the CAA, which did not exclude the use of any particular measure of public health risk from the EPA's consideration with respect to CAA section 112 regulations, and thereby implicitly permits consideration of any and all measures of health risk which the Administrator, in his judgment, believes are appropriate to determining what will 'protect the public health'."

See 54 FR 38057, September 14, 1989. Thus, the level of the MIR is only one factor to be weighed in determining acceptability of risk. The Benzene NESHAP explained that "an MIR of approximately one in 10 thousand should ordinarily be the upper end of the range of acceptability. As risks increase above this benchmark, they become presumptively less acceptable under CAA section 112, and would be weighed with the other health risk measures and information in making an overall judgment on acceptability. Or, the Agency may find, in a particular case, that a risk that includes an MIR less than the presumptively acceptable level is unacceptable in the light of other health risk factors." *Id.* at 38045. In other words, risks that include an MIR above 100-in-1 million may be determined to be acceptable, and risks with an MIR below that level may be determined to be unacceptable, depending on all of the available health information. Similarly, with regard to the ample margin of safety analysis, the EPA stated in the Benzene NESHAP that: "EPA believes the relative weight of the many factors that can be considered in selecting an ample margin of safety can only be determined for each specific source category. This occurs mainly because technological and economic factors (along with the health-related factors) vary from source category to source category." *Id.* at 38061. We also consider the uncertainties associated with the various risk analyses, as discussed earlier in this preamble, in our determinations of acceptability and ample margin of safety.

The EPA notes that it has not considered certain health information to date in making residual risk determinations. At this time, we do not attempt to quantify the HAP risk that may be associated with emissions from other facilities that do not include the source category under review, mobile source emissions, natural source emissions, persistent environmental pollution, or atmospheric transformation in the vicinity of the sources in the category.

The EPA understands the potential importance of considering an individual's total exposure to HAP in addition to considering exposure to HAP emissions from the source category and facility. We recognize that such consideration may be particularly important when assessing noncancer risk, where pollutant-specific exposure health reference levels (*e.g.*, reference concentrations (RfCs)) are based on the assumption that thresholds exist for adverse health effects. For example, the EPA recognizes that, although exposures attributable to emissions from a source category or facility alone may not indicate the potential for increased risk of adverse noncancer health effects in a population, the exposures resulting from emissions from the facility in combination with emissions from all of the other sources (*e.g.*, other facilities) to which an individual is exposed may be sufficient to result in an increased risk of adverse noncancer health effects. In May 2010, the Science Advisory Board (SAB) advised the EPA "that RTR assessments will be most useful to decision makers and communities if results are presented in the broader context of aggregate and cumulative risks, including background concentrations and contributions from other sources in the area."[3]

In response to the SAB recommendations, the EPA incorporates cumulative risk analyses into its RTR risk assessments, including those reflected in this action. The Agency (1) conducts facility-wide assessments, which include source category emission points, as well as other

---

[3] Recommendations of the SAB Risk and Technology Review Methods Panel are provided in their report, which is available at: *https://yosemite.epa.gov/sab/sabproduct.nsf/4AB3966E263D943A8525771F00668381/$File/EPA-SAB-10-007-unsigned.pdf*.

emission points within the facilities; (2) combines exposures from multiple sources in the same category that could affect the same individuals; and (3) for some persistent and bioaccumulative pollutants, analyzes the ingestion route of exposure. In addition, the RTR risk assessments consider aggregate cancer risk from all carcinogens and aggregated noncancer HQs for all noncarcinogens affecting the same target organ or target organ system.

Although we are interested in placing source category and facility-wide HAP risk in the context of total HAP risk from all sources combined in the vicinity of each source, we are concerned about the uncertainties of doing so. Estimates of total HAP risk from emission sources other than those that we have studied in depth during this RTR review would have significantly greater associated uncertainties than the source category or facility-wide estimates. Such aggregate or cumulative assessments would compound those uncertainties, making the assessments too unreliable.

B. How do we perform the technology review?

Our technology review focuses on the identification and evaluation of developments in practices, processes, and control technologies that have occurred since the MACT standards were promulgated. Where we identify such developments, we analyze their technical feasibility, estimated costs, energy implications, and non-air environmental impacts. We also consider the emission reductions associated with applying each development. This analysis informs our decision of whether it is "necessary" to revise the emissions standards. In addition, we consider the appropriateness of applying controls to new sources versus retrofitting existing sources. For this exercise, we consider any of the following to be a "development":

- Any add-on control technology or other equipment that was not identified and considered during development of the original MACT standards;

- Any improvements in add-on control technology or other equipment (that were identified and considered during development of the original MACT standards) that could result in additional emissions reduction;
- Any work practice or operational procedure that was not identified or considered during development of the original MACT standards;
- Any process change or pollution prevention alternative that could be broadly applied to the industry and that was not identified or considered during development of the original MACT standards; and
- Any significant changes in the cost (including cost effectiveness) of applying controls (including controls the EPA considered during the development of the original MACT standards).

In addition to reviewing the practices, processes, and control technologies that were considered at the time we originally developed the NESHAP, we review a variety of data sources in our investigation of potential practices, processes, or controls to consider. See sections II.C and II. D of this preamble for information on the specific data sources that were reviewed as part of the technology review.

C. How do we estimate post-MACT risk posed by the source category?

In this section, we provide a complete description of the types of analyses that we generally perform during the risk assessment process. In some cases, we do not perform a specific analysis because it is not relevant. For example, in the absence of emissions of HAP known to be persistent and bioaccumulative in the environment (PB-HAP), we would not perform a multipathway exposure assessment. Where we do not perform an analysis, we state that we do not and provide the reason. While we present all of our risk assessment methods, we only present risk assessment results for the analyses actually conducted (see section IV.B of this preamble).

The EPA conducts a risk assessment that provides estimates of the MIR for cancer posed by the HAP emissions from each source in the source category, the HI for chronic exposures to HAP with the potential to cause noncancer health effects, and the HQ for acute exposures to HAP with the potential to cause noncancer health effects. The assessment also provides estimates of the distribution of cancer risk within the exposed populations, cancer incidence, and an evaluation of the potential for an adverse environmental effect. The seven sections that follow this paragraph describe how we estimated emissions and conducted the risk assessment. The docket for this rulemaking contains the following document which provides more information on the risk assessment inputs and models: *Residual Risk Assessment for the Lime Manufacturing Source Category in Support of the 2019 Risk and Technology Review Proposed Rule*. The methods used to assess risk (as described in the seven primary steps below) are consistent with those described by the EPA in the document reviewed by a panel of the EPA's SAB in 2009;[4] and described in the SAB review report issued in 2010. They are also consistent with the key recommendations contained in that report.

1. How did we estimate actual emissions and identify the emissions release characteristics?

A questionnaire was sent out to nine companies (covering 44 facilities) in 2017. The available test data collected were from the 1990's through 2017. Of the 44 facilities that received the questionnaire, 32 were verified to be major sources and were included in the modeling file.

---

[4] U.S. EPA. *Risk and Technology Review (RTR) Risk Assessment Methodologies: For Review by the EPA's Science Advisory Board with Case Studies – MACT I Petroleum Refining Sources and Portland Cement Manufacturing*, June 2009. EPA-452/R-09-006. *https://www3.epa.gov/airtoxics/rrisk/rtrpg.html*.

Based on the results of the questionnaire and research into three non-questionnaire facilities, there are 96 lime kilns at the 35 major sources subject to the Lime Manufacturing Plants NESHAP.

Particulate matter test data were provided for most of the lime kilns and the lime kiln and coolers with common exhausts. PM particle size by the kiln emission control type was assigned based on data from AP-42.[5] For kiln controls or other sources not listed in AP-42, default particles sizes and mass distributions were used for the entire source category. In addition to kiln data, a small amount of PSH operations provided emissions test data in response to the questionnaire. Because there was so little test data for PSH operations, air emissions inventory (AEI) data[6] were used as the source of PSH PM emissions in lieu of the limited test data.

Test data for HAP metals were provided for 17 emission release points of lime kilns. Data were provided both for kilns only, and for kilns with co-mingled lime cooler exhaust. Because the data set received was very limited and the emissions were not significantly different, emissions data from stand-alone kilns and shared stacks were treated as similar rather than categorized separately for purposes of estimating emissions. For non-mercury HAP metals, test data were used in conjunction with corresponding PM data to develop mass fractions of HAP metals (*i.e.*, HAP metal/PM). These were applied to PM test data to estimate HAP metal emissions for kilns, coolers, and kilns/coolers with common exhaust. For mercury emissions, test

---

[5] *Compilation of Air Pollutant Emissions Factors, AP-42,* Fifth Edition, Volume 1: Stationary Point and Area Sources, U.S. Environmental Protection Agency, Research Triangle Park, NC, January 1995.

[6] Title V of the Clean Air Act requires major sources of air pollution and certain other facilities to apply for and obtain title V operating permits. State and local authorities overseeing the title V permitting program typically require permit holders to develop annual air emissions inventories for the purposes of fee determination. These annual inventories were requested in the questionnaire and the data were used for this modeling effort.

results were used in conjunction with operating hours to estimate annual mercury emissions for kilns, coolers, and kilns/coolers with common exhaust.

Test data for hydrochloric acid (HCl) were provided for 33 emission release points of lime kilns and kilns/coolers with common exhausts. Organic HAP test data were provided for nine emission release points of kilns/coolers with common exhaust. Dioxins and furans (D/F) test data were provided for five emission release points of both lime kilns and kilns/coolers with common exhausts.

Because the HAP emissions data set received is very limited, emission factors were developed from test data collected from the questionnaire and AEI data. When emissions test data or AEI data were available for an applicable emission unit, the average emission rate of the available data was applied to that applicable emissions unit. In cases where data were unavailable for an applicable emission unit, default emissions values were developed and assigned as needed. Emission defaults were determined as the average of all test or AEI data in each applicable emission unit category (*e.g.*, kiln vs. PSH operations) or sub-category (*e.g.*, existing kilns with wet scrubbers).

Due to the nature of the data provided for PM and HAP compounds (*i.e.*, HAP metal, HCl, organic HAP, and D/F), stand-alone kilns and kilns/coolers with common exhausts were treated the same rather than categorizing their emissions separately. Specifically, there were not enough data (*e.g.*, in the case of HAP metals, organic HAP, and D/F) provided for stand-alone kilns and kiln/coolers with common exhausts or variation (*e.g.*, in the case of PM and HCl) in the data to justify the development of sub-categorized emission factor sets based on the difference between stand-alone kilns and kilns that had co-mingled kiln and cooler stacks. PSH operations did not require review or development of individual sub-categories.

For units that did not provide test result data, default emission rates were developed based on the category of kiln/cooler (new or existing) and the service date of the wet scrubber (before or after January 5, 2004), since these factors align with the PM emission limits of the kiln in the rule. To develop default factors for PM and HCl, the average test results of all single kiln emission units by category/status were determined for each of three default categories: existing kilns with a wet scrubber installed before January 5, 2004, existing kilns without a wet scrubber installed before January 5, 2004, and new kilns.

Six stand-alone lime coolers were reported through the questionnaire. Of these, four reported PM emissions test data for a total of eleven PM test reports. For these four coolers, emissions were determined as the average of the reported PM test data for each applicable emission unit. The two remaining lime coolers were assigned a default value that was developed as the average of the emissions from the four coolers.

All of the PSH operations were reported as fugitive sources in the questionnaire, with the exception of eleven point source PSH emission units. Very little PM emissions test data were provided for PSH operations, so emissions from these sources were determined from reported 2015 and 2016 AEIs, where available. Emissions values were tallied in units of tpy. Most questionnaire respondents provided AEIs in their responses. However, not all AEIs have PSH emissions reported explicitly, and for those that did, some of the unit names/IDs did not match with those reported in the questionnaire. The questionnaire emission release point IDs were used as the basis for developing PM emissions from AEI data. Emissions data per unit was assigned using AEIs where the unit names matched, averaging the 2015 and 2016 values. Units with no AEI data were assigned the default PM emissions average that was developed from AEI data.

To determine the actual annual emissions of non-mercury HAP metals in tpy from kilns and kiln/coolers with common exhausts, PM emissions were first determined using available test data. Each kiln emissions unit was assigned a PM value based on average actual EPA Method 5 test data for the unit or assigned a default value if PM test data were unavailable. PM emissions in units of pounds per hour (lb/hr) were determined as the average of reported test values (or developed default value) times the rate of stone feed during the most recent performance test (collected through questionnaire) in units of tons of stone feed per hour. When the rate of stone feed per hour was unreported or claimed as CBI, a default rate (determined as the average of all reported rates) was assigned. Annual PM emissions in units of tpy were determined by multiplying hourly PM emissions by the actual annual emission unit operating hours reported in the Information Collection Request (ICR) and also by the unit conversion from pounds to tons. When the emission unit operating hours were unreported or claimed as CBI, a default value (determined as the average of all reported operating hours) was assigned. Actual annual PM emissions were then speciated per the HAP metal emission factor sets.

Actual emissions of mercury, HCl, organic HAP, and D/F emissions for kilns and kiln/coolers with common exhausts were based on the test data reported to the questionnaire (in units of lb/hr) multiplied by the reported actual operating hours of each unit. When the emission unit operating hours were unreported or claimed as CBI, a default value (determined as the average of all reported operating hours) was assigned.

Stand-alone lime coolers only emit PM and metal HAP constituents. Most of the lime coolers reported through the questionnaire were annotated as being co-mingled with kiln exhaust, not stand-alone emission units. However, six stand-alone lime coolers were reported to the questionnaire. There were no metal HAP test data provided for stand-alone lime coolers through the questionnaire. As such, one universal set of default metal HAP mass fractions of PM was developed from kiln test data. These defaults were applied to all other PM emission units, including stand-alone coolers. When the rate of stone feed or operating hours were unreported or claimed as CBI, default rates (determined as the average of all reported rates) were assigned.

Process stone handling operations have the potential to emit HAP metals in limestone dust. Eleven PSH units were identified as venting emissions through a stack and the remaining PSH data were modeled as fugitive emissions due to a lack of data in the questionnaire. Operating hours were not specifically reported for PSH operations, so average kiln operating hours were used when reported, otherwise kiln default operating hours were used. Actual emissions were determined using the reported or default PM emissions developed from the AEI multiplied by the HAP speciation.

2. How did we estimate MACT-allowable emissions?

The available emissions data in the RTR emissions dataset include estimates of the mass of HAP emitted during a specified annual time period. These “actual” emission levels are often lower than the emission levels allowed under the requirements of the current MACT standards. The emissions allowed under the MACT standards are referred to as the “MACT-allowable” emissions. We discussed the consideration of both MACT-allowable and actual emissions in the final Coke Oven Batteries RTR (70 FR 19998–19999, April 15, 2005) and in the proposed and final Hazardous Organic NESHAP RTR (71 FR 34428, June 14, 2006, and 71 FR 76609, December 21, 2006, respectively). In those actions, we noted that assessing the risk at the MACT-allowable level is inherently reasonable since that risk reflects the maximum level facilities could emit and still comply with national emission standards. We also explained that it is reasonable to consider actual emissions, where such data are available, in both steps of the risk analysis, in accordance with the Benzene NESHAP approach. (54 FR 38044, September 14, 1989.)

Allowable HAP metal emissions were calculated by using the existing applicable PM limit, scaled production, and the maximum operating hours per year of 8,760. The hourly production scalar (*i.e.*, tsf scalar) was developed by comparing the rate of production during the most recent performance test (which is used for the actual emission calculation) to the maximum production capacity. Site specific scalars and one default scalar were developed to scale the test production rate to the maximum capacity. Where production data were unreported or claimed as CBI, default rates were developed. For more details on the development of the default values, see the memorandum titled *Development of the RTR Emissions Dataset for the Lime Manufacturing Source Category*, in the docket for this rulemaking (Docket ID No. EPA-HQ-OAR-2017-0015).

Allowable emissions of mercury, HCl, organic HAP, and D/F emissions for kilns and kiln/coolers with common exhausts were calculated using 8,760 hours. Allowable emissions for PSH operations were determined in the same manner as described above for actual emissions, except that emissions were scaled up according to the ratio of total operating hours over actual operating hours.

3. How do we conduct dispersion modeling, determine inhalation exposures, and estimate individual and population inhalation risk?

Both long-term and short-term inhalation exposure concentrations and health risk from the source category addressed in this action were estimated using the Human Exposure Model (HEM-3).[7] The HEM-3 performs three primary risk assessment activities: (1) conducting

---

[7] For more information about HEM-3, go to *https://www.epa.gov/fera/risk-assessment-and-modeling-human-exposure-model-hem*.

dispersion modeling to estimate the concentrations of HAP in ambient air, (2) estimating long-term and short-term inhalation exposures to individuals residing within 50 kilometers (km) of the modeled sources, and (3) estimating individual and population-level inhalation risk using the exposure estimates and quantitative dose-response information.

a. Dispersion Modeling

The air dispersion model AERMOD, used by the HEM-3 model, is one of the EPA's preferred models for assessing air pollutant concentrations from industrial facilities.[8] To perform the dispersion modeling and to develop the preliminary risk estimates, HEM-3 draws on three data libraries. The first is a library of meteorological data, which is used for dispersion calculations. This library includes 1 year (2016) of hourly surface and upper air observations from 824 meteorological stations, selected to provide coverage of the United States and Puerto Rico. A second library of United States Census Bureau census block[9] internal point locations and populations provides the basis of human exposure calculations (U.S. Census, 2010). In addition, for each census block, the census library includes the elevation and controlling hill height, which are also used in dispersion calculations. A third library of pollutant-specific dose-response values is used to estimate health risk. These are discussed below.

b. Risk from Chronic Exposure to HAP

In developing the risk assessment for chronic exposures, we use the estimated annual average ambient air concentrations of each HAP emitted by each source in the source category. The HAP air concentrations at each nearby census block centroid located within 50 km of the

---

[8] U.S. EPA. Revision to the *Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions* (70 FR 68218, November 9, 2005).

[9] A census block is the smallest geographic area for which census statistics are tabulated.

facility are a surrogate for the chronic inhalation exposure concentration for all the people who reside in that census block. A distance of 50 km is consistent with both the analysis supporting the 1989 Benzene NESHAP (54 FR 38044, September 14, 1989) and the limitations of Gaussian dispersion models, including AERMOD.

For each facility, we calculate the MIR as the cancer risk associated with a continuous lifetime (24 hours per day, 7 days per week, 52 weeks per year, 70 years) exposure to the maximum concentration at the centroid of each inhabited census block. We calculate individual cancer risk by multiplying the estimated lifetime exposure to the ambient concentration of each HAP (in micrograms per cubic meter ($\mu g/m^3$)) by its unit risk estimate (URE). The URE is an upper-bound estimate of an individual's incremental risk of contracting cancer over a lifetime of exposure to a concentration of 1 microgram of the pollutant per cubic meter of air. For residual risk assessments, we generally use UREs from the EPA's Integrated Risk Information System (IRIS). For carcinogenic pollutants without IRIS values, we look to other reputable sources of cancer dose-response values, often using California EPA (CalEPA) UREs, where available. In cases where new, scientifically credible dose-response values have been developed in a manner consistent with EPA guidelines and have undergone a peer review process similar to that used by the EPA, we may use such dose-response values in place of, or in addition to, other values, if appropriate. The pollutant-specific dose-response values used to estimate health risk are available at *https://www.epa.gov/fera/dose-response-assessment-assessing-health-risks-associated-exposure-hazardous-air-pollutants*.

To estimate individual lifetime cancer risks associated with exposure to HAP emissions from each facility in the source category, we sum the risks for each of the carcinogenic HAP[10] emitted by the modeled facility. We estimate cancer risk at every census block within 50 km of every facility in the source category. The MIR is the highest individual lifetime cancer risk estimated for any of those census blocks. In addition to calculating the MIR, we estimate the distribution of individual cancer risks for the source category by summing the number of individuals within 50 km of the sources whose estimated risk falls within a specified risk range. We also estimate annual cancer incidence by multiplying the estimated lifetime cancer risk at each census block by the number of people residing in that block, summing results for all of the census blocks, and then dividing this result by a 70-year lifetime.

To assess the risk of noncancer health effects from chronic exposure to HAP, we calculate either an HQ or a target organ-specific hazard index (TOSHI). We calculate an HQ when a single noncancer HAP is emitted. Where more than one noncancer HAP is emitted, we sum the HQ for each of the HAP that affects a common target organ or target organ system to obtain a TOSHI. The HQ is the estimated exposure divided by the chronic noncancer dose-

---

[10] The EPA’s 2005 *Guidelines for Carcinogen Risk Assessment* classifies carcinogens as: “carcinogenic to humans,” “likely to be carcinogenic to humans,” and “suggestive evidence of carcinogenic potential.” These classifications also coincide with the terms "known carcinogen, probable carcinogen, and possible carcinogen," respectively, which are the terms advocated in the EPA's *Guidelines for Carcinogen Risk Assessment*, published in 1986 (51 FR 33992, September 24, 1986). In August 2000, the document, *Supplemental Guidance for Conducting Health Risk Assessment of Chemical Mixtures* (EPA/630/R-00/002), was published as a supplement to the 1986 document. Copies of both documents can be obtained from *https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=20533&CFID=70315376&CFTOKEN=71597944*. Summing the risk of these individual compounds to obtain the cumulative cancer risk is an approach that was recommended by the EPA's SAB in their 2002 peer review of the EPA's National Air Toxics Assessment (NATA) titled *NATA - Evaluating the National-scale Air Toxics Assessment 1996 Data -- an SAB Advisory*, available at *https://yosemite.epa.gov/sab/sabproduct.nsf/214C6E915BB04E14852570CA007A682C/$File/ecadv02001.pdf*.

response value, which is a value selected from one of several sources. The preferred chronic noncancer dose-response value is the EPA RfC, defined as "an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime" (*https://iaspub.epa.gov/sor_internet/registry/termreg/searchandretrieve/glossariesandkeywordlists/search.do?details=&vocabName=IRIS%20Glossary*). In cases where an RfC from the EPA's IRIS is not available or where the EPA determines that using a value other than the RfC is appropriate, the chronic noncancer dose-response value can be a value from the following prioritized sources, which define their dose-response values similarly to the EPA: (1) The Agency for Toxic Substances and Disease Registry (ATSDR) Minimum Risk Level (*https://www.atsdr.cdc.gov/mrls/index.asp*); (2) the CalEPA Chronic Reference Exposure Level (REL) (*https://oehha.ca.gov/air/crnr/notice-adoption-air-toxics-hot-spots-program-guidance-manual-preparation-health-risk-0*); or (3), as noted above, a scientifically credible dose-response value that has been developed in a manner consistent with the EPA guidelines and has undergone a peer review process similar to that used by the EPA. The pollutant-specific dose-response values used to estimate health risks are available at *https://www.epa.gov/fera/dose-response-assessment-assessing-health-risks-associated-exposure-hazardous-air-pollutants*.

c. Risk from Acute Exposure to HAP that May Cause Health Effects Other Than Cancer

For each HAP for which appropriate acute inhalation dose-response values are available, the EPA also assesses the potential health risks due to acute exposure. For these assessments, the EPA makes conservative assumptions about emission rates, meteorology, and exposure location. In this proposed rulemaking, as part of our efforts to continually improve our methodologies to evaluate the risks that HAP emitted from categories of industrial sources pose to human health and the environment,[11] we are revising our treatment of meteorological data to use reasonable worst-case air dispersion conditions in our acute risk screening assessments instead of worst-case air dispersion conditions. This revised treatment of meteorological data and the supporting rationale are described in more detail in *Residual Risk Assessment for Lime Manufacturing Source Category in Support of the 2019 Risk and Technology Review Proposed Rule* and in Appendix 5 of the report: *Technical Support Document for Acute Risk Screening Assessment.* We will be applying this revision in RTR rulemakings proposed on or after June 3, 2019.

To assess the potential acute risk to the maximally exposed individual, we use the peak hourly emission rate for each emission point,[12] reasonable worst-case air dispersion conditions (*i.e.*, 99th percentile), and the point of highest off-site exposure. Specifically, we assume that peak emissions from the source category and reasonable worst-case air dispersion conditions co-occur and that a person is present at the point of maximum exposure.

To characterize the potential health risks associated with estimated acute inhalation exposures to a HAP, we generally use multiple acute dose-response values, including acute RELs, acute exposure guideline levels (AEGLs), and emergency response planning guidelines (ERPG) for 1-hour exposure durations), if available, to calculate acute HQs. The acute HQ is

---

[11] See, *e.g.*, U.S. EPA. *Screening Methodologies to Support Risk and Technology Reviews (RTR): A Case Study Analysis* (Draft Report, May 2017. *https://www3.epa.gov/ttn/atw/rrisk/rtrpg.html*).

[12] In the absence of hourly emission data, we develop estimates of maximum hourly emission rates by multiplying the average actual annual emissions rates by a factor (either a category-specific factor or a default factor of 10) to account for variability. This is documented in *Residual Risk Assessment for Lime Manufacturing Source Category in Support of the 2019 Risk and Technology Review Proposed Rule* and in Appendix 5 of the report: *Technical Support Document for Acute Risk Screening Assessment*. Both are available in the docket for this rulemaking.

calculated by dividing the estimated acute exposure concentration by the acute dose-response value. For each HAP for which acute dose-response values are available, the EPA calculates acute HQs.

An acute REL is defined as "the concentration level at or below which no adverse health effects are anticipated for a specified exposure duration."[13] Acute RELs are based on the most sensitive, relevant, adverse health effect reported in the peer-reviewed medical and toxicological literature. They are designed to protect the most sensitive individuals in the population through the inclusion of margins of safety. Because margins of safety are incorporated to address data gaps and uncertainties, exceeding the REL does not automatically indicate an adverse health impact. AEGLs represent threshold exposure limits for the general public and are applicable to emergency exposures ranging from 10 minutes to 8 hours.[14] They are guideline levels for "once-in-a-lifetime, short-term exposures to airborne concentrations of acutely toxic, high-priority chemicals." *Id.* at 21. The AEGL–1 is specifically defined as "the airborne concentration (expressed as ppm (parts per million) or mg/m^3 (milligrams per cubic meter)) of a substance above which it is predicted that the general population, including susceptible individuals, could experience notable discomfort, irritation, or certain asymptomatic nonsensory effects. However,

---

[13] CalEPA issues acute RELs as part of its Air Toxics Hot Spots Program, and the 1-hour and 8-hour values are documented in *Air Toxics Hot Spots Program Risk Assessment Guidelines, Part I, The Determination of Acute Reference Exposure Levels for Airborne Toxicants*, which is available at *https://oehha.ca.gov/air/general-info/oehha-acute-8-hour-and-chronic-reference-exposure-level-rel-summary*.

[14] National Academy of Sciences, 2001. *Standing Operating Procedures for Developing Acute Exposure Levels for Hazardous Chemicals*, page 2. Available at *https://www.epa.gov/sites/production/files/2015-09/documents/sop_final_standing_operating_procedures_2001*.pdf. Note that the National Advisory Committee for Acute Exposure Guideline Levels for Hazardous Substances ended in October 2011, but the AEGL program continues to operate at the EPA and works with the National Academies to publish final AEGLs (*https://www.epa.gov/aegl*).

the effects are not disabling and are transient and reversible upon cessation of exposure." The document also notes that "Airborne concentrations below AEGL–1 represent exposure levels that can produce mild and progressively increasing but transient and nondisabling odor, taste, and sensory irritation or certain asymptomatic, nonsensory effects." *Id.* AEGL–2 are defined as "the airborne concentration (expressed as parts per million or milligrams per cubic meter) of a substance above which it is predicted that the general population, including susceptible individuals, could experience irreversible or other serious, long-lasting adverse health effects or an impaired ability to escape." *Id.*

ERPGs are "developed for emergency planning and are intended as health-based guideline concentrations for single exposures to chemicals."[15] *Id.* at 1. The ERPG–1 is defined as "the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hour without experiencing other than mild transient adverse health effects or without perceiving a clearly defined, objectionable odor." *Id.* at 2. Similarly, the ERPG–2 is defined as "the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms which could impair an individual's ability to take protective action." *Id.* at 1.

An acute REL for 1-hour exposure durations is typically lower than its corresponding AEGL–1 and ERPG–1. Even though their definitions are slightly different, AEGL–1s are often the same as the corresponding ERPG–1s, and AEGL–2s are often equal to ERPG–2s. The

---

[15] *ERPGS Procedures and Responsibilities*. March 2014. American Industrial Hygiene Association. Available at: *https://www.aiha.org/get-involved/AIHAGuidelineFoundation/EmergencyResponsePlanningGuidelines/Documents/ERPG%20Committee%20Standard%20Operating%20Procedures%20%20-%20March%202014%20Revision%20%28Updated%2010-2-2014%29.pdf.*

maximum HQs from our acute inhalation screening risk assessment typically result when we use the acute REL for a HAP. In cases where the maximum acute HQ exceeds 1, we also report the HQ based on the next highest acute dose-response value (usually the AEGL–1 and/or the ERPG–1).

For this source category, we used the default acute multiplier of 10 to derive a conservative estimate of maximum hourly emissions from annual emissions. In our acute inhalation screening risk assessment, acute impacts are deemed negligible for HAP for which acute HQs are less than or equal to 1, and no further analysis is performed for these HAP. In cases where an acute HQ from the screening step is greater than 1, we assess the site-specific data to ensure we have assessed the acute HQ at an off-site location. For this source category, we did not have to perform any refined acute assessments.

4. How do we conduct the multipathway exposure and risk screening assessment?

The EPA conducts a tiered screening assessment examining the potential for significant human health risks due to exposures via routes other than inhalation (*i.e.*, ingestion). We first determine whether any sources in the source category emit any HAP known to be persistent and bioaccumulative in the environment, as identified in the EPA's Air Toxics Risk Assessment Library (see Volume 1, Appendix D, at *https://www.epa.gov/fera/risk-assessment-and-modeling-air-toxics-risk-assessment-reference-library*).

For the Lime Manufacturing source category, we identified PB-HAP emissions of arsenic, D/F, cadmium, mercury, and lead, so we proceeded to the next step of the evaluation. Except for lead, the human health risk screening assessment for PB-HAP consists of three progressive tiers. In a Tier 1 screening assessment, we determine whether the magnitude of the facility-specific emissions of PB-HAP warrants further evaluation to characterize human health risk through ingestion exposure. To facilitate this step, we evaluate emissions against previously developed screening threshold emission rates for several PB-HAP that are based on a hypothetical upper-end screening exposure scenario developed for use in conjunction with the EPA's Total Risk Integrated Methodology.Fate, Transport, and Ecological Exposure (TRIM.FaTE) model. The PB-HAP with screening threshold emission rates are arsenic compounds, cadmium compounds, chlorinated dibenzodioxins and furans, mercury compounds, and polycyclic organic matter (POM). Based on the EPA estimates of toxicity and bioaccumulation potential, these pollutants represent a conservative list for inclusion in multipathway risk assessments for RTR rules. (See Volume 1, Appendix D at *https://www.epa.gov/sites/production/files/2013-08/documents/volume_1_reflibrary.pdf*.) The ratio of a facility's actual emission rate to the Tier 1 screening threshold emission rate is a "screening value."

We derive the Tier 1 screening threshold emission rates for these PB-HAP (other than lead compounds) to correspond to a maximum excess lifetime cancer risk of 1-in-1 million (*i.e.*, for arsenic compounds, polychlorinated dibenzodioxins and furans, and POM) or, for HAP that cause noncancer health effects (*i.e.*, cadmium compounds and mercury compounds), a maximum HQ of 1. If the emission rate of any one PB-HAP or combination of carcinogenic PB-HAP in the Tier 1 screening assessment exceeds the Tier 1 screening threshold emission rate for any facility (*i.e.*, the screening value is greater than 1), we conduct a second screening assessment, which we call the Tier 2 screening assessment. The Tier 2 screening assessment separates the Tier 1 combined fisher and farmer exposure scenario into fisher, farmer, and gardener scenarios that retain upper-bound ingestion rates.

In the Tier 2 screening assessment, the location of each facility that exceeds a Tier 1 screening threshold emission rate is used to refine the assumptions associated with the Tier 1 fisher/farmer scenario. A key assumption in the Tier 1 screening assessment is that a lake and/or farm is located near the facility. As part of the Tier 2 screening assessment, we use a USGS database to identify actual waterbodies within 50 km of each facility and assume the fisher only consumes fish from lakes within that 50 km zone. We also examine the differences between local meteorology near the facility and the meteorology used in the Tier 1 screening assessment. We then adjust the previously-developed Tier 1 screening threshold emission rates for each PB-HAP for each facility based on an understanding of how exposure concentrations estimated for the screening scenario change with the use of local meteorology and the USGS lakes database.

In the Tier 2 farmer scenario, we maintain an assumption that the farm is located within 0.5 km of the facility and that the farmer consumes meat, eggs, dairy, vegetables, and fruit produced near the facility. We may further refine the Tier 2 screening analysis by assessing a gardener scenario to characterize a range of exposures, with the gardener scenario being more plausible in RTR evaluations. Under the gardener scenario, we assume the gardener consumes home-produced eggs, vegetables, and fruit products at the same ingestion rate as the farmer. The Tier 2 screen continues to rely on the high-end food intake assumptions that were applied in Tier 1 for local fish (adult female angler at 99th percentile consumption of fish[16]) and locally grown or raised foods (90th percentile consumption of locally grown or raised foods for the farmer and gardener scenarios[17]). If PB-HAP emission rates do not result in a Tier 2 screening value greater

---

[16] Burger, J. 2002. Daily consumption of wild fish and game: Exposures of high end recreationists. *International Journal of Environmental Health Research* 12:343–354.

[17] U.S. EPA. *Exposure Factors Handbook 2011 Edition (Final)*. U.S. Environmental Protection Agency, Washington, DC, EPA/600/R–09/052F, 2011.

than 1, we consider those PB-HAP emissions to pose risks below a level of concern. If the PB-HAP emission rates for a facility exceed the Tier 2 screening threshold emission rates, we may conduct a Tier 3 screening assessment.

There are several analyses that can be included in a Tier 3 screening assessment, depending upon the extent of refinement warranted, including validating that the impacted lakes are fishable, locating residential/garden locations for urban and/or rural settings, considering plume-rise to estimate emissions lost above the mixing layer, and considering hourly effects of meteorology and plume rise on chemical fate and transport (a time-series analysis). If necessary, the EPA may further refine the screening assessment through a site-specific assessment.

In evaluating the potential multipathway risk from emissions of lead compounds, rather than developing a screening threshold emission rate, we compare maximum estimated chronic inhalation exposure concentrations to the level of the current National Ambient Air Quality Standard (NAAQS) for lead.[18] Values below the level of the primary (health-based) lead NAAQS are considered to have a low potential for multipathway risk. For further information on the multipathway assessment approach, see Appendix 6 of the *Residual Risk Assessment for the Lime Manufacturing Source Category in Support of the Risk and Technology Review 2019 Proposed Rule,* which is available in the docket for this action.

---

[18] In doing so, the EPA notes that the legal standard for a primary NAAQS – that a standard is requisite to protect public health and provide an adequate margin of safety (CAA section 109(b)) – differs from the CAA section 112(f) standard (requiring, among other things, that the standard provide an “ample margin of safety to protect public health”). However, the primary lead NAAQS is a reasonable measure of determining risk acceptability (*i.e.*, the first step of the Benzene NESHAP analysis) since it is designed to protect the most susceptible group in the human population – children, including children living near major lead emitting sources. 73 FR 67002/3; 73 FR 67000/3; 73 FR 67005/1. In addition, applying the level of the primary lead NAAQS at the risk acceptability step is conservative, since that primary lead NAAQS reflects an adequate margin of safety.

5. How do we conduct the environmental risk screening assessment?

a. Adverse Environmental Effect, Environmental HAP, and Ecological Benchmarks

The EPA conducts a screening assessment to examine the potential for an adverse environmental effect as required under section 112(f)(2)(A) of the CAA. Section 112(a)(7) of the CAA defines “adverse environmental effect” as “any significant and widespread adverse effect, which may reasonably be anticipated, to wildlife, aquatic life, or other natural resources, including adverse impacts on populations of endangered or threatened species or significant degradation of environmental quality over broad areas.”

The EPA focuses on eight HAP, which are referred to as “environmental HAP,” in its screening assessment: six PB-HAP and two acid gases. The PB-HAP included in the screening assessment are arsenic compounds, cadmium compounds, D/F, POM, mercury (both inorganic mercury and methyl mercury), and lead compounds. The acid gases included in the screening assessment are HCl and hydrogen fluoride (HF).

HAP that persist and bioaccumulate are of particular environmental concern because they accumulate in the soil, sediment, and water. The acid gases, HCl and HF, are included due to their well-documented potential to cause direct damage to terrestrial plants. In the environmental risk screening assessment, we evaluate the following four exposure media: terrestrial soils, surface water bodies (includes water-column and benthic sediments), fish consumed by wildlife, and air. Within these four exposure media, we evaluate nine ecological assessment endpoints, which are defined by the ecological entity and its attributes. For PB-HAP (other than lead), both community-level and population-level endpoints are included. For acid gases, the ecological assessment evaluated is terrestrial plant communities.

An ecological benchmark represents a concentration of HAP that has been linked to a particular environmental effect level. For each environmental HAP, we identified the available ecological benchmarks for each assessment endpoint. We identified, where possible, ecological benchmarks at the following effect levels: probable effect levels, lowest-observed-adverse-effect level, and no-observed-adverse-effect level. In cases where multiple effect levels were available for a particular PB-HAP and assessment endpoint, we use all of the available effect levels to help us to determine whether ecological risks exist and, if so, whether the risks could be considered significant and widespread.

For further information on how the environmental risk screening assessment was conducted, including a discussion of the risk metrics used, how the environmental HAP were identified, and how the ecological benchmarks were selected, see Appendix 9 of the *Residual Risk Assessment for the Lime Manufacturing Source Category in Support of the Risk and Technology Review 2019 Proposed Rule*, which is available in the docket for this action.

b. Environmental Risk Screening Methodology

For the environmental risk screening assessment, the EPA first determined whether any facilities in the Lime Manufacturing source category emitted any of the environmental HAP. For the Lime Manufacturing source category, we identified emissions of arsenic, D/F, HCl, cadmium, and mercury. Because one or more of the environmental HAP above are emitted by at least one facility in the source category, we proceeded to the second step of the evaluation.

c. PB-HAP Methodology

The environmental screening assessment includes six PB-HAP, arsenic compounds, cadmium compounds, D/F, POM, mercury (both inorganic mercury and methyl mercury), and lead compounds. With the exception of lead, the environmental risk screening assessment for

PB-HAP consists of three tiers. The first tier of the environmental risk screening assessment uses the same health-protective conceptual model that is used for the Tier 1 human health screening assessment. TRIM.FaTE model simulations were used to back-calculate Tier 1 screening threshold emission rates. The screening threshold emission rates represent the emission rate in tons per year that results in media concentrations at the facility that equal the relevant ecological benchmark. To assess emissions from each facility in the category, the reported emission rate for each PB-HAP was compared to the Tier 1 screening threshold emission rate for that PB-HAP for each assessment endpoint and effect level. If emissions from a facility do not exceed the Tier 1 screening threshold emission rate, the facility "passes" the screening assessment, and, therefore, is not evaluated further under the screening approach. If emissions from a facility exceed the Tier 1 screening threshold emission rate, we evaluate the facility further in Tier 2.

In Tier 2 of the environmental screening assessment, the screening threshold emission rates are adjusted to account for local meteorology and the actual location of lakes in the vicinity of facilities that did not pass the Tier 1 screening assessment. For soils, we evaluate the average soil concentration for all soil parcels within a 7.5-km radius for each facility and PB-HAP. For the water, sediment, and fish tissue concentrations, the highest value for each facility for each pollutant is used. If emission concentrations from a facility do not exceed the Tier 2 screening threshold emission rate, the facility "passes" the screening assessment and typically is not evaluated further. If emissions from a facility exceed the Tier 2 screening threshold emission rate, we evaluate the facility further in Tier 3.

As in the multipathway human health risk assessment, in Tier 3 of the environmental screening assessment, we examine the suitability of the lakes around the facilities to support life and remove those that are not suitable (*e.g.*, lakes that have been filled in or are industrial ponds), adjust emissions for plume-rise, and conduct hour-by-hour time-series assessments. If these Tier 3 adjustments to the screening threshold emission rates still indicate the potential for an adverse environmental effect (*i.e.*, facility emission rate exceeds the screening threshold emission rate), we may elect to conduct a more refined assessment using more site-specific information. If, after additional refinement, the facility emission rate still exceeds the screening threshold emission rate, the facility may have the potential to cause an adverse environmental effect.

To evaluate the potential for an adverse environmental effect from lead, we compared the average modeled air concentrations (from HEM-3) of lead around each facility in the source category to the level of the secondary NAAQS for lead. The secondary lead NAAQS is a reasonable means of evaluating environmental risk because it is set to provide substantial protection against adverse welfare effects which can include “effects on soils, water, crops, vegetation, man-made materials, animals, wildlife, weather, visibility and climate, damage to and deterioration of property, and hazards to transportation, as well as effects on economic values and on personal comfort and well-being.”

d. Acid Gas Environmental Risk Methodology

The environmental screening assessment for acid gases evaluates the potential phytotoxicity and reduced productivity of plants due to chronic exposure to HF and HCl. The environmental risk screening methodology for acid gases is a single-tier screening assessment that compares modeled ambient air concentrations (from AERMOD) to the ecological benchmarks for each acid gas. To identify a potential adverse environmental effect (as defined in section 112(a)(7) of the CAA) from emissions of HF and HCl, we evaluate the following metrics: the size of the modeled area around each facility that exceeds the ecological benchmark for each acid gas, in acres and km^2; the percentage of the modeled area around each facility that exceeds the ecological benchmark for each acid gas; and the area-weighted average screening value around each facility (calculated by dividing the area-weighted average concentration over the 50-km modeling domain by the ecological benchmark for each acid gas). For further information on the environmental screening assessment approach, see Appendix 9 of the *Residual Risk Assessment for the Lime Manufacturing Source Category in Support of the Risk and Technology Review 2019 Proposed Rule*, which is available in the docket for this action.

6. How do we conduct facility-wide assessments?

To put the source category risks in context, we typically examine the risks from the entire "facility," where the facility includes all HAP-emitting operations within a contiguous area and under common control. In other words, we examine the HAP emissions not only from the source category emission points of interest, but also emissions of HAP from all other emission sources at the facility for which we have data. For this source category, we conducted the facility-wide assessment using a dataset compiled from the 2014 NEI for 31 of the 35 modeled facilities. The remaining four facilities' emissions data were collected using a combination of approaches, including using permit data and substituting emissions data from similar site(s) (refer to Appendix 1 of the *Residual Risk Assessment for the Lime Manufacturing Source Category in Support of the Risk and Technology Review 2019 Proposed Rule*, which is available in the docket for this action for further information).

The source category records of the dataset were removed, evaluated, and updated as described in section II.C of this preamble: What data collection activities were conducted to support this action? Once a quality assured source category dataset was available, it was placed back with the remaining records for that facility. The facility-wide file was then used to analyze risks due to the inhalation of HAP that are emitted "facility-wide" for the populations residing within 50 km of each facility, consistent with the methods used for the source category analysis described above. For these facility-wide risk analyses, the modeled source category risks were compared to the facility-wide risks to determine the portion of the facility-wide risks that could be attributed to the source category addressed in this action. We also specifically examined the facility that was associated with the highest estimate of risk and determined the percentage of that risk attributable to the source category of interest. The *Residual Risk Assessment for the Lime Manufacturing Source Category in Support of the Risk and Technology Review 2019 Proposed Rule*, available through the docket for this action, provides the methodology and results of the facility-wide analyses, including all facility-wide risks and the percentage of source category contribution to facility-wide risks.

For this source category, the majority of the facility-wide dataset that the EPA compiled were from the 2014 NEI. We used the NEI data for the facility and did not adjust any category or “non-category” data. Therefore, there could be differences in the dataset from that used for the source category assessments described in this preamble. We analyzed risks due to the inhalation of HAP that are emitted “facility-wide” for the populations residing within 50 km of each facility, consistent with the methods used for the source category analysis described above. For these facility-wide risk analyses, we made a reasonable attempt to identify the source category risks, and these risks were compared to the facility-wide risks to determine the portion of facility-wide risks that could be attributed to the source category addressed in this action. We also specifically examined the facility that was associated with the highest estimate of risk and determined the percentage of that risk attributable to the source category of interest. The *Residual Risk Assessment for the Lime Manufacturing Source Category in Support of the Risk and Technology Review 2019 Proposed Rule*, available through the docket for this action, provides the methodology and results of the facility-wide analyses, including all facility-wide risks and the percentage of source category contribution to facility-wide risks.

7. How do we consider uncertainties in risk assessment?

Uncertainty and the potential for bias are inherent in all risk assessments, including those performed for this proposal. Although uncertainty exists, we believe that our approach, which used conservative tools and assumptions, ensures that our decisions are health and environmentally protective. A brief discussion of the uncertainties in the RTR emissions dataset, dispersion modeling, inhalation exposure estimates, and dose-response relationships follows below. Also included are those uncertainties specific to our acute screening assessments, multipathway screening assessments, and our environmental risk screening assessments. A more thorough discussion of these uncertainties is included in the *Residual Risk Assessment for the Lime Manufacturing Source Category in Support of the Risk and Technology Review 2019 Proposed Rule*, which is available in the docket for this action. If a multipathway site-specific assessment was performed for this source category, a full discussion of the uncertainties associated with that assessment can be found in Appendix 11 of that document, *Site-Specific Human Health Multipathway Residual Risk Assessment Report*.

a. Uncertainties in the RTR Emissions Dataset

Although the development of the RTR emissions dataset involved quality assurance/quality control processes, the accuracy of emissions values will vary depending on the source of the data, the degree to which data are incomplete or missing, the degree to which assumptions made to complete the datasets are accurate, errors in emission estimates, and other factors. The emission estimates considered in this analysis generally are annual totals for certain years, and they do not reflect short-term fluctuations during the course of a year or variations from year to year. The estimates of peak hourly emission rates for the acute effects screening assessment were based on a default emission adjustment factor of 10 applied to the average annual hourly emission rates, which are intended to account for emission fluctuations due to normal facility operations.

b. Uncertainties in Dispersion Modeling

We recognize there is uncertainty in ambient concentration estimates associated with any model, including the EPA's recommended regulatory dispersion model, AERMOD. In using a model to estimate ambient pollutant concentrations, the user chooses certain options to apply. For RTR assessments, we select some model options that have the potential to overestimate ambient air concentrations (*e.g.*, not including plume depletion or pollutant transformation). We select other model options that have the potential to underestimate ambient impacts (*e.g.*, not including building downwash). Other options that we select have the potential to either under- or overestimate ambient levels (*e.g.*, meteorology and receptor locations). On balance, considering the directional nature of the uncertainties commonly present in ambient concentrations estimated by dispersion models, the approach we apply in the RTR assessments should yield unbiased estimates of ambient HAP concentrations. We also note that the selection of meteorology dataset location could have an impact on the risk estimates. As we continue to update and expand our library of meteorological station data used in our risk assessments, we expect to reduce this variability.

c. Uncertainties in Inhalation Exposure Assessment

Although every effort is made to identify all of the relevant facilities and emission points, as well as to develop accurate estimates of the annual emission rates for all relevant HAP, the uncertainties in our emission inventory likely dominate the uncertainties in the exposure assessment. Some uncertainties in our exposure assessment include human mobility, using the centroid of each census block, assuming lifetime exposure, and assuming only outdoor exposures. For most of these factors, there is neither an under nor overestimate when looking at the maximum individual risk or the incidence, but the shape of the distribution of risks may be affected. With respect to outdoor exposures, actual exposures may not be as high if people spend time indoors, especially for very reactive pollutants or larger particles. For all factors, we reduce uncertainty when possible. For example, with respect to census-block centroids, we analyze large blocks using aerial imagery and adjust locations of the block centroids to better represent the population in the blocks. We also add additional receptor locations where the population of a block is not well represented by a single location.

d. Uncertainties in Dose-Response Relationships

There are uncertainties inherent in the development of the dose-response values used in our risk assessments for cancer effects from chronic exposures and noncancer effects from both chronic and acute exposures. Some uncertainties are generally expressed quantitatively, and others are generally expressed in qualitative terms. We note, as a preface to this discussion, a point on dose-response uncertainty that is stated in the EPA's *2005 Guidelines for Carcinogen Risk Assessment*; namely, that "the primary goal of EPA actions is protection of human health; accordingly, as an Agency policy, risk assessment procedures, including default options that are used in the absence of scientific data to the contrary, should be health protective" (the EPA's *2005 Guidelines for Carcinogen Risk Assessment*, page 1-7). This is the approach followed here as summarized in the next paragraphs.

Cancer UREs used in our risk assessments are those that have been developed to generally provide an upper bound estimate of risk.[19] That is, they represent a "plausible upper limit to the true value of a quantity" (although this is usually not a true statistical confidence limit). In some circumstances, the true risk could be as low as zero; however, in other circumstances the risk could be greater.[20] Chronic noncancer RfC and reference dose (RfD) values represent chronic exposure levels that are intended to be health-protective levels. To derive dose-response values that are intended to be "without appreciable risk," the methodology relies upon an uncertainty factor (UF) approach,[21] which considers uncertainty, variability, and gaps in the available data. The UFs are applied to derive dose-response values that are intended to protect against appreciable risk of deleterious effects.

Many of the UFs used to account for variability and uncertainty in the development of acute dose-response values are quite similar to those developed for chronic durations. Additional adjustments are often applied to account for uncertainty in extrapolation from observations at one exposure duration (*e.g.*, 4 hours) to derive an acute dose-response value at another exposure duration (*e.g.*, 1 hour). Not all acute dose-response values are developed for the same purpose, and care must be taken when interpreting the results of an acute assessment of human health effects relative to the dose-response value or values being exceeded. Where relevant to the

---

[19] IRIS glossary (*https://ofmpub.epa.gov/sor_internet/registry/termreg/searchandretrieve/glossariesandkeywordlists/search.do?details=&glossaryName=IRIS%20Glossary*).

[20] An exception to this is the URE for benzene, which is considered to cover a range of values, each end of which is considered to be equally plausible, and which is based on maximum likelihood estimates.

[21] See *A Review of the Reference Dose and Reference Concentration Processes*, U.S. EPA, December 2002, and *Methods for Derivation of Inhalation Reference Concentrations and Application of Inhalation Dosimetry*, U.S. EPA, 1994.

estimated exposures, the lack of acute dose-response values at different levels of severity should be factored into the risk characterization as potential uncertainties.

Uncertainty also exists in the selection of ecological benchmarks for the environmental risk screening assessment. We established a hierarchy of preferred benchmark sources to allow selection of benchmarks for each environmental HAP at each ecological assessment endpoint. We searched for benchmarks for three effect levels (*i.e.*, no-effects level, threshold-effect level, and probable effect level), but not all combinations of ecological assessment/environmental HAP had benchmarks for all three effect levels. Where multiple effect levels were available for a particular HAP and assessment endpoint, we used all of the available effect levels to help us determine whether risk exists and whether the risk could be considered significant and widespread.

Although we make every effort to identify appropriate human health effect dose-response values for all pollutants emitted by the sources in this risk assessment, some HAP emitted by this source category are lacking dose-response assessments. Accordingly, these pollutants cannot be included in the quantitative risk assessment, which could result in quantitative estimates understating HAP risk. To help to alleviate this potential underestimate, where we conclude similarity with a HAP for which a dose-response value is available, we use that value as a surrogate for the assessment of the HAP for which no value is available. To the extent use of surrogates indicates appreciable risk, we may identify a need to increase priority for an IRIS assessment for that substance. We additionally note that, generally speaking, HAP of greatest concern due to environmental exposures and hazard are those for which dose-response assessments have been performed, reducing the likelihood of understating risk. Further, HAP not included in the quantitative assessment are assessed qualitatively and considered in the risk characterization that informs the risk management decisions, including consideration of HAP reductions achieved by various control options.

For a group of compounds that are unspeciated (*e.g.*, glycol ethers), we conservatively use the most protective dose-response value of an individual compound in that group to estimate risk. Similarly, for an individual compound in a group (*e.g.*, ethylene glycol diethyl ether) that does not have a specified dose-response value, we also apply the most protective dose-response value from the other compounds in the group to estimate risk.

e. Uncertainties in Acute Inhalation Screening Assessments

In addition to the uncertainties highlighted above, there are several factors specific to the acute exposure assessment that the EPA conducts as part of the risk review under section 112 of the CAA. The accuracy of an acute inhalation exposure assessment depends on the simultaneous occurrence of independent factors that may vary greatly, such as hourly emissions rates, meteorology, and the presence of a person. In the acute screening assessment that we conduct under the RTR program, we assume that peak emissions from the source category and reasonable worst-case air dispersion conditions (*i.e.*, 99th percentile) co-occur. We then include the additional assumption that a person is located at this point at the same time. Together, these assumptions represent a reasonable worst-case actual exposure scenario. In most cases, it is unlikely that a person would be located at the point of maximum exposure during the time when peak emissions and reasonable worst-case air dispersion conditions occur simultaneously.

f. Uncertainties in the Multipathway and Environmental Risk Screening Assessments

For each source category, we generally rely on site-specific levels of PB-HAP or environmental HAP emissions to determine whether a refined assessment of the impacts from multipathway exposures is necessary or whether it is necessary to perform an environmental screening assessment. This determination is based on the results of a three-tiered screening assessment that relies on the outputs from models – TRIM.FaTE and AERMOD - that estimate environmental pollutant concentrations and human exposures for five PB-HAP (D/F, POM, mercury, cadmium, and arsenic) and two acid gases (hydrogen fluoride and hydrogen chloride). For lead, we use AERMOD to determine ambient air concentrations, which are then compared to the secondary NAAQS standard for lead. Two important types of uncertainty associated with the use of these models in RTR risk assessments and inherent to any assessment that relies on environmental modeling are model uncertainty and input uncertainty.[22]

Model uncertainty concerns whether the model adequately represents the actual processes (*e.g.*, movement and accumulation) that might occur in the environment. For example, does the model adequately describe the movement of a pollutant through the soil? This type of uncertainty is difficult to quantify. However, based on feedback received from previous EPA SAB reviews and other reviews, we are confident that the models used in the screening assessments are appropriate and state-of-the-art for the multipathway and environmental screening risk assessments conducted in support of RTR.

Input uncertainty is concerned with how accurately the models have been configured and parameterized for the assessment at hand. For Tier 1 of the multipathway and environmental screening assessments, we configured the models to avoid underestimating exposure and risk. This was accomplished by selecting upper-end values from nationally representative datasets for the more influential parameters in the environmental model, including selection and spatial

---

[22] In the context of this discussion, the term "uncertainty" as it pertains to exposure and risk encompasses both ***variability*** in the range of expected inputs and screening results due to existing spatial, temporal, and other factors, as well as ***uncertainty*** in being able to accurately estimate the true result.

configuration of the area of interest, lake location and size, meteorology, surface water, soil characteristics, and structure of the aquatic food web. We also assume an ingestion exposure scenario and values for human exposure factors that represent reasonable maximum exposures.

In Tier 2 of the multipathway and environmental screening assessments, we refine the model inputs to account for meteorological patterns in the vicinity of the facility versus using upper-end national values, and we identify the actual location of lakes near the facility rather than the default lake location that we apply in Tier 1. By refining the screening approach in Tier 2 to account for local geographical and meteorological data, we decrease the likelihood that concentrations in environmental media are overestimated, thereby increasing the usefulness of the screening assessment. In Tier 3 of the screening assessments, we refine the model inputs again to account for hour-by-hour plume rise and the height of the mixing layer. We can also use those hour-by-hour meteorological data in a TRIM.FaTE run using the screening configuration corresponding to the lake location. These refinements produce a more accurate estimate of chemical concentrations in the media of interest, thereby reducing the uncertainty with those estimates. The assumptions and the associated uncertainties regarding the selected ingestion exposure scenario are the same for all three tiers.

For the environmental screening assessment for acid gases, we employ a single-tiered approach. We use the modeled air concentrations and compare those with ecological benchmarks.

For all tiers of the multipathway and environmental screening assessments, our approach to addressing model input uncertainty is generally cautious. We choose model inputs from the upper end of the range of possible values for the influential parameters used in the models, and we assume that the exposed individual exhibits ingestion behavior that would lead to a high total exposure. This approach reduces the likelihood of not identifying high risks for adverse impacts.

Despite the uncertainties, when individual pollutants or facilities do not exceed screening threshold emission rates (*i.e.*, screen out), we are confident that the potential for adverse multipathway impacts on human health is very low. On the other hand, when individual pollutants or facilities do exceed screening threshold emission rates, it does not mean that impacts *are significant*, only that we cannot rule out that possibility and that a refined assessment for the site might be necessary to obtain a more accurate risk characterization for the source category.

The EPA evaluates the following HAP in the multipathway and/or environmental risk screening assessments, where applicable: arsenic, cadmium, D/F, lead, mercury (both inorganic and methyl mercury), POM, HCl, and HF. These HAP represent pollutants that can cause adverse impacts either through direct exposure to HAP in the air or through exposure to HAP that are deposited from the air onto soils and surface waters and then through the environment into the food web. These HAP represent those HAP for which we can conduct a meaningful multipathway or environmental screening risk assessment. For other HAP not included in our screening assessments, the model has not been parameterized such that it can be used for that purpose. In some cases, depending on the HAP, we may not have appropriate multipathway models that allow us to predict the concentration of that pollutant. The EPA acknowledges that other HAP beyond these that we are evaluating may have the potential to cause adverse effects and, therefore, the EPA may evaluate other relevant HAP in the future, as modeling science and resources allow.

IV. Analytical Results and Proposed Decisions

A. What are the results of the risk assessment and analyses?

As described above, for the Lime Manufacturing source category we conducted an inhalation risk assessment for all HAP emitted, a multipathway screening assessment for the PB-HAP emitted, and an environmental risk screening assessment for the PB-HAP and HCl emitted from the source category. We present results of the risk assessment briefly below and in more detail in the the *Residual Risk Assessment for the Lime Manufacturing Source Category in Support of the Risk and Technology Review 2019 Proposed Rule*, which is available in the docket for this action.

1. Inhalation Risk Assessment Results

The EPA estimated inhalation risk based on actual and allowable emissions. The estimated baseline maximum inhalation cancer risk (MIR) posed by the source category is 1-in-1 million based on actual emissions and 2-in-1 million based upon MACT-allowable emissions. The total estimated cancer incidence based on actual emission levels is 0.001 excess cancer cases per year, or one case every 1,000 years. The total estimated cancer incidence based on allowable emission levels is 0.003 excess cancer cases per year, or one case every 333 years. Emissions of metals, aldehydes, and organic HAP from the lime kiln and cooler exhaust accounted for 93 percent to the cancer incidence. The estimated population exposed to cancer risk of 1-in-1 million based upon actual emissions is 12 (see Table 2 of this preamble).

The maximum chronic noncancer TOSHI values for the source category were estimated to be less than 1 (0.04) based on actual emissions and less than 1 (0.05) based upon allowable emissions. For both actual and allowable emissions, respiratory risks were driven by HCl, nickel compounds, and acrolein emissions from lime kiln and cooler exhaust.

TABLE 2: INHALATION RISK ASSESSMENT SUMMARY FOR LIME MANUFACTURING[1] SOURCE CATEGORY (40 CFR PART 63, SUBPART AAAAA)

Risk Assessment	**Number of Facilities[2]**	**Maximum Individual Cancer Risk (1-in-1 million)[3]**	**Estimated Population at Increased Risk of Cancer ≥ 1-in-1 Million**	**Estimated Annual Cancer Incidence (cases per yr)**	**Maximum Chronic Noncancer TOSHI[4]**	**Maximum Screening Acute Noncancer HQ[5]**
Baseline Actual Emissions						
Source Category	35	1	12	0.001	0.04 (respiratory)	0.6 (REL)
Facility-Wide	35	1	30	0.004	0.4 (respiratory)	-
Baseline Allowable Emissions						
Source Category	35	2	450	0.003	0.05 (respiratory)	-

[1] Based on actual and allowable emissions.
[2] Number of facilities evaluated in the risk assessment. Includes 35 operating facilities subject to subpart AAAAA.
[3] Maximum individual excess lifetime cancer risk due to HAP emissions from the source category.
[4] Maximum TOSHI. The target organ with the highest TOSHI for the Lime Manufacturing source category is the respiratory system.
[5] The maximum estimated acute exposure concentration was divided by available short-term threshold values to develop an array of HQ values. The acute HQ shown was based upon the lowest acute 1 hour dose-response value, the REL for elemental mercury. When an HQ exceeds 1, we also show the HQ using the next lowest available acute dose-response value.

2. Screening Level Acute Risk Assessment Results

Based on our screening analysis of reasonable worst-case acute exposure to actual emissions from the category, no HAP exposures result in an HQ greater than 1 (0.6) based upon the 1- hour REL. As discussed in section III.C.3.c of this preamble, we used the default acute hourly multiplier of 10 for all emission processes.

3. Multipathway Risk Screening Results

PB-HAP emissions (based on estimates of actual emissions) from all 35 facilities in the source category exceed the Tier 1 screening threshold emission rates for the carcinogenic PB-HAP, D/F, and arsenic. Emissions from 34 of the 35 facilities exceed the Tier 1 screening threshold emission rate for mercury, a PB-HAP with noncancer health effects. Cadmium emissions from all but one facility were below the Tier 1 noncancer screening threshold emission rate. For the PB-HAP and facilities with Tier 1 screening values greater than 1, we conducted a Tier 2 screening analysis.

D/F and arsenic emissions from 26 facilities exceeded the Tier 2 cancer screening value of 1. The Tier 2 fisher scenario resulted in a maximum cancer screening value of 20 with D/F emissions driving the risk. The Tier 2 farmer scenario resulted in a maximum cancer screening value of 20 due to both arsenic and D/F emissions. For cadmium, the Tier 2 noncancer screening value (0.1) did not exceed 1. Mercury emissions from 16 facilities had Tier 2 noncancer screening values greater than 1 under the fisher scenario, with the largest Tier 2 screen value equal to 4. When we evaluated the effect multiple facilities within the source category could have on common lake(s) in the modeling domain, mercury emissions exceeded the noncancer screening value by a factor of 5.

For mercury, we continued the fisher scenario screening analysis with a Tier 3 multipathway screen which comprises three individual stages. These stages included lake, plume rise, and time-series assessments. Tier 3 lake and plume rise assessments weres conducted for all facilities with Tier 2 mercury screening values greater than 1. A Tier 3 time series screen was conducted for the facility with the highest mercury non-cancer screening value after conducting the lake and plume rise assessments. After conducting the time series screen, the facility evaluated had a Tier 3 non-cancer screening value of 2 for mercury, including consideration of cumulative lake impacts from facilities within the source category.

One of the facilities evaluated in the Tier 3 plume-rise screen for mercury also had the highest Tier 2 cancer screening value under the fisher scenario, 20 for D/F. The refined Tier 3 plume rise assessment for this facility resulted in a cancer screening value of 10. This cancer screening value of 10 for the fisher scenario is the highest for the source category. Further details on the Tier 3 screening analysis can be found in Appendix 11 of *Residual Risk Assessment for the Lime Manufacturing Source Category in Support of the Risk and Technology Review 2019 Proposed Rule.*

A screening value in any of the tiers is not an estimate of the cancer risk or a noncancer HQ (or HI). Rather, a screening value represents a high-end estimate of what the risk or HQ may be. For example, facility emissions resulting in a screening value of 2 for a non-carcinogen can be interpreted to mean that we are confident that the HQ would be lower than 2. Similarly, facility emissions resulting in a cancer screening value of 20 for a carcinogen means that we are confident that the cancer risk is lower than 20-in-1 million. Our confidence comes from the health-protective assumptions that are incorporated into the screens: we choose inputs from the upper end of the range of possible values for the influential parameters used in the screens and we assume food consumption behaviors that would lead to high total exposure. This risk assessment estimates the maximum hazard for mercury through fish consumption based on upper bound screens and the maximum excess cancer risks from D/F and arsenic through ingestion of fish and farm produce.

When we progress from the model designs of the Tier 1, 2, and 3 screens to a site-specific assessment, we refine the risk assessment through incorporation of additional site-specific data and enhanced model designs. Site-specific refinements include the following; (1) improved spatial locations identifying the boundaries of the watershed and lakes within the watershed as they relate to surrounding facilities within the source category; (2) calculating actual soil/water run-off amounts to target lakes based upon actual soil type(s) and elevation changes associated with the affected watershed versus assuming a worst-case assumption of 100-percent run-off to target lakes; and (3) incorporating AERMOD deposition of pollutants into TRIM.FaTE to accurately account for site-specific release parameters such as stack heights and exit gas temperatures, versus using TRIMFaTE's simple dispersion algorithms that assume the pollutant is uniformly distributed within the airshed. These refinements have the net effect of improved modeling of the mass of HAP entering a lake by more accurately defining the watershed/lake boundaries as well as the dispersion of HAP into the atmosphere to better reflect deposition contours across all target watersheds and lakes in our 50 km model domain.

As discussed above, the maximum mercury Tier 2 non-cancer screening value for this source category is 5 with subsequent refinement resulting in a Tier 3 screening value of 2. The EPA has determined that it is not necessary to go beyond the Tier 3 assessment to a site-specific assessment. As explained above, the screening value of 2 is a high-end estimate of what the risk or hazard may be and can be interpreted to mean that we are confident that the HQ would be lower than 2. Further, risk results from three site-specific mercury assessments the EPA has conducted for three RTR source categories resulted in noncancer HQs that were at least 50 times lower than the respective Tier 2 screening value for these facilities (refer to EPA Docket ID No.: 2017-HQ-OAR-2017-0015 for a copy of these reports).[23] Based on our review of these analyses,

---

[23] EPA Docket records: Appendix 11 of the *Residual Risk Assessment for the Integrated Iron and Steel Source Category in Support of the Risk and Technology Review 2019 Proposed Rule*;

we would expect at least a one order of magnitude decrease in all Tier 2 noncancer screening values for mercury for the Lime Manufacturing source category, if we were to perform a site-specific assessment. In addition, based upon the conservative nature of the screens and the level of additional refinements that would go into a site-specific multipathway assessment, were one to be conducted, we are confident that the HI for ingestion exposure, specifically mercury through fish ingestion, is less than 1. Further details on the Tier 3 screening assessment can be found in Appendix 11 of *Residual Risk Assessment for the Lime Manufacturing Source Category in Support of the Risk and Technology Review 2019 Proposed Rule.*

In evaluating the potential for multipathway effects from emissions of lead, the EPA compared modeled annual lead concentrations to the secondary NAAQS level for lead (0.15 $\mu g/m^3$, arithmetic mean concentration over a 3-month period). The highest annual average lead concentration, of 0.0007 $\mu g/m^3$, is below the NAAQS level for lead, indicating a low potential for multipathway impacts.

4. Environmental Risk Screening Results

As described in section III.A of this preamble, we conducted an environmental risk screening assessment for the Lime Manufacturing source category for the following pollutants: arsenic, cadmium, D/F, HCl, hydrofluoric acid, lead, mercury (methyl mercury and mercuric chloride), and POM.

In the Tier 1 screening analysis for PB-HAP (other than lead, which was evaluated differently), arsenic, cadmium, and POM emissions had no exceedances of any of the ecological

---

Appendix 11 of the *Residual Risk Assessment for the Portland Cement Manufacturing Source Category in Support of the 2018 Risk and Technology Review Final Rule*; and Appendix 11 of the *Residual Risk Assessment for the Coal and Oil-Fired EGU Source Category in Support of the 2018 Risk and Technology Review Proposed Rule*.

benchmarks evaluated. D/F emissions had a Tier 1 exceedance at 31 facilities for a surface soil no-observed-adverse-effect-level (NOAEL) (mammalian insectivores – shrew) by a maximum screening value of 30. Divalent mercury emissions had Tier 1 exceedances for the following benchmarks: sediment threshold level (one facility), surface soil threshold level - plant communities (25 facilities), and surface soil threshold level - invertebrate communities (32 facilities) by a maximum screening value of 20. Methyl mercury emissions had Tier 1 exceedances for the following benchmarks: fish (avian/piscivores) NOAEL – Merganser (one facility), surface soil NOAEL for mammalian insectivores – shrew (13 facilities), and surface soil NOAEL for avian ground insectivores – woodcock (33 facilities) by a maximum screening value of 40.

A Tier 2 screening analysis was performed for D/F, divalent mercury, and methyl mercury emissions. In the Tier 2 screening analysis, there were no exceedances of any of the ecological benchmarks evaluated for any of the pollutants.

For lead, we did not estimate any exceedances of the secondary lead NAAQS. For HCl and HF, the average modeled concentration around each facility (*i.e.,* the average concentration of all off-site data points in the modeling domain) did not exceed any ecological benchmark. In addition, each individual modeled concentration of HCl and HF (*i.e.,* each off-site data point in the modeling domain) was below the ecological benchmarks for all facilities.

Based on the results of the environmental risk screening analysis, we do not expect an adverse environmental effect as a result of HAP emissions from this source category.

5. Facility-Wide Risk Results

The maximum lifetime individual cancer risk posed by the 35 facilities, based on facility-wide emissions, is 1-in-1 million (estimated for three facilities), with arsenic, chromium (VI) compounds, and nickel emissions from fugitive PSH operations driving the risk. The total estimated cancer incidence from facility-wide emissions is 0.004 excess cancer cases per year, or one case in every 250 years. Approximately 30 people are estimated to have cancer risk equal to 1-in-1 million from facility-wide emissions. The maximum facility-wide chronic noncancer TOSHI is estimated to be less than 1 (0.4) , mainly driven by emissions of HCl from a facility-wide fugitive area source.

6. What demographic groups might benefit from this regulation?

To examine the potential for any environmental justice issues that might be associated with the source category, we performed a demographic analysis, which is an assessment of risk to individual demographic groups of the populations living within 5 km and within 50 km of the facilities. In the analysis, we evaluated the distribution of HAP-related cancer and noncancer risk from the Lime Manufacturing source category across different demographic groups within the populations living near facilities.[24]

The results of the demographic analysis are summarized in Table 3 below. These results, for various demographic groups, are based on the estimated risk from actual emissions levels for the population living within 50 km of the facilities.

TABLE 3. LIME MANUFACTURING SOURCE CATEGORY DEMOGRAPHIC RISK ANALYSIS RESULTS

		Population with Cancer Risk at or Above 1-in-1 Million Due to Lime Manufacturing	**Population with Chronic Hazard Index Above 1 Due to Lime Manufacturing**

---

[24] Demographic groups included in the analysis are: White, African American, Native American, other races and multiracial, Hispanic or Latino, children 17 years of age and under, adults 18 to 64 years of age, adults 65 years of age and over, adults without a high school diploma, people living below the poverty level, people living two times the poverty level, and linguistically isolated people.

	Nationwide	**Source Category**	
Total Population	317,746,049	12	0
	Race by Percent		
White	62	75	0
All Other Races	38	25	0
	Race by Percent		
Hispanic or Latino (includes white and nonwhite)	62	75	0
African American	12	17	0
Native American	0.8	0	0
Other and Multiracial	7	0	0
	Income by Percent		
Below Poverty Level	14	17	0
Above Poverty Level	86	83	0
	Education by Percent		
Over 25 and without a High School Diploma	14	22	0
Over 25 and with a High School Diploma	86	78	0
	Linguistically Isolated by Percent		
Linguistically Isolated	6	0	0

The results of the Lime Manufacturing source category demographic analysis indicate that emissions from the source category expose approximately 12 people to a cancer risk at or above 1-in-1 million and no people to a chronic noncancer TOSHI greater than 1. The percentages of the at-risk population indicate that three of the 10 demographic groups (White, African American and people below the poverty level) that are living within 50 km of facilities in the source category exceed the corresponding national percentage for the same demographic groups.

The methodology and the results of the demographic analysis are presented in a technical report, *Risk and Technology Review – Analysis of Demographic Factors for Populations Living Near Lime Manufacturing Source Category Operations*, available in the docket for this action.

B. What are our proposed decisions regarding risk acceptability, ample margin of safety, and adverse environmental effect?

1. Risk Acceptability

As explained in section II.A of this preamble, the EPA sets standards under CAA section 112(f)(2) using "a two-step standard-setting approach, with an analytical first step to determine an 'acceptable risk' that considers all health information, including risk estimation uncertainty, and includes a presumptive limit on MIR of approximately 1-in-10 thousand" (54 FR 38045, September 14, 1989). The EPA weighed all health risk measures and information, including science policy assumptions and estimation uncertainties, in determining whether risk posed by emissions from the source category is acceptable.

The maximum cancer risk for inhalation exposure to actual emissions from the Lime Manufacturing source category (1-in-1 million) is two orders of magnitude below 100-in-1 million, which is the presumptive upper limit of acceptable risk. The maximum inhalation cancer risk based on MACT allowable emissions (2-in-1 million) is similar. The EPA estimates emissions from the category would result in a cancer incidence of 0.001 excess cancer cases per year, or one case every 1,000 years. Twelve individuals are estimated to have inhalation cancer risk equal to 1-in-1 million. Inhalation exposures to HAP associated with chronic noncancer health effects result in a TOSHI of 0.04 based on actual emissions, 25 times below an exposure that the EPA has estimated is without appreciable risk of adverse health effects. Exposures to

HAP associated with acute noncancer health effects also are below levels of health concern with no HAP exposures resulting in an HQ greater than 1 (0.6) based upon the 1-hour REL.

Maximum cancer risk due to ingestion exposures estimated using health-protective risk screening assumptions are below 10-in-1 million for the Tier 3 fisher scenario and below 20-in-1 million for the Tier 2 farmer exposure scenario. The Tier 3 noncancer screening analyses of mercury exposure due to fish ingestion determined that the maximum HQ for mercury would be less than 2, as explained in section III.C.4 of this preamble. The EPA is confident that this hazard estimate would be reduced to a HQ of less than 1 if further refined to incorporate enhanced site-specific analyses such as improved model boundary identification with improved soil/water run-off calculations and AERMOD deposition outputs used in the TRIM.FaTE model. Considering all of the health risk information and factors discussed above, as well as the uncertainties discussed in section III of this preamble, we propose that the risks posed by emissions from the Lime Manufacturing source category are acceptable.

2. Ample Margin of Safety Analysis

As directed by CAA section 112(f)(2), we conducted an analysis to determine whether the current emissions standards provide an ample margin of safety to protect public health. Under the ample margin of safety analysis, we evaluated the cost and feasibility of available control technologies and other measures (including the controls, measures, and costs reviewed under the technology review) that could be applied to this source category to further reduce the risks (or potential risks) due to emissions of HAP from the source category. In this analysis, we considered the results of the technology review, risk assessment, and other aspects of our MACT rule review to determine whether there are any measures that would reduce risk further.

Although we are proposing that the risks from this source category are acceptable, risk estimates for approximately 12 people in the exposed population are equal to 1-in-1 million, caused by chromium (VI) compounds, arsenic, nickel, and cadmium emissions (see Table 2 of this preamble). Lime kiln and cooler exhaust emissions result in 93 percent of the cancer incidence for this source category. The NESHAP controls PM as a surrogate for non-mercury HAP metals. Our technology review did not identify any practices, controls, or process options that are being used in this industry that would result in further reduction of PM emissions.[25]

For D/F and mercury emissions, activated carbon injection (ACI) systems installed prior to the PM control device were identified as a potential control technology. We found that ACI systems have been used on municipal waste combustors, medical waste incinerators, and cement kilns. Experience with ACI on municipal waste combustors and medical waste incinerators led the EPA to develop emission limits for D/F emissions for these sources in the range of 0.26 to 2.5 nanograms as toxic equivalents per dry standard cubic meter (ng TEQ/dscm). These D/F emission levels are well above the D/F emission levels (0.008 to 0.0148 ng TEQ/dscm) that have been measured from lime kilns. Total annual costs for an ACI system, installed prior to the existing PM control device, are estimated to be $137,000 per lime kiln. Based on the cost and considering the potential negligible reduction of the already low measured D/F emissions, we do not consider the use of ACI systems to be cost effective for the industry to further reduce D/F emissions. The use of ACI systems would have little effect on the source category risks.

As for mercury emissions, ACI is used on cement kilns which are similar to lime kilns in design, fuel combusted, and feed material. In the RTR conducted for the portland cement

---

[25] *Technology Review for the Lime Manufacturing Source Category*; see Docket ID No. EPA-HQ-OAR-2017-0015.

manufacturing industry, we estimated that for a typical cement kiln that the addition of an ACI system would result in a 2.3 to 3.0 lb per year reduction in mercury (see 82 FR 44277). Assuming a similar reduction in mercury emissions would be achieved for a typical lime kiln, the cost effectiveness of an ACI system installed prior to the PM control device would be $46,000 to $60,000 per lb of mercury removed. Thus, we do not consider the use of ACI systems to be cost effective for the industry to use to further reduce mercury emissions. Our risk analysis indicated the noncancer risks from mercury are low and any further risk reduction from the use of ACI would be minimal.

Because no additional cost-effective measures were identified to further reduce HAP risk from affected sources in the Lime Manufacturing source category, we are proposing that the current NESHAP provides an ample margin of safety to protect public health.

3. Adverse Environmental Effect

Based on the results of our environmental risk screening, we do not anticipate an adverse environmental effect as a result of HAP emissions from this source category and we are proposing that it is not necessary to set a more stringent standard to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect.

C. What are the results and proposed decisions based on our technology review?

The RBLC provides several options for searching the permit database on-line to locate applicable control technologies. We searched the RBLC database for RBL determinations made during the time period between this NESHAP promulgation date (January 05, 2004) and the date the RBLC search was conducted (August 27, 2018). Search results showed a total of 17 facilities with RBL determinations during the 2004–2018 time frame. These results were reviewed to identify any developments in practices, processes, or control technologies related to reducing emissions of PM from lime kilns and PSH operations.

The primary controls identified were the use of fabric filters to control PM emissions from stacks and the use of water (wet suppression) for the control of PM emissions from fugitive PSH operations. These methods of control served as the basis for standards promulgated in the original NESHAP. The results of the RBLC search did not identify developments in practices, processes, or control technologies for the Lime Manufacturing source category under CAA section 112(d)(6).

To identify developments in emission control strategies, the following questions were asked as part of the January 2017 ICR:

- Do you use any alternative control devices (*i.e.*, control devices other than fabric filters, electrostatic precipitators (ESPs), or wet scrubbers), monitoring procedures, or operating conditions at this facility?
- Do you have any plans to install any new higher efficiency rated control devices or have any pending applications to add on any new controls?
- Describe any procedures you use at your facility to prevent pollution (as opposed to controlling pollution after it is formed).
- Have you implemented any work practice standards or standard operating procedures that will further reduce HAP emissions?

The responses to this inquiry did not identify any developments in practices, processes, or control technologies that would warrant revision to the existing emission standards for the Lime Manufacturing source category.

This review did not identify any developments in practices, processes, or control technologies for PM that have been implemented in this source category since promulgation of the current NESHAP in January of 2004. Consequently, we propose that no revisions to the NESHAP are necessary pursuant to CAA section 112(d)(6). For a detailed discussion of the findings, refer to the *Technology Review for the Lime Manufacturing Source Category* memorandum in the docket.

D. What other actions are we proposing?

In addition to the proposed actions described above, we are proposing additional revisions to the NESHAP. We are proposing revisions to the SSM provisions of the MACT rule in order to ensure that they are consistent with the Court decision in *Sierra Club v. EPA*, 551 F. 3d 1019 (D.C. Cir. 2008), which vacated two provisions that exempted sources from the requirement to comply with otherwise applicable CAA section 112(d) emission standards during periods of SSM. We also are proposing to require electronic reporting of Notification of Compliance Status reports, semiannual compliance reports, and performance test reports. Our analyses and proposed changes related to these issues are discussed below.

1. SSM

In its 2008 decision in *Sierra Club v. EPA*, 551 F.3d 1019 (D.C. Cir. 2008), the 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 section 112 standards apply continuously.

We are proposing the elimination of the SSM exemption in this rule, which appears at 40 CFR 63.7100 and in Table 8 to subpart AAAAA of part 63. Consistent with *Sierra Club v. EPA*, we are proposing standards in this rule that apply at all times. We are also proposing several revisions to Table 8 (the General Provisions Applicability Table) as is explained in more detail below. For example, we are proposing to eliminate the incorporation of the General Provisions' requirement that the source develop an SSM plan. We also are proposing to eliminate and revise certain recordkeeping and reporting requirements related to the SSM exemption as further described below.

The EPA has attempted to ensure that the provisions we are proposing to eliminate are inappropriate, unnecessary, or redundant in the absence of the SSM exemption. We are specifically seeking comment on whether we have successfully done so. The EPA believes the removal of the SSM exemption creates no additional burden to facilities regulated under the Lime Manufacturing Plants NESHAP. Deviations currently addressed by a facility's SSM plan are required to be reported in the Semiannual Compliance Report, a requirement that remains under the proposal (40 CFR 63.7130). Facilities will no longer need to develop an SSM plan or keep it current (Table 8, 40 CFR part 63, subpart AAAAA).

In proposing the standards in this rule, the EPA has taken into account startup and shutdown periods and, for the reasons explained below, is proposing alternate standards for those periods.

The EPA has made the determination under CAA section 112(h) that for kilns and coolers it is not feasible to prescribe or enforce a numeric standard during periods of startup and shutdown because the application of measurement methodology is impracticable due to technological and economic limitations. The test methods required for demonstrating compliance are required to be conducted under isokinetic conditions (*i.e.,* steady-state conditions in terms of exhaust gas temperature, moisture, flow rate), which is difficult to achieve during periods of startup and shutdown where conditions are constantly changing. In addition, information[26] provided on the amount of time required for startup and shutdown of lime kilns indicates that the application of measurement methodology for these sources using the required procedures, which would require more hours (6) in startup or shutdown mode to satisfy the sample volume requirements in the rule, is impracticable. Upon review of this information, the EPA determined that it is not feasible to require stack testing, in particular, to complete the multiple required test runs during periods of startup and shutdown due to physical limitations and the short duration of startup and shutdown periods. Based on these specific facts for the Lime Manufacturing source category, we are proposing work practice standards for these periods.

The EPA is proposing to require sources to vent emissions to the main stack and operate all control devices necessary to meet the normal operating limits under this NESHAP (with the exception of ESPs) when firing fuel in the lime kiln during startup and shutdown. We are proposing that startup ends 1 hour after lime is produced from the kiln.

Stakeholders in several source categories have expressed concerns that the requirement for engaging applicable control devices does not accommodate potential safety problems associated with ESP operation. Recommended manufacturer operating procedures provided to the EPA during rulemaking for the Industrial, Commercial, and Institutional Boilers and Process Heaters NESHAP explained the potential hazards associated with ESP energization when unburned fuel may exist in the presence of oxygen levels high enough that the mixture can be in the flammable range. In addition, the stakeholders claim that the ESP cannot practically be engaged until a certain flue gas temperature is reached. Specifically, they claim that premature

---

[26] *Lime Kiln Principles and Operations*, Terry N. Adams, *https://www.tappi.org/content/events/08Kros/manuscripts/2.2.pdf*.

starting of this equipment will lead to short-term stability problems that could result in unsafe operations and longer term degradation of ESP performance due to fouling, increased chances of wire damage, or increased corrosion within the chambers. They also state that vendors providing this equipment incorporate these safety and operational concerns into their standard operating procedures. For example, they claim that some ESPs have oxygen sensors and alarms that shut down the ESP at high flue gas oxygen levels to avoid a fire in the unit. The oxygen level is typically high during startup, so the ESP may not engage due to these safety controls until more stable operating conditions are reached. These stakeholder claims are supported by a guidance document[27] prepared by a trade association of companies that supply air pollution control equipment. Therefore, the EPA is proposing an alternate work practice requirement for operating ESP control devices during periods of startup as follows: Lime kilns owners and operators shall, when firing fuel, vent emissions to the main stack and engage the ESP within 1 hour after the inlet exhaust temperature to the ESP reaches 300 degrees Fahrenheit.

In order to clarify that the work practice does not supersede any other standard or requirements to which the affected source is subject, the EPA is including in the proposed alternate work practice provision a requirement that control devices operate when necessary to comply with other standards (*e.g.,* new source performance standards, state regulations) applicable to the source.

In addition, to ensure compliance with the proposed definition of startup and the work practice standard that applies during startup periods, we are proposing that certain events and parameters be monitored and recorded during the startup periods. These events include the time

---

[27] *Guidance Document on Startup and Shutdown under MATS*, Institute of Clean Air Companies, July 2015.

when firing (*i.e.,* feeding) starts for fuel and limestone; the time when lime is produced; and the time when the PM controls are engaged. The parameters to be monitored and recorded during each startup period include the hourly flue gas temperature and all hourly average continuous monitoring system data (*e.g.,* opacity, ESP total secondary electric power input, scrubber liquid flow rate) to confirm that the control devices are engaged.

We request comments on the proposed startup and shutdown provisions (definitions and work practices).

Periods of startup, normal operations, and shutdown are all predictable and routine aspects of a source's operations. Malfunctions, in contrast, are neither predictable nor routine. Instead they are, by definition, sudden, infrequent, and not reasonably preventable failures of emissions control, process, or monitoring equipment. (40 CFR 63.2, definition of malfunction). The EPA interprets CAA section 112 as not requiring emissions that occur during periods of malfunction to be factored into development of CAA section 112 standards and this reading has been upheld as reasonable by the Court in *U.S. Sugar Corp. v. EPA*, 830 F.3d 579, 606–610 (2016). Under CAA section 112, emissions standards for new sources must be no less stringent than the level "achieved" by the best controlled similar source and for existing sources generally must be no less stringent than the average emission limitation "achieved" by the best performing 12 percent of sources in the category. There is nothing in CAA section 112 that directs the Agency to consider malfunctions in determining the level "achieved" by the best performing sources when setting emission standards. As the Court has recognized, the phrase "average emissions limitation achieved by the best performing 12 percent of" sources "says nothing about how the performance of the best units is to be calculated." *National Association of Clean Water Agencies v. EPA*, 734 F.3d 1115, 1141 (D.C. Cir. 2013). While the EPA accounts for variability in setting emissions standards, nothing in CAA section 112 requires the Agency to consider malfunctions as part of that analysis. The EPA is not required to treat a malfunction in the same manner as the type of variation in performance that occurs during routine operations of a source. A malfunction is a failure of the source to perform in "normal or usual manner" and no statutory language compels the EPA to consider such events in setting CAA section 112 standards.

As the Court recognized in *U.S. Sugar Corp.*, accounting for malfunctions in setting standards would be difficult, if not impossible, given the myriad different types of malfunctions that can occur across all sources in the category and given the difficulties associated with predicting or accounting for the frequency, degree, and duration of various malfunctions that might occur. *Id*. at 608 ("the EPA would have to conceive of a standard that could apply equally to the wide range of possible boiler malfunctions, ranging from an explosion to minor mechanical defects. Any possible standard is likely to be hopelessly generic to govern such a wide array of circumstances.") As such, the performance of units that are malfunctioning is not "reasonably" foreseeable. See, for example, *Sierra Club v. EPA*, 167 F.3d 658, 662 (D.C. Cir. 1999). "The EPA typically has wide latitude in determining the extent of data gathering necessary to solve a problem. We generally defer to an agency's decision to proceed on the basis of imperfect scientific information, rather than to 'invest the resources to conduct the perfect study'.". See also, *Weyerhaeuser v. Costle*, 590 F.2d 1011, 1058 (D.C. Cir. 1978), "In the nature of things, no general limit, individual permit, or even any upset provision can anticipate all upset situations. After a certain point, the transgression of regulatory limits caused by 'uncontrollable acts of third parties,' such as strikes, sabotage, operator intoxication or insanity, and a variety of other eventualities, must be a matter for the administrative exercise of case-by-case enforcement discretion, not for specification in advance by regulation." In addition, emissions during a malfunction event can be significantly higher than emissions at any other time of source operation. For example, if an air pollution control device with 99-percent removal goes offline as a result of a malfunction (as might happen if, for example, the bags in a baghouse catch fire) and the emission unit is a steady state type unit that would take days to shut down, the source would go from 99-percent control to zero control until the control device was repaired. The source's emissions during the malfunction would be 100 times higher than during normal operations. As such, the emissions over a 4-day malfunction period would exceed the annual emissions of the source during normal operations. As this example illustrates, accounting for malfunctions could lead to standards that are not reflective of (and significantly less stringent than) levels that are achieved by a well-performing non-malfunctioning source. It is reasonable to interpret CAA section 112 to avoid such a result. The EPA's approach to malfunctions is consistent with CAA section 112 and is a reasonable interpretation of the statute.

Although no statutory language compels the EPA to set standards for malfunctions, the EPA has the discretion to do so where feasible. For example, in the Petroleum Refinery Sector RTR, the EPA established a work practice standard for unique types of malfunction that result in releases from pressure relief devices or emergency flaring events because information was available to determine that such work practices reflected the level of control that applies to the best performers (80 FR 75178, 75211–14; December 1, 2015). The EPA will consider whether circumstances warrant setting standards for a particular type of malfunction and, if so, whether the EPA has sufficient information to identify the relevant best performing sources and establish a standard for such malfunctions. We also encourage commenters to provide any such information.

In the event that a source fails to comply with the applicable CAA section 112(d) standards as a result of a malfunction event, the EPA would determine an appropriate response based on, among other things, the good faith efforts of the source to minimize emissions during malfunction periods, including preventative and corrective actions, as well as root cause analyses to ascertain and rectify excess emissions. The EPA would also consider whether the source's failure to comply with the CAA section 112(d) standard was, in fact, sudden, infrequent, not reasonably preventable and was not instead caused in part by poor maintenance or careless operation. 40 CFR 63.2 (definition of malfunction).

If the EPA determines in a particular case that an enforcement action against a source for violation of an emission standard is warranted, the source can raise any and all defenses in that enforcement action and the federal district court will determine what, if any, relief is appropriate. The same is true for citizen enforcement actions. Similarly, the presiding officer in an administrative proceeding can consider any defense raised and determine whether administrative penalties are appropriate.

In summary, the EPA interpretation of the CAA and, in particular, CAA section 112, is reasonable and encourages practices that will avoid malfunctions. Administrative and judicial procedures for addressing exceedances of the standards fully recognize that violations may occur despite good faith efforts to comply and can accommodate those situations. *U.S. Sugar Corporation v. EPA* (830 F.3d 579, 606–610; D.C. Cir. 2016).

a. General Duty

We are proposing to revise the General Provisions table (Table 8) entry for 40 CFR 63.6(e)(1) by redesignating it as 40 CFR 63.6(e)(1)(i) and changing the "yes" in column 3 to a "no." Section 63.6(e)(1)(i) describes the general duty to minimize emissions. Some of the language in that section is no longer necessary or appropriate in light of the elimination of the SSM exemption. We are proposing instead to add general duty regulatory text at 40 CFR 63.7100 that reflects the general duty to minimize emissions while eliminating the reference to periods covered by an SSM exemption. The current language in 40 CFR 63.6(e)(1)(i) characterizes what the general duty entails during periods of SSM. With the elimination of the SSM exemption, there is no need to differentiate between normal operations and SSM events in describing the general duty. Therefore, the language the EPA is proposing for 40 CFR 63.7100 does not include that language from 40 CFR 63.6(e)(1).

We are also proposing to revise Table 8 to add an entry for 40 CFR 63.6(e)(1)(ii) and include a “no” in column 3. Section 63.6(e)(1)(ii) imposes requirements that are not necessary with the elimination of the SSM exemption or are redundant with the general duty requirement being added at 40 CFR 63.7100.

We are also proposing to revise Table 8 to add an entry for 40 CFR 63.6(e)(1)(iii) and include a “yes” in column 3.

Finally, we are proposing to revise Table 8 to remove an entry for 40 CFR 63.6(e)(2) because this paragraph is reserved and is not applicable to 40 CFR part 63, subpart AAAAA.

b. SSM Plan

We are proposing to revise Table 8 for 40 CFR 63.6(e)(3) and include a “no” in column 3. Generally, these paragraphs require development of an SSM plan and specify SSM recordkeeping and reporting requirements related to the SSM plan. As noted, the EPA is proposing to remove the SSM exemptions. Therefore, affected units will be subject to an emission standard during such events. The applicability of a standard during such events will ensure that sources have ample incentive to plan for and achieve compliance and, thus, the SSM plan requirements are no longer necessary.

c. Compliance with Standards

We are proposing to revise Table 8 entry for 40 CFR 63.6(f)(1)-(3) by redesignating it as 40 CFR 63.6(f)(2)-(3) and adding an entry for 40 CFR 63.6(f)(1) and including a "no" in column 3. The current language of 40 CFR 63.6(f)(1) exempts sources from non-opacity standards during periods of SSM. As discussed above, the Court in *Sierra Club* vacated the exemptions contained in this provision and held that the CAA requires that some CAA section 112 standards apply continuously. Consistent with *Sierra Club,* the EPA is proposing to revise standards in this rule to apply at all times.

We are proposing to revise Table 8 entry for 40 CFR 63.6(h)(1)-(2) by redesignating it as 40 CFR 63.6(h)(2) and adding an entry for 40 CFR 63.6(h)(1) and including a "no" in column 3. The current language of 40 CFR 93.6(h)(1) exempts sources from opacity standards during periods of SSM. As discussed above, the Court in *Sierra Club* vacated the exemptions contained in this provision and held that the CAA requires that some section 112 standards apply continuously. Consistent with *Sierra Club*, the EPA is proposing standards in this rule to apply at all times.

d. Performance Testing

We are proposing to revise Table 8 entry for 40 CFR 63.7(e)(1)-(4) by redesignating it as 40 CFR 63.7(e)(2)-(4) and adding an entry for 40 CFR 63.7(e)(1) and including a "no" in column 3. Section 63.7(e)(1) describes performance testing requirements. The EPA is instead proposing to revise the performance testing requirement at 40 CFR 63.7112 to remove the language "according to the requirements in §63.7(e)(1)" because 40 CFR 63.7(e)(1) restated the SSM exemption. 40 CFR 63.7112(c) of the current rule specifies that performance testing must not be conducted during periods of SSM. Section 63.7112(b) also specifies that the performance test be conducted under the specific conditions specified in Table 4 to this subpart. Operations during periods of SSM, and during periods of nonoperation do not constitute representative operating conditions. The current language in 40 CFR 63.7112(h) requires the owner or operator to record the process information that is necessary to document operating conditions during the test and the EPA is proposing to add language that requires the owner and operator to include in such record an explanation to support that such conditions represent normal operation. Section 63.7(e) requires that the owner or operator make available to the Administrator such records "as may be necessary to determine the condition of the performance test" available to the Administrator upon request but does not specifically require the information to be recorded. The regulatory text in the current rule already makes explicit the requirement to record the information.

e. Monitoring

We are proposing to revise Table 8 entry for 40 CFR 63.8(c)(1)-(3) by redesignating it as 40 CFR 63.8(c)(2)-(3) and adding entries for 40 CFR 63.8(c)(1)(i) and 40 CFR 63.8(c)(1)(iii) and including a "no" in column 3. The cross-references to the general duty and SSM plan requirements in those subparagraphs are not necessary considering other requirements of 40 CFR 63.8 that require good air pollution control practices (40 CFR 63.8(c)(1)) and that set out the requirements of a quality control program for monitoring equipment (40 CFR 63.8(d)).

f. Recordkeeping

We are proposing to revise the Table 8 entry for 40 CFR 63.10(b)(1)-(b)(2)(xii) by redesignating it as 40 CFR 63.10(b)(1) and adding an entry for 40 CFR 63.10(b)(2)(i) and including a "no" in column 3. Section 63.10(b)(2)(i) describes the recordkeeping requirements during startup and shutdown. We are instead proposing to add recordkeeping requirements to 40 CFR 63.7132. When a source is subject to a different standard during startup and shutdown, it will be important to know when such startup and shutdown periods begin and end in order to determine compliance with the appropriate standard. Thus, the EPA is proposing language in 40 CFR 63.7132 requiring that sources subject to an emission standard during startup or shutdown that differs from the emission standard that applies at all other times must report the date, time, and duration of such periods.

We are proposing to revise Table 8 to add an entry for 40 CFR 63.10(b)(2)(ii) and include a “no” in column 3. Section 63.10(b)(2)(ii) describes the recordkeeping requirements during a malfunction. A similar record is already required in 40 CFR 63.7131(d) and (e). The regulatory text in 40 CFR 63.7131(d) and (e) differs from the General Provisions in that the General Provisions requires the creation and retention of a record of the occurrence and duration of each malfunction of process, air pollution control, and monitoring equipment; whereas 40 CFR 63.7131(d) and (e) applies to any failure to meet an applicable standard and is requiring that the source record the date, time, and duration of the failure rather than the “occurrence.” The EPA is also proposing to add to 40 CFR 63.7132 a requirement that sources keep records that include a list of the affected source or equipment and actions taken to minimize emissions, an estimate of the quantity 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. Examples of such methods would include product-loss calculations, mass balance calculations, measurements when available, or engineering judgment based on known process parameters. The EPA is proposing to require that sources keep records of this information to ensure that there is adequate information to allow the EPA to determine the severity of any failure to meet a standard, and to provide data that may document how the source met the general duty to minimize emissions when the source has failed to meet an applicable standard.

We are proposing to revise Table 8 by adding an entry for 40 CFR 63.10(b)(2)(iv) and including a “no” in column 3. When applicable, the provision requires sources to record actions taken during SSM events when actions were inconsistent with their SSM plan. The requirement is no longer appropriate because SSM plans will no longer be required. The requirement previously applicable under 40 CFR 63.10(b)(2)(iv)(B) to record actions to minimize emissions and record corrective actions is now applicable by reference to 40 CFR 63.7132.

We are proposing to revise Table 8 by adding an entry for 40 CFR 63.10(b)(2)(v) and including a “no” in column 3. When applicable, the provision requires sources to record actions taken during SSM events to show that actions taken were consistent with their SSM plan. The requirement is no longer appropriate because SSM plans will no longer be required.

g. Reporting

We are proposing to revise the Table 8 entry for 40 CFR 63.10(d)(5) by changing the “yes” in column 3 to a “no.” Section 63.10(d)(5) describes the reporting requirements for startups, shutdowns, and malfunctions. To replace the General Provisions reporting requirement, the EPA is proposing to add reporting requirements to 40 CFR 63.7131. The replacement language differs from the General Provisions requirement in that it eliminates periodic SSM reports as a stand-alone report. We are proposing language that requires sources that fail to meet an applicable standard at any time to report the information concerning such events in the semi-annual compliance report already required under this rule. We are proposing that the report must also contain the number, date, time, duration, and the cause of such events (including unknown cause, if applicable), a list of the affected source or equipment, an estimate of the quantity of each regulated pollutant emitted over any emission limit, and a description of the method used to estimate the emissions.

Examples of such methods would include product-loss calculations, mass balance calculations, measurements when available, or engineering judgment based on known process parameters. The EPA is proposing this requirement to ensure that there is adequate information to determine compliance, to allow the EPA to determine the severity of the failure to meet an applicable standard, and to provide data that may document how the source met the general duty to minimize emissions during a failure to meet an applicable standard.

We will no longer require owners or operators to determine whether actions taken to correct a malfunction are consistent with an SSM plan, because plans would no longer be required. The proposed amendments, therefore, eliminate the cross-reference to 40 CFR 63.10(d)(5)(i) that contains the description of the previously required SSM report format and submittal schedule from this section. These specifications are no longer necessary because the events will be reported in otherwise required reports with similar format and submittal requirements. Section 63.10(d)(5)(ii) describes an immediate report for startups, shutdowns, and malfunctions when a source failed to meet an applicable standard but did not follow the SSM plan. We will no longer require owners and operators to report when actions taken during a startup, shutdown, or malfunction were not consistent with an SSM plan because plans would no longer be required.

2. Electronic Reporting Requirements

Through this proposal, the EPA is proposing that beginning 180 days after publication of the final rule in the **Federal Register**, owners and operators of lime manufacturing facilities submit electronic copies of required Notification of Compliance Status reports (portable document format (PDF), semiannual reports, and performance test reports through the EPA's Central Data Exchange (CDX) using the Compliance and Emissions Data Reporting Interface (CEDRI). A description of the electronic data submission process is provided in the memorandum titled *Electronic Reporting Requirements for New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) Rules*, available in Docket ID No. EPA-HQ-OAR-2017-0015. The proposed rule requires that performance test results collected using test methods that are supported by the EPA's Electronic Reporting Tool (ERT) as listed on the ERT website[28] at the time of the test be submitted in the format generated through the use of the ERT, and that other performance test results be submitted in PDF using the attachment module of the ERT.

For compliance reports, the proposed rule requires that owners and operators use the appropriate spreadsheet template to submit information to CEDRI beginning 181 days after publication of the final rule in the **Federal Register**. A draft version of the proposed template for these reports is included in the docket for this rulemaking.[29] The EPA specifically requests comment on the content, layout, and overall design of the template.

Additionally, the EPA has identified two broad circumstances in which electronic reporting extensions may be provided. In both circumstances, the decision to accept the claim of needing additional time to report is within the discretion of the Administrator, and reporting should occur as soon as possible. The EPA is providing these potential extensions to protect owners and operators from noncompliance in cases where they cannot successfully submit a

---

[28] *https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert.*

[29] See *40_CFR_Part_63_Subpart_AAAAA National Emission Standards for Hazardous Air Pollutants: Lime Manufacturing Plants Residual Risk and Technology Review_Semiannual_Spreadsheet_Template_Draft.xlsm*, available at Docket ID No. EPA-HQ-OAR-2017-0015.

report by the reporting deadline for reasons outside of their control. The first situation in which an extension may be warranted is due to outages of the EPA's CDX or CEDRI that precludes an owner or operator from accessing the system and submitting required reports is addressed in 40 CFR 63.8693(h). The second situation is due to a force majeure event, which is defined as an event that will be or has been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevents an owner or operator from complying with the requirement to submit a report electronically as required by this rule is addressed in 40 CFR 63.8693(i). Examples of such events are acts of nature, acts of war or terrorism, or equipment failure or safety hazards beyond the control of the facility.

The electronic submittal of the reports addressed in this proposed rulemaking will increase the usefulness of the data contained in those reports, is in keeping with current trends in data availability and transparency, will further assist in the protection of public health and the environment, will improve compliance by facilitating the ability of regulated facilities to demonstrate compliance with requirements, and by facilitating the ability of delegated state, local, tribal, and territorial air agencies and the EPA to assess and determine compliance, and will ultimately reduce burden on regulated facilities, delegated air agencies, and the EPA. Electronic reporting also eliminates paper-based, manual processes, thereby saving time and resources, simplifying data entry, eliminating redundancies, minimizing data reporting errors, and providing data quickly and accurately to the affected facilities, air agencies, the EPA, and the public. Moreover, electronic reporting is consistent with the EPA's plan[30] to implement

---

[30] The EPA's *Final Plan for Periodic Retrospective Reviews*, August 2011. Available at: *https://www.regulations.gov/document D=EPA-HQ-OA-2011-0156-0154*.

Executive Order 13563 and is in keeping with the EPA's Agency-wide policy[31] developed in response to the White House's Digital Government Strategy.[32] For more information on the benefits of electronic reporting, see the memorandum titled *Electronic Reporting Requirements for New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) Rules*, available in Docket ID No. EPA-HQ-OAR-2017-0015.

3. Technical and Editorial Changes

The following are additional proposed changes that address technical and editorial corrections:

- Revising the monitoring requirements in 40 CFR 63.7113 to the provision that triboelectric bag leak detection system must be installed, calibrated, operated, and maintained according to EPA-454/R-98-015. *Fabric Filter Bag Leak Detection Guidance*;
- Revising 40 CFR 63.7142 to add an alternative test method to EPA Method 320;
- Revising 40 CFR.7142 to add the latest version of ASTM Method D6735-01;
- Revising 40 CFR.7142 to add the latest version of ASTM Method D6420-99; and
- Revising Table 4 to 40 CFR part 63, subpart AAAAA, to add alternative compliance option.

E. What compliance dates are we proposing?

---

[31] *E-Reporting Policy Statement for EPA Regulations*, September 2013. Available at: *https://www.epa.gov/sites/production/files/2016-03/documents/epa-ereporting-policy-statement-2013-09-30.pdf.*

[32] *Digital Government: Building a 21st Century Platform to Better Serve the American People*, May 2012. Available at: *https://obamawhitehouse.archives.gov/sites/default/files/omb/egov/digital-government/digital-government.html*.

The EPA is proposing that existing affected sources must comply with the amendments in this rulemaking no later than 180 days after the effective date of the final rule. The EPA is also proposing that affected sources that commence construction or reconstruction after **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]** must comply with all requirements of the subpart, including the amendments being proposed, no later than the effective date of the final rule or upon startup, whichever is later. All affected existing facilities would have to continue to meet the current requirements of 40 CFR part 63, subpart AAAAA, until the applicable compliance date of the amended rule. The final action is not expected to be a "major rule" as defined by 5 U.S.C. 804(2), therefore, the effective date of the final rule will be the promulgation date as specified in CAA section 112(d)(10). For existing affected sources, we are proposing two changes that would impact ongoing compliance requirements for 40 CFR part 63, subpart AAAAA. As discussed elsewhere in this preamble, we are proposing to add a requirement that notifications, performance test results, and the semiannual reports using the new template be submitted electronically. We are also proposing to change the requirements for SSM by removing the exemption from the requirements to meet the standard during SSM periods and by removing the requirement to develop and implement an SSM plan. Our experience with similar industries that have been required to convert reporting mechanisms, install necessary hardware, install necessary software, become familiar with the process of submitting performance test results electronically through the EPA's CEDRI, test these new electronic submission capabilities, reliably employ electronic reporting, and convert logistics of reporting processes to different time-reporting parameters shows that a time period of a minimum of 90 days, and more typically, 180 days, is generally necessary to successfully complete these changes. Our experience with similar industries further shows that this sort of regulated facility generally requires a time period of 180 days to read and understand the amended rule requirements; evaluate their operations to ensure that they can meet the standards during periods of startup and shutdown as defined in the rule and make any necessary adjustments; adjust parameter monitoring and recording systems to accommodate revisions; and update their operations to reflect the revised requirements. The EPA recognizes the confusion that multiple different compliance dates for individual requirements would create and the additional burden such an assortment of dates would impose. From our assessment of the time frame needed for compliance with the entirety of the revised requirements, the EPA considers a period of 180 days to be the most expeditious compliance period practicable, and, thus, is proposing that existing affected sources be in compliance with all of this regulation's revised requirements within 180 days of the regulation's effective date. We solicit comment on this proposed compliance period, and we specifically request submission of information from sources in this source category regarding specific actions that would need to be undertaken to comply with the proposed amended requirements and the time needed to make the adjustments for compliance with any of the revised requirements. We note that information provided may result in changes to the proposed compliance date.

V. Summary of Cost, Environmental, and Economic Impacts

A. What are the affected sources?

There are currently 35 lime manufacturing facilities operating in the United States that are subject to the Lime Manufacturing Plants NESHAP. The 40 CFR part 63, subpart AAAAA, affected source is the lime kiln and its associated cooler, and the PSH operation system located at a major source of HAP emissions. A new or reconstructed affected source is a source that commenced construction after December 20, 2002, or meets the definition of reconstruction and commenced reconstruction after December 20, 2002.

B. What are the air quality impacts?

At the current level of control, emissions of total HAP are estimated to be approximately 2,320 tpy in 2019. This represents a reduction in HAP emissions of about 240 tpy due to the current (2004) Lime Manufacturing Plants NESHAP. The proposed amendments will require all affected sources subject to the emission standards in the Lime Manufacturing Plants NESHAP to operate without the SSM exemption. We were unable to quantify the specific emissions reduction associated with eliminating the SSM exemption. However, eliminating the SSM exemption will reduce emissions by requiring facilities to meet the proposed work practice standards during SSM periods.

Indirect or secondary air emissions impacts are impacts that would result from the increased electricity usage associated with the operation of control devices (*i.e.*, increased secondary emissions of criteria pollutants from power plants). Energy impacts consist of the electricity and steam needed to operate control devices and other equipment that would be required under this proposed rule. The EPA expects no secondary air emissions impacts or energy impacts from this rulemaking.

C. What are the cost impacts?

The 35 lime manufacturing plants that would be subject to the proposed amendments would incur minimal net costs to meet revised recordkeeping and reporting requirements and the proposed work practice standards for periods of startup and shutdown. Nationwide costs associated with the proposed requirements are estimated to be $14,355 following promulgation of the amendments. The EPA believes that the lime manufacturing plants which are subject to the NESHAP can meet the proposed requirements with minimal additional capital or operational costs. For further information on the requirements being proposed, see section IV of this preamble. Each facility will experience costs to read and understand the rule amendments. Costs associated with the elimination of the SSM exemption were estimated as part of the reporting and recordkeeping costs and include time for re-evaluating previously developed SSM record systems. Costs associated with the requirement to electronically submit notifications and semi-annual compliance reports using CEDRI were estimated as part of the reporting and recordkeeping costs and include time for becoming familiar with CEDRI and the reporting template for semi-annual compliance reports. We solicit comment on these estimated cost impacts.

D. What are the economic impacts?

Economic impact analyses focus on changes in market prices and output levels. If changes in market prices and output levels in the primary markets are significant enough, impacts on other markets may also be examined. Both the magnitude of costs needed to comply with a proposed rule and the distribution of these costs among affected facilities can have a role in determining how the market will change in response to a proposed rule. The total costs associated with reviewing the final rule, meeting the revised recordkeeping and reporting requirements, and complying with the proposed work practice standards are estimated to be $14,355 following promulgation of the final rule. This is an estimated cost of $250 to $2750 per facility, depending on the number of lime kilns operated and the type of controls installed. These costs are not expected to result in a significant market impact, regardless of whether they are passed on to the purchaser or absorbed by the firms. Based on the costs associated with the elimination of the SSM exemption and the costs associated with the requirement to electronically submit compliance reports, we do not anticipate any significant economic impacts from these proposed amendments.

E. What are the benefits?

Although the EPA does not anticipate reductions in HAP emissions as a result of the proposed amendments, we believe that the action, if finalized as proposed, would result in improvements to the rule. Specifically, the proposed amendments revise the standards such that they apply at all times. For facilities who choose to operate under an initial startup period, the EPA is proposing an alternative work practice standard that will ensure that facilities are minimizing emissions while the source operates under non-steady state production, which will protect public health and the environment. Additionally, the proposed amendments requiring electronic submittal of initial notifications, initial startup reports, annual compliance certifications, deviation reports, and performance test results will increase the usefulness of the data, is in keeping with current trends of data availability, will further assist in the protection of public health and the environment, and will ultimately result in less burden on the regulated community. See section IV.D.2 of this preamble for more information.

VI. Request for Comments

We solicit comments on all aspects of this proposed action. In addition to general comments on this proposed action, we are also interested in additional data that may improve the risk assessments and other analyses. We are specifically interested in receiving any improvements to the data used in the site-specific emissions profiles used for risk modeling. Such data should include supporting documentation in sufficient detail to allow characterization of the quality and representativeness of the data or information. Section VII of this preamble provides more information on submitting data.

VII. Submitting Data Corrections

The site-specific emissions profiles used in the source category risk and demographic analyses and instructions are available for download on the RTR website at *https://www.epa.gov/stationary-sources-air-pollution/lime-manufacturing-plants-national-emission-standards-hazardous-air*. The data files include detailed information for each HAP emissions release point for the facilities in the source category.

If you believe that the data are not representative or are inaccurate, please identify the data in question, provide your reason for concern, and provide any "improved" data that you have, if available. When you submit data, we request that you provide documentation of the basis for the revised values to support your suggested changes. To submit comments on the data downloaded from the RTR website, complete the following steps:

1. Within this downloaded file, enter suggested revisions to the data fields appropriate for that information.

2. Fill in the commenter information fields for each suggested revision (*i.e.*, commenter name, commenter organization, commenter email address, commenter phone number, and revision comments).

3. Gather documentation for any suggested emissions revisions (*e.g.*, performance test reports, material balance calculations).

4. Send the entire downloaded file with suggested revisions in Microsoft® Access format and all accompanying documentation to Docket ID No. EPA-HQ-OAR-2017-0015 (through the method described in the **ADDRESSES** section of this preamble).

5. If you are providing comments on a single facility or multiple facilities, you need only submit one file for all facilities. The file should contain all suggested changes for all sources at

that facility (or facilities). We request that all data revision comments be submitted in the form of updated Microsoft® Excel files that are generated by the Microsoft® Access file. These files are provided on the RTR website at *https://www.epa.gov/stationary-sources-air-pollution/lime-manufacturing-plants-national-emission-standards-hazardous-air*.

VIII. Statutory and Executive Order Reviews

Additional information about these statutes and Executive Orders can be found at *https://www.epa.gov/laws-regulations/laws-and-executive-orders*.

A. Executive Order 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 OMB for review.

B. Executive Order 13771: Reducing Regulations and Controlling Regulatory Costs

This action is not expected to be an Executive Order 13771 regulatory action because this action is not significant under Executive Order 12866.

C. *Paperwork Reduction Act (PRA)*

The information collection activities in this proposed rule have been submitted for approval to OMB under the PRA. The ICR document that the EPA prepared has been assigned EPA ICR number 2072.06. You can find a copy of the ICR in the docket for this rule, and it is briefly summarized here.

We are proposing changes to the reporting and recordkeeping requirements for the Lime Manufacturing Plants NESHAP in the form of eliminating the SSM reporting and SSM plan requirements and requiring electronic submittal of all compliance reports (including performance test reports). Any information submitted to the Agency for which a claim of confidentiality is made will be safeguarded according to the Agency policies set forth in title 40, chapter 1, part 2, subpart B - Confidentiality of Business Information (see 40 CFR 2; 41 FR 36902, September 1, 1976; amended by 43 FR 40000, September 8, 1978; 43 FR 42251, September 20, 1978; 44 FR 17674, March 23, 1979).

Respondents/affected entities: Owners and operators of lime manufacturing plants that are major sources, or that are located at, or are part of, major sources of HAP emissions, unless the lime manufacturing plant is located at a kraft pulp mill, soda pulp mill, sulfite pulp mill, sugar beet manufacturing plant, or only processes sludge containing calcium carbonate from water softening processes.

Respondent's obligation to respond: Mandatory (40 CFR part 63, subpart AAAAA).

Estimated number of respondents: On average over the next 3 years, approximately 36 existing major sources will be subject to these standards. It is also estimated that one additional respondent will become subject to the emission standards over the 3-year period.

Frequency of response: The frequency of responses varies depending on the burden item.

Total estimated burden: The average annual burden to industry over the next 3 years from these recordkeeping and reporting requirements is estimated to be 9,690 hours (per year). Burden is defined at 5 CFR 1320.3(b).

Total estimated cost of entire rule: The annual recordkeeping and reporting cost for all facilities to comply with all of the requirements in the NESHAP is estimated to be $1,400,000 (per year), of which $14,355 (first year) is for this proposal, and the rest is for other costs related to continued compliance with the NESHAP including $338,000 in annualized capital and 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.

Submit your comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden to the EPA using the docket identified at the beginning of this rule. You may also send your ICR-related comments to OMB's Office of Information and Regulatory Affairs via email to *OIRA_submission@omb.eop.gov*, Attention: Desk Officer for the EPA. Since OMB is required to make a decision concerning the ICR between 30 and 60 days after receipt, OMB must receive comments no later than **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. The EPA will respond to any ICR-related comments in the final rule.

D. 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. In making this determination, the impact of concern is any significant adverse economic impact on small entities. This action only proposes to eliminate the startup/shutdown exemption and add electronic reporting. Neither of the changes being proposed will impact the small entities. The proposal to remove the startup/shutdown exemption will include proposing a work practice standard for those periods. Based on the controls used at the small entities, they will not be impacted by the proposed work practices. Thus, this action will not impose any requirements on small entities.

E. Unfunded Mandates Reform Act (UMRA)

This action does not contain any unfunded mandate 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 the private sector.

F. 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.

G. Executive Order 13175: Consultation and Coordination with Indian Tribal Governments

This action does not have tribal implications as specified in Executive Order 13175. The EPA does not know of any lime manufacturing facilities owned or operated by Indian tribal governments. Thus, Executive Order 13175 does not apply to this action.

H. 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 III and IV of this preamble and further documented in the risk report titled *Residual Risk Assessment for the Lime Manufacturing Source Category in Support of the 2019 Risk and Technology Review Proposed Rule*, which is available in the docket for this action.

I. 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.

J. National Technology Transfer and Advancement Act (NTTAA) and 1 CFR part 51

This action involves technical standards. The EPA proposes to use ANSI/ASME PTC 19-10-1981 Part 10 (2010), “Flue and Exhaust Gas Analyses,” as an acceptable alternative to EPA Method 3B manual portion only and not the instrumental portion. This standard may be obtained from *http://www.asme.org* or from the American Society of Mechanical Engineers (ASME) at Three Park Avenue, New York, New York 10016-5990.

The EPA proposes to use ASTM D6348-12e1, Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transforn (FTIR) Spectroscopy,” as an alternative to using EPA Method 320 under certain conditions and incorporate this alternative by reference. ASTM D6348-03(2010) was previously determined equivalent to EPA Method 320 with caveats. ASTM D6348-12e1 is a revised version of ASTM D6348-03(2010) and includes a new section on accepting the results from direct measurement of a certified spike gas cylinder, but still lacks the caveats we placed on the ASTM D6348-03(2010) version. The voluntary consensus standard (VCS), ASTM D6348-12e1, “Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transforn (FTIR) Spectroscopy,” is an acceptable alternative to EPA Method 320 at this time with caveats requiring inclusion of selected annexes to the standard as mandatory. When using ASTM D6348-12e1, the conditions that must be met are defined in 40 CFR 63.7142(a)(2). The ASTM D6348-12el standard was developed and adopted by the American Society for Testing and Materials (ASTM). These standards may be obtained from *http://www.astm.org* or from the ASTM at 100 Barr Harbor Drive, Post Office Box C700, West Conshohocken, Pennsylvania 19428-2959.

The EPA also proposes to use ASTM D6735-01, “Standard Test Method for Measurement of Gaseous Chlorides and Fluorides from Mineral Calcining Exhaust Sources Impinger Method,” as an alternative to EPA Method 321 provided that the provisions in 40 CFR 63.7142(a)(4) are followed. The EPA used ASTM D6735-01 for the determination of HCl in EPA Methods 26, 26A, and 321 from mineral calcining exhaust sources. The ASTM D6735-01 standard was developed and adopted by the ASTM. These standards may be obtained from *http://www.astm.org* or from the ASTM at 100 Barr Harbor Drive, Post Office C700, West Conshohocken, Pennsylvania 19428-2959.

The EPA proposes the VCS, ASME PTC 19-10-1981 Part 10 (2010), “Flue and Exhaust Gas Analyses,” as an acceptable alternative to EPA Method 3B manual portion only and not the instrumental portion, and incorporate this alternative by reference. The ASME PTC 19-10-1981 (2010) standard was developed and adopted by the American Society of Mechanical Engineers (ASME). These standards may be obtained from *https://www.asme.org* or from the ASME at Two Park Avenue, New York, New York 10016-5990.

While the EPA has identified another 10 VCS as being potentially applicable to this proposed rule, we have decided not to use these VCS in this rulemaking. The use of these VCS would not be practical due to lack of equivalency, documentation, validation date, and other import technical and policy considerations. See the memorandum titled *Voluntary Consensus Standard Results for NESHAP: Lime Manufacturing Residual Risk and Technology Review*, in the docket for this proposed rule for the reasons for these determinations.

Under 40 CFR 63.7(f) and 40 CFR 63.8(f) of subpart A of the General Provisions, a source may apply to the EPA for permission to use alternative test methods or alternative monitoring requirements in place of any required testing methods, performance specifications, or procedures in the final rule or any amendments.

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

The EPA believes that this action does not have disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, and/or indigenous peoples, as specified in Executive Order 12898 (59 FR 7629, February 16, 1994).

The documentation for this decision is contained in section IV.B of this preamble and the technical report, *Risk and Technology Review Analysis of Demographic Factors for Populations Living Near Lime Manufacturing Source Category Operations*, which is available in the docket for this action.

List of Subjects in 40 CFR Part 63

Environmental protection, Air pollution control, Hazardous substances, Incorporation by reference, Lime kilns, Lime manufacturing, Reporting and recordkeeping requirements.

______________________________.
Dated:

____
Andrew R. Wheeler,
Administrator.

For the reasons stated in the preamble, 40 CFR part 63 is proposed to be amended as follows:

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

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

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

Subpart A – General Provisions

2. Section 63.14 is amended by revising paragraphs (e)(1), (h)(85), (h)(91), (h)(96), and (n)(3) to read as follows:

§63.14 Incorporation by reference.

* * * * *

(e) * * *

(1) ANSI/ASME PTC 19.10-1981 (2010), Flue and Exhaust Gas Analyses [Part 10, Instruments and Apparatus], IBR approved for §§63.309(k), 63.457(k), 63.772(e) and (h), 63.865(b), 63.1282(d) and (g), 63.1625(b), 63.3166(a), 63.3360(e), 63.3545(a), 63.3555(a), 63.4166(a), 63.4362(a), 63.4766(a), 63.4965(a), 63.5160(d), table 4 to subpart UUUU, 63.9307(c), 63.9323(a), 63.11148(e), 63.11155(e), 63.11162(f), 63.11163(g), 63.11410(j), 63.11551(a), 63.11646(a), and 63.11945, table 4 to subpart AAAAA, table 5 to subpart DDDDD, table 4 to subpart JJJJ, table 4 to subpart KKKKK, tables 4 and 5 of subpart UUUUU, table 1 to subpart ZZZZZ, and table 4 to subpart JJJJJ.

* * * * *

(h) * * *

(85) ASTM D6348-12e1, Standard Test Method for Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform Infrared (FTIR) Spectroscopy, Approved February 1, 2012, IBR approved for §§63.1571(a) and 63.7142(a) and (b).

* * * * *

(91) ASTM D6420-99 (Reapproved 2010), Standard Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography-Mass Spectrometry, Approved October 1, 2010, IBR approved for §§63.670(j), 63.7142(b), and appendix A to this part: Method 325B.

* * * * *

(96) ASTM D6735-01 (Reapproved 2009), Standard Test Method for Measurement of Gaseous Chlorides and Fluorides from Mineral Calcining Exhaust Sources—Impinger Method, IBR approved for §63.7142(a), tables 4 and 5 to subpart JJJJJ, and tables 4 and 6 to subpart KKKKK.

* * * * *

(n) * * *

(3) EPA-454/R-98-015, Office of Air Quality Planning and Standards (OAQPS), Fabric Filter Bag Leak Detection Guidance, September 1997, *https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=2000D5T6.PDF*, IBR approved for §§63.548(e), 63.864(e), 63.7113(d), 63.7525(j), 63.8450(e), 63.8600(e), and 63.11224(f).

Subpart AAAAA – [Amended]

3. Section 63.7083 is amended by revising paragraphs (a)(1), (a)(2), and (b) and adding paragraph (e) to read as follows:

§63.7083 When do I have to comply with this subpart?

(a) * * *

(1) If you start up your affected source before January 5, 2004, you must comply with the emission limitations no later than January 5, 2004, and you must have completed all applicable performance tests no later than July 5, 2004, except as noted in paragraphs (e)(1) and (2) of this section.

(2) If you start up your affected source after January 5, 2004, then you must comply with the emission limitations for new affected sources upon startup of your affected source and you must have completed all applicable performance tests no later than 180 days after startup, except as noted in paragraphs (e)(1) and (2) of this section.

(b) If you have an existing affected source, you must comply with the applicable emission limitations for the existing affected source, and you must have completed all applicable performance tests no later than January 5, 2007, except as noted in paragraphs (e)(1) and (2) of this section.

* * * * *

(e)(1) If the start up of your existing, new, or reconstructed source occurs on or before **[DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER**], then the compliance date for the revised requirements promulgated at §§63.7090, 63.7100, 63.7112, 63.7113, 63.7121, 63.7131, 63.7132, 63.7140, 63.7141, 63.7142, and 63.7143 and Tables 1, 2, 3, 4, 6, 7, and 8 of 40 CFR 63, subpart AAAAA, published on **[DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER**] for both new and existing sources is **[DATE 180 DAYS AFTER THE DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**.

(2) If the initial start up of your new or reconstructed source occurs after **[DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER**], then the compliance

date for the revised requirements promulgated at §§63.7090, 63.7100, 63.7112, 63.7113, 63.7121, 63.7131, 63.7132, 63.7140, 63.7141, 63.7142, and 63.7143 and Tables 1, 2, 3, 4, 6, 7, and 8 of 40 CFR 63, subpart AAAAA, published on **[DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER**] is **[DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER**] or the date of startup, whichever is later.

4. Section 63.7090 is amended by adding paragraph (c) to read as follows:

§63.7090 What emission limitations must I meet?

* * * * *

(c) After **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, during periods of startup and shutdown you must meet the requirements listed in paragraphs (c)(1) through (6) of this section.

(1) During startup you must fire your kiln with any one or combination of the following clean fuels: natural gas, synthetic natural gas, propane, distillate oil, synthesis gas (syngas), or ultra-low sulfur diesel (ULSD) until the kiln reaches a temperature of 1200 degrees Fahrenheit.

(2) Combustion of the primary kiln fuel may commence once the kiln temperature reaches 1200 degrees Fahrenheit.

(3) Kilns and coolers (if there is a separate exhaust to the atmosphere from the associated lime cooler) equipped with a fabric filter (FF) must comply with the opacity operating limit in Table 2 in lieu of the particulate (PM) emission limits.

(4) Kilns and coolers (if there is a separate exhaust to the atmosphere from the associated lime cooler) equipped with a wet scrubber must meet the scrubber liquid flow rate operating limit in Table 2 in lieu of the PM emission limits.

(5) For kilns and coolers (if there is a separate exhaust to the atmosphere from the associated lime cooler) equipped with an electrostatic precipitator (ESP), the ESP must be turned on and operating at the time the gas stream at the inlet to the ESP reaches 300 degrees Fahrenheit (five-minute average) during startup. Temperature of the gas stream is to be measured at the inlet of the ESP every minute.

(6) You must keep records as specified in §63.7132 during periods of startup and shutdown.

5. Section 63.7100 is amended by revising paragraphs (a), (b), (c), (d)(3), (d)(4)(iii), and (e) to read as follows:

§63.7100 What are my general requirements for complying with this subpart?

(a) Prior to **[DATE 181 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, you must be in compliance with the emission limitations (including operating limits) in this subpart at all times, except during periods of startup, shutdown, and malfunction. After **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, you must be in compliance with the applicable emission limitations (including operating limits and work practices) at all times.

(b) Prior to **[DATE 181 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, you must be in compliance with the opacity and visible emission (VE) limits in this subpart at all times, except during periods of startup, shutdown, and malfunction. After **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, you must be in compliance with the applicable opacity and VE limits (including work practices) at all times.

(c) Prior to **[DATE 181 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, you must always operate and maintain your affected source, including air pollution control and monitoring equipment, according to the provisions in §63.6(e)(1)(i). After **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, you must always 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. The general duty to minimize emissions does not require the owner or operator to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved. 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.

(d) * * *

(3) Procedures for the proper operation and maintenance of each emission unit and each air pollution control device used to meet the applicable emission limitations and operating limits in Tables 1 and 2 to this subpart, respectively. After **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, your OM&M plan must address periods of startup and shutdown.

(4) * * *

(iii) Prior to **[DATE 181 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, ongoing operation and maintenance procedures in accordance with the general requirements of §63.8(c)(1)(i) and (ii), (3), and (4)(ii). After **[DATE**

180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER], ongoing operation and maintenance procedures in accordance with the general requirements of paragraph (c) of this section and §§63.8(c)(1)(ii), (3), and (4)(ii); and

* * * * *

(e) For affected sources until **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, you must develop a written startup, shutdown, and malfunction plan (SSMP) according to the provisions in §63.6(e)(3).

6. Section 63.7112 is amended by revising paragraphs (b), (c), (k)(3), and (l) and adding paragraph (m).

§63.7112 What performance tests, design evaluations, and other procedures must I use?

* * * * *

(b) Prior to **[DATE 181 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, each performance test must be conducted according to the requirements in §63.7(e)(1) and under the specific conditions specified in Table 4 to this subpart. After **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, each performance test must be conducted based on representative performance (*i.e.*, performance based on normal operating conditions) of the affected source and under the specific conditions in Table 4 to this subpart. Representative conditions exclude periods of startup and shutdown. The owner or operator may not conduct performance tests during periods of malfunction. The owner or operator must record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent normal operation. Upon request, the owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

(c) Prior to **[DATE 181 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, you may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in §63.7(e)(1). After **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, during startup and shutdown, you must follow the requirements in §63.7090(c).

* * * * *

(k) * * *

(3) The observer conducting the VE checks need not be certified to conduct EPA Method 9 in appendix A-4 to part 60 of this chapter, but must meet the training requirements as described in EPA Method 22 in appendix A-7 to part 60 of this chapter.

(l) When determining compliance with the opacity standards for fugitive emissions from PSH operations in item 8 of Table 1 to this subpart, you must conduct EPA Method 9 in appendix A-4 to part 60 of this chapter according to item 17 in Table 4 to this subpart, and in accordance with paragraphs (l)(1) through (3) of this section.

* * * * *

(m) After to **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, for kilns and coolers equipped with an ESP, the run average temperature must be calculated for each run, and the average of the run average temperatures must be determined and included in the performance test report and will be used to determine compliance with §63.7090(c)(5).

7. Section 63.7113 is amended by:

a. Redesignating paragraphs (d)(3) through (d)(8) as paragraphs (d)(4) through (d)(9).

b. Adding new paragraph (d)(3).

c. Revising newly designated paragraphs (d)(7) through (d)(9).

d. Adding new paragraphs (d)(1) and (h).

The revisions and additions read as follows:

§63.7113 What are my monitoring installation, operation, and maintenance requirements?

* * * * *

(d) * * *

(3) The BLDS must be equipped with a device to continuously record the output signal from the sensor.

* * * * *

(7) Each triboelectric BLDS must be installed, calibrated, operated, and maintained according to EPA–454/R–98–015, "Fabric Filter Bag Leak Detection Guidance," (incorporated by reference—see §63.14). Other types of bag leak detection systems must be installed, operated, calibrated, and maintained according to the manufacturer's written specifications and recommendations. Standard operating procedures must be incorporated into the OM&M plan.

(8) At a minimum, initial adjustment of the system must consist of establishing the baseline output in both of the following ways, according to section 5.0 of the EPA–454/R–98–015, "Fabric Filter Bag Leak Detection Guidance," (incorporated by reference--see §63.14):

* * * * *

(9) After initial adjustment, the sensitivity or range, averaging period, alarm set points, or alarm delay time may not be adjusted except as specified in the OM&M plan required by

§63.7100(d). In no event may the range be increased by more than 100 percent or decreased by more than 50 percent over a 365-day period unless such adjustment follows a complete FF inspection that demonstrates that the FF is in good operating condition, as defined in section 5.2 of the "Fabric Filter Bag Leak Detection Guidance," (incorporated by reference—see §63.14). Record each adjustment.

(10) Record the results of each inspection, calibration, and validation check.

* * * * *

(h) After **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, for kilns and coolers equipped with an ESP, you must demonstrate compliance with the startup requirements in §63.7090(c)(5) by meeting the requirements of paragraphs (i)(1) through (5) of this section.

(1) You must install, calibrate, maintain, and continuously operate a CMS to record the temperature of the exhaust gases at the inlet to, or upstream of, the ESP.

(2) The temperature recorder response range must include zero and 1.5 times the average temperature established during your performance test according to the requirements in §63.7112(m).

(3) The calibration reference for the temperature measurement must be a National Institute of Standards and Technology calibrated reference thermocouple-potentiometer system or alternate reference, subject to approval by the Administrator.

(4) The calibration of all thermocouples and other temperature sensors must be verified at least once every three months.

(5) You must monitor and continuously record the temperature of the exhaust gases from the kiln and cooler, if applicable, at the inlet to the kiln and/or cooler ESP.

8. Section 63.7121 is amended by revising paragraphs (b) and (d) to read as follows:

§63.7121 How do I demonstrate continuous compliance with the emission limitations standard?

* * * * *

(b) You must report each instance in which you did not meet each operating limit, work practice, opacity limit, and VE limit in Tables 2 and 6 to this subpart that applies to you. This includes periods of startup, shutdown, and malfunction. These instances are deviations from the emission limitations in this subpart. These deviations must be reported according to the requirements in §63.7131.

* * * * *

(d) Prior to **[DATE 181 DAYS AFTER THE DATE OF PUBLICATION OF FINAL RULE IN FEDERAL REGISTER]**, consistent with §§63.6(e) and 63.7(e)(1), deviations that occur during a period of startup, shutdown, or malfunction are not violations if you demonstrate to the Administrator's satisfaction that you were operating in accordance with §63.6(e)(1). The Administrator will determine whether deviations that occur during a period of startup, shutdown, or malfunction are violations, according to the provisions in §63.6(e).

9. Section 63.7130 is amended by revising paragraph (e) to read as follows:

§63.7130 What notifications must I submit and when?

* * * * *

(e) If you are required to conduct a performance test, design evaluation, opacity observation, VE observation, or other initial compliance demonstration as specified in Table 3 or 4 to this subpart, you must submit a Notification of Compliance Status according to §63.9(h)(2)(ii). Beginning on **[INSERT DATE 180 DAYS AFTER DATE OF**

PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER], submit all subsequent Notification of Compliance Status following the procedure specified in §63.7131(h).

*   *   *   *   *

10. Section 63.7131 is amended by:

a. Revising paragraph (b).

b. Adding paragraph (b)(6).

c. Revising paragraphs (c)(4) through (c)(6).

d. Revising paragraphs (d), (e), and (e)(2).

e. Adding paragraph (e)(12)

f. Revising paragraph (f).

g. Adding paragraphs (g) through (j).

The revisions and additions read as follows:

§63.7131 What reports must I submit and when?

*   *   *   *   *

(b) Unless the Administrator has approved a different schedule for submission of reports under §63.10(a), you must submit each report by the date specified in Table 7 to this subpart and according to the requirements in paragraphs (b)(1) through (6) of this section:

*   *   *   *   *

(6) Beginning on **[INSERT DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, submit all subsequent compliance reports following the procedure specified in paragraph (h) of this section.

(c) *   *   *

(4) Prior to **[DATE 181 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, if you had a startup, shutdown, or malfunction during the reporting period and you took actions consistent with your SSMP, the compliance report must include the information in §63.10(d)(5)(i).

(5) If there were no deviations from any emission limitations (emission limit, operating limit, work practice, opacity limit, and VE limit) that apply to you, the compliance report must include a statement that there were no deviations from the emission limitations during the reporting period.

(6) If there were no periods during which the continuous monitoring systems (CMS), including CPMS, were out-of-control as specified in §63.8(c)(7), a statement that there were no periods during which the CMS were out-of-control during the reporting period.

(d) For each deviation from an emission limitation (emission limit, operating limit, work practice, opacity limit, and VE limit) that occurs at an affected source where you are not using a CMS to comply with the emission limitations in this subpart, the compliance report must contain the information specified in paragraphs (c)(1) through (4) and (d)(1) and (2) of this section. The deviations must be reported in accordance with the requirements in §63.10(d) prior to **[DATE 181 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]** and the requirements in §63.10(d)(1)-(4) after **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**.

(1) The total operating time of each emission unit during the reporting period.

(2) Information on the number, duration, and cause of deviations (including unknown cause, if applicable), and the corrective action taken.

(3) An estimate of the quantity of each regulated pollutant emitted over any emission limit, and a description of the method used to estimate the emissions.

(e) For each deviation from an emission limitation (emission limit, operating limit, work practice, opacity limit, and VE limit) occurring at an affected source where you are using a CMS to comply with the emission limitation in this subpart, you must include the information specified in paragraphs (c)(1) through (4) and (e)(1) through (11) of this section, except that after **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]** the semiannual compliance report must also include the information included in paragraph (e)(12) of this section. This includes periods of startup, shutdown, and malfunction.

* * * * *

(2) The date, time, and duration that each CMS was inoperative, except for zero (low-level) and high-level checks.

* * * * *

(12) An estimate of the quantity of each regulated pollutant emitted over any emission limit, and a description of the method used to estimate the emissions.

(f) Each facility that has obtained a title V operating permit pursuant to part 70 or part 71 of this chapter must report all deviations as defined in this subpart in the semiannual monitoring report required by §§70.6(a)(3)(iii)(A) or 71.6(a)(3)(iii)(A) of this chapter. If you submit a compliance report specified in Table 7 to this subpart along with, or as part of, the semiannual monitoring report required by §§70.6(a)(3)(iii)(A) or 71.6(a)(3)(iii)(A) of this chapter, and the compliance report includes all required information concerning deviations from any emission limitation (including any operating limit and work practice), submission of the compliance report shall be deemed to satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submission of a compliance report shall not otherwise affect any obligation you may have to report deviations from permit requirements to the permit authority.

(g) If you are required to submit reports following the procedure specified in this paragraph, you must submit reports to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI), which can be accessed through the EPA's Central Data Exchange (CDX) (*https://cdx.epa.gov/*). You must use the appropriate electronic report template on the CEDRI website (*https://www.epa.gov/electronic-reporting-air-emissions/compliance-and-emissions-data-reporting-interface-cedri*) for this subpart. The date report templates become available will be listed on the CEDRI website. The report must be submitted by the deadline specified in this subpart, regardless of the method in which the report is submitted. If you claim some of the information required to be submitted via CEDRI is confidential business information (CBI), submit a complete report, including information claimed to be CBI, to the EPA. The report must be generated using the appropriate form on the CEDRI website. Submit the file on a compact disc, flash drive, or other commonly used electronic storage medium and clearly mark the medium as CBI. Mail the electronic medium to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described earlier in this paragraph.

(h) *Performance Tests.* Within 60 days after the date of completing each performance test required by this subpart, you must submit the results of the performance test following the procedures specified in paragraphs (h)(1) through (3) of this section.

(1) *Data collected using test methods supported by the EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT website (https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert) at the time of the test.* Submit the results of the performance test to the EPA via CEDRI, which can be accessed through the EPA's CDX (*https://cdx.epa.gov/*). The data must be submitted in a file format generated through the use of the EPA's ERT. Alternatively, you may submit an electronic file consistent with the extensible markup language (XML) schema listed on the EPA's ERT website.

(2) *Data collected using test methods that are not supported by the EPA's ERT as listed on the EPA's ERT website at the time of the test.* The results of the performance test must be included as an attachment in the ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT website. Submit the ERT generated package or alternative file to the EPA via CEDRI.

(3) *Confidential business information (CBI)*. If you claim some of the information submitted under paragraph (i) of this section is CBI, you must submit a complete file, including information claimed to be CBI, to the EPA. The file must be 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 website. Submit the file on a compact disc, flash drive, or other commonly used electronic storage medium and clearly mark the medium as CBI. Mail the electronic medium to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described in paragraph (i) of this section.

(i) If you are required to electronically submit a report or notification through CEDRI in the EPA's CDX, you may assert a claim of EPA system outage for failure to timely comply with the reporting requirement. To assert a claim of EPA system outage, you must meet the requirements outlined in paragraphs (i)(1) through (7) of this section.

(1) You must have been or will be precluded from accessing CEDRI and submitting a required report within the time prescribed due to an outage of either the EPA's CEDRI or CDX systems.

(2) The outage must have occured within the period of time beginning five business days prior to the date that the submission is due.

(3) The outage may be planned or unplanned.

(4) You must submit notification to the Administrator in writing as soon as possible following the date you first knew, or through due diligence should have known, that the event may cause or has caused a delay in reporting.

(5) You must provide to the Administrator a written description identifying:

(i) The date(s) and time(s) when CDX or CEDRI was accessed and the system was unavailable;

(ii) A rationale for attributing the delay in reporting beyond the regulatory deadline to EPA system outage;

(iii) Measures taken or to be taken to minimize the delay in reporting; and

(iv) The date by which you propose to report, or if you have already met the reporting requirement at the time of the notification, the date you reported.

(6) The decision to accept the claim of EPA system outage and allow an extension to the reporting deadline is solely within the discretion of the Administrator.

(7) In any circumstance, the report must be submitted electronically as soon as possible after the outage is resolved.

(j) *Claims of force majeure.* If you are required to electronically submit a report through CEDRI in the EPA's CDX, you may assert a claim of force majeure for failure to timely comply with the reporting requirement. To assert a claim of force majuere, you must meet the requirements outlined in paragraphs (j)(1) through (5) of this section.

(1) You may submit a claim if a force majeure event is about to occur, occurs, or has occurred or there are lingering effects from such an event within the period of time beginning five business days prior to the date the submission is due. For the purposes of this section, a force majeure event is defined as an event that will be or has been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevents you from complying with the requirement to submit a report electronically within the time period prescribed. Examples of such events are acts of nature (e.g., hurricanes, earthquakes, or floods), acts of war or terrorism, or equipment failure or safety hazard beyond the control of the affected facility (*e.g.*, large scale power outage).

(2) You must submit notification to the Administrator in writing as soon as possible following the date you first knew, or through due diligence should have known, that the event may cause or has caused a delay in reporting.

(3) You must provide to the Administrator:

(i) A written description of the force majeure event;

(ii) A rationale for attributing the delay in reporting beyond the regulatory deadline to the force majeure event;

(iii) Measures taken or to be taken to minimize the delay in reporting; and

(iv) The date by which you propose to report, or if you have already met the reporting requirement at the time of the notification, the date you reported.

(4) The decision to accept the claim of force majeure and allow an extension to the reporting deadline is solely within the discretion of the Administrator.

(5) In any circumstance, the reporting must occur as soon as possible after the force majeure event occurs.

11. Section 63.7132 is amended by revising paragraph (a)(2) to read as follows:

§63.7132 What records must I keep?

(a) * * *

(2) Prior to **[DATE 181 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, the records in §63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction. After **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, the records in paragraphs (a)(2)(i) through (iii) of this section.

(i) You must keep records of the date, time and duration of each startup and/or shutdown period for any affected source that is subject to a standard during startup or shutdown that differs from the standard applicable at other times.

(ii) You must keep records of the date, time, cause and duration of each malfunction that causes an affected source to fail to meet an applicable standard; if there was also a monitoring malfunction, the date, time, cause, and duration of the monitoring malfunction; the record must list 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 a standard, and a description of the method used to estimate the emissions.

(iii) For kilns and coolers equipped with an ESP, the average of the run average temperatures determined in accordance with §63.7112(m) must be recorded.

*   *   *   *   *

12. Section 63.7133 is amended by adding paragraph (d) to read as follows:

§63.7133 In what form and for how long must I keep my records?

*   *   *   *   *

(d) Any records required to be maintained by this part that are submitted electronically via the EPA's CEDRI may be maintained in electronic format. This ability to maintain electronic copies does not affect the requirement for facilities to make records, data, and reports available upon request to a delegated air agency or the EPA as part of an on-site compliance evaluation.

13. Section 63.7140 is amended to read as follows:

§63.7140 What parts of the General Provisions apply to me?

Table 8 to this subpart shows which parts of the General Provisions in §§63.1 through 63.16 apply to you. When there is overlap between 40 CFR part 63, subpart A, and 40 CFR part 63, subpart AAAAA, as indicated in the "Explanations" column in Table 8, 40 CFR part 63, subpart AAAAA takes precedence.

14. Section 63.7141 is amended by:

a. Revising paragraph (c).

b. Redesignating paragraphs (c)(4) through (c)(6) as paragraphs (c)(5) through (c)(7).

c. Adding new paragraph (c)(4).

d. Adding paragraph (c)(8).

The revisions and additions read as follows:

§63.7141 Who implements and enforces this subpart?

*   *   *   *   *

(c) The authorities that will not be delegated to state, local, or tribal agencies are as specified in paragraphs (c)(1) through (8) of this section.

*   *   *   *   *

(4) Approval of alternatives to the work practices in §63.7090(c).

*   *   *   *   *

(8) Approval of an alternative to any electronic reporting to the EPA required by this subpart.

15. Section 63.7142 is amended by:

a. Revising paragraph (a)(1).

b. Redesignating paragraphs (a)(2) and (a)(3) as paragraphs (a)(3) and (a)(4).

c. Adding new paragraph (a)(2).

d. Revising newly designated paragraphs (a)(4), (a)(4)(i), and (a)(4)(v).

e. Redesignating paragraphs (b)(2) and (b)(3) as paragraphs (b)(3) and (b)(4).

f. Adding new paragraph (b)(2).

g. Revising newly designated paragraphs (b)(3), (b)(4), (b)(4)(i) through (b)(4)(iii).

h. Removing newly designated paragraph (b)(4)(iv).

The revisions and additions read as follows:

§63.7142 What are the requirements for claiming area source status?

(a) *   *   *

(1) EPA Method 320 of appendix A to this part, or

(2) As an alternative to EPA Method 320, ASTM D6348–12e1, Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform (FTIR) Spectroscopy

(incorporated by reference—see §63.14), provided that the provisions of paragraphs (a)(2)(i) and (ii) of this section are followed:

(i) The test plan preparation and implementation in the Annexes to ASTM D 6348–03, Sections A1 through A8 are mandatory.

(ii) In ASTM D6348–03 Annex A5 (Analyte Spiking Technique), the percent recovery (%R) must be determined for each target analyte (Equation A5.5). In order for the test data to be acceptable for a compound, %R must be greater than or equal to 70 percent and less than or equal to 130 percent. If the %R value does not meet this criterion for a target compound, the test data are not acceptable for that compound and the test must be repeated for that analyte (i.e., the sampling and/or analytical procedure should be adjusted before a retest). The %R value for each compound must be reported in the test report, and all field measurements must be corrected with the calculated %R value for that compound by using the following equation: Reported Results = ((Measured Concentration in the Stack))/(%R) x 100; or

* * * * *

(4) As an alternative to EPA Method 321, ASTM Method D6735-01 (Reapproved 2009), Standard Test Method for Measurement of Gaseous Chlorides and Fluorides from Mineral Calcining Exhaust Sources—Impinger Method (incorporated by reference – see §63.14), provided that the provisions in paragraphs (a)(3)(i) through (vi) of this section are followed.

(i) A test must include three or more runs in which a pair of samples is obtained simultaneously for each run according to section 11.2.6 of ASTM Method D6735-01 (Reapproved 2009).

* * * * *

(v) The post-test analyte spike procedure of section 11.2.7 of ASTM Method D6735-01 (Reapproved 2009) is conducted, and the percent recovery is calculated according to section 12.6 of ASTM Method D6735-01 (Reapproved 2009).

*　*　*　*　*

(b) *　*　*

(2) As an alternative to Method 320, ASTM D6348–12e1, Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform (FTIR) Spectroscopy (incorporated by reference—see §63.14), provided that the provisions of paragraphs, provided that the provisions of paragraphs (b)(2)(i) and (ii) of this section are followed:

(i) The test plan preparation and implementation in the Annexes to ASTM D 6348–12e1, Sections A1 through A8 are mandatory.

(ii) In ASTM D6348–12e1 Annex A5 (Analyte Spiking Technique), the percent recovery (%R) must be determined for each target analyte (Equation A5.5). In order for the test data to be acceptable for a compound, %R must be greater than or equal to 70 percent and less than or equal to 130 percent. If the %R value does not meet this criterion for a target compound, the test data are not acceptable for that compound and the test must be repeated for that analyte (i.e., the sampling and/or analytical procedure should be adjusted before a retest). The %R value for each compound must be reported in the test report, and all field measurements must be corrected with the calculated %R value for that compound by using the following equation: Reported Results = ((Measured Concentration in the Stack))/(%R) x 100;

(3) Method 18 of appendix A-6 to part 60 of this chapter; or

(4) As an alternative to Method 18, ASTM D6420-99 (Reapproved 2010), Standard Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas

Chromatography-Mass Spectrometry (GC/MS) (incorporated by reference – see §63.14), provided that the provisions of paragraphs (b)(3)(i) through (iv) of this section are followed:

(i) The target compound(s) are those listed in section 1.1 of ASTM D6420-99 (Reapproved 2010) as measurable;

(ii) This ASTM should not be used for methane and ethane because their atomic mass is less than 35; and

(iii) ASTM D6420 (Reapproved 2010) should never be specified as a total VOC.

* * * * *

16. Section 63.7143 is amended by:

a. Revising paragraph (3) under the definition of "Deviation."

b. Revising the definition of "Emission limitation."

c. Adding in alphabetical order definitions for "Shutdown" and "Startup."

The revisions read as follows:

§63.7143 What definitions apply to this subpart?

* * * * *

Deviation * * *

* * * * *

(3) Prior to **[Date 181 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]** fails to meet any emission limitation (including any operating limit or work practice) in this subpart during startup, shutdown, or malfunction, regardless of whether or not such failure is allowed by this subpart.

Emission limitation means any emission limit, opacity limit, operating limit, work practice, or VE limit.

* * * * *

Shutdown means the cessation of kiln operation. Shutdown begins when feed to the kiln is halted and ends when continuous kiln rotation ceases.

* * * * *

Startup means the time from when a shutdown kiln first begins firing fuel. Startup begins when a shutdown kiln turns on the induced draft fan and begins firing fuel in the main burner. Startup ends 60 minutes after the lime kiln generates lime product.

* * * * *

17. Table 1 to subpart AAAAA is amended to read as follows:

Table 1 to Subpart AAAAA of Part 63—Emission Limits

As required in §63.7090(a), you must meet each emission limit in the following table that applies to you.

For . . .	You must meet the following emission limit
1. Existing lime kilns and their associated lime coolers that did not have a wet scrubber installed and operating prior to January 5, 2004	PM emissions must not exceed 0.12 pounds per ton of stone feed (lb/tsf).
2. Existing lime kilns and their associated lime coolers that have a wet scrubber, where the scrubber itself was installed and operating prior to January 5, 2004	PM emissions must not exceed 0.60 lb/tsf. If, at any time after January 5, 2004, the kiln changes to a dry control system, then the PM emission limit in item 1 of this Table 1 applies, and the kiln is hereafter ineligible for the PM emission limit in item 2 of this Table 1 regardless of the method of PM control.
3. New lime kilns and their associated lime coolers	PM emissions must not exceed 0.10 lb/tsf.
4. All existing and new lime kilns and their associated coolers at your LMP, and you choose to average PM emissions, except that any kiln that is allowed to meet the 0.60 lb/tsf PM emission limit is ineligible for averaging	Weighted average PM emissions calculated according to Eq. 2 in §63.7112 must not exceed 0.12 lb/tsf (if you are averaging only existing kilns) or 0.10 lb/tsf (if you are averaging only new kilns). If you are averaging existing and new kilns, your weighted average PM emissions must not exceed the weighted average emission limit calculated according to Eq. 3 in §63.7112, except that no new kiln

	and its associated cooler considered alone may exceed an average PM emissions limit of 0.10 lb/tsf.
5. All new and existing lime kilns and their associated coolers during startup and shutdown	After **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, work practices in §63.7090(c).
6. Stack emissions from all PSH operations at a new or existing affected source	PM emissions must not exceed 0.05 grams per dry standard cubic meter (g/dscm).
7. Stack emissions from all PSH operations at a new or existing affected source, unless the stack emissions are discharged through a wet scrubber control device	Emissions must not exceed 7 percent opacity.
8. Fugitive emissions from all PSH operations at a new or existing affected source, except as provided by item 9 of this Table 1	Emissions must not exceed 10 percent opacity.
9. All PSH operations at a new or existing affected source enclosed in a building	All of the individually affected PSH operations must comply with the applicable PM and opacity emission limitations in items 6 through 8 of this Table 1, or the building must comply with the following: There must be no VE from the building, except from a vent; and vent emissions must not exceed the stack emissions limitations in items 6 and 7 of this Table 1.
10. Each FF that controls emissions from only an individual, enclosed storage bin	Emissions must not exceed 7 percent opacity.
11. Each set of multiple storage bins at a new or existing affected source, with combined stack emissions	You must comply with the emission limits in items 6 and 7 of this Table 1.

18. Table 2 of subpart AAAAA is amended by adding an entry for “7” to read as follows:

Table 2 to Subpart AAAAA of Part 63—Operating Limits

As required in §63.7090(b), you must meet each operating limit in the following table that applies to you.

For . . .	You must . . .
1. Each lime kiln and each lime cooler (if there is a separate exhaust to the	Maintain and operate the FF such that the BLDS or PM detector alarm condition does not exist for more than 5 percent of the total operating time in a 6-month period;

atmosphere from the associated lime cooler) equipped with an FF	and comply with the requirements in §63.7113(d) through (f) and Table 5 to this subpart. In lieu of a BLDS or PM detector maintain the FF such that the 6-minute average opacity for any 6-minute block period does not exceed 15 percent; and comply with the requirements in §63.7113(f) and (g) and Table 5 to this subpart.
2. Each lime kiln equipped with a wet scrubber	Maintain the 3-hour block exhaust gas stream pressure drop across the wet scrubber greater than or equal to the pressure drop operating limit established during the most recent PM performance test; and maintain the 3-hour block scrubbing liquid flow rate greater than the flow rate operating limit established during the most recent performance test.
3. Each lime kiln equipped with an electrostatic precipitator	Install a PM detector and maintain and operate the ESP such that the PM detector alarm is not activated and alarm condition does not exist for more than 5 percent of the total operating time in a 6-month period, and comply with §63.7113(e); or, maintain the ESP such that the 6-minute average opacity for any 6-minute block period does not exceed 15 percent, and comply with the requirements in §63.7113(g); and comply with the requirements in §63.7113(f) and Table 5 to this subpart.
4. Each PSH operation subject to a PM limit which uses a wet scrubber	Maintain the 3-hour block average exhaust gas stream pressure drop across the wet scrubber greater than or equal to the pressure drop operating limit established during the PM performance test; and maintain the 3-hour block average scrubbing liquid flow rate greater than or equal to the flow rate operating limit established during the performance test.
5. All affected sources	Prepare a written OM&M plan; the plan must include the items listed in §63.7100(d) and the corrective actions to be taken when required in Table 5 to this subpart.
6. Each emission unit equipped with an add-on air pollution control device	a. Vent captured emissions through a closed system, except that dilution air may be added to emission streams for the purpose of controlling temperature at the inlet to an FF; and b. Operate each capture/collection system according to the procedures and requirements in the OM&M plan.

7. During startup and shutdown, each lime kiln and each lime cooler (if there is a separate exhaust to the atmosphere from the associated lime cooler) subject to an emission limit that is equipped with an add-on air pollution control device	After **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, meet the work practice requirements in §63.7090(c).

19. Table 4 of subpart AAAAA is amended by revising the entry for “3,” “5,” and “6” to read as follows:

Table 4 to Subpart AAAAA of Part 63—Requirements for Performance Tests

As required in §63.7112, you must conduct each performance test in the following table that applies to you.

For . . .	You must . . .	Using . . .	According to the following requirements . . .
1. Each lime kiln and each associated lime cooler, if there is a separate exhaust to the atmosphere from the associated lime cooler	Select the location of the sampling port and the number of traverse ports	Method 1 or 1A of appendix A to part 60 of this chapter; and §63.6(d)(1)(i)	Sampling sites must be located at the outlet of the control device(s) and prior to any releases to the atmosphere.
2. Each lime kiln and each associated lime cooler, if there is a separate exhaust to the atmosphere from the associated lime cooler	Determine velocity and volumetric flow rate	Method 2, 2A, 2C, 2D, 2F, or 2G in appendix A to part 60 of this chapter	Not applicable.
3. Each lime kiln and each associated lime cooler, if there is a separate exhaust to the atmosphere from the associated lime cooler	Conduct gas molecular weight analysis	Method 3, 3A, or 3B in appendix A to part 60 of this chapter	You may use ASME PTC 19.10-1981 - Part 10 (available for purchase from Three Park Avenue, New York, NY 10016-5990) as an alternative to using the manual procedures (but not instrumental procedures) in Method 3B.
4. Each lime kiln and each associated lime cooler, if there	Measure moisture	Method 4 in appendix A to part 60 of this chapter	Not applicable.

is a separate exhaust to the atmosphere from the associated lime cooler	content of the stack gas		
5. Each lime kiln and each associated lime cooler, if there is a separate exhaust to the atmosphere from the associated lime cooler, and which uses a negative pressure PM control device	Measure PM emissions	Method 5 in appendix A to part 60 of this chapter	Conduct the test(s) when the source is operating at representative operating conditions in accordance with §63.7(e) before **[DATE 181 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]** and §63.7112(b) after **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**; the minimum sampling volume must be 0.85 dry standard cubic meter (dscm) (30 dry standard cubic foot (dscf)); if there is a separate lime cooler exhaust to the atmosphere, you must conduct the Method 5 test of the cooler exhaust concurrently with the kiln exhaust test.
6. Each lime kiln and each associated lime cooler, if there is a separate exhaust to the atmosphere from the associated lime cooler, and which uses a positive pressure FF or ESP	Measure PM emissions	Method 5D in appendix A to part 60 of this chapter	Conduct the test(s) when the source is operating at representative operating conditions in accordance with §63.7(e) **[DATE 181 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]** and §63.7112(b) after **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**; if there is a separate lime cooler exhaust to the atmosphere, you must conduct the Method 5 test of the

			separate cooler exhaust concurrently with the kiln exhaust test.
7. Each lime kiln	Determine the mass rate of stone feed to the kiln during the kiln PM emissions test	Any suitable device	Calibrate and maintain the device according to manufacturer's instructions; the measuring device used must be accurate to within ±5 percent of the mass rate of stone feed over its operating range.
8. Each lime kiln equipped with a wet scrubber	Establish the operating limit for the average gas stream pressure drop across the wet scrubber	Data for the gas stream pressure drop measurement device during the kiln PM performance test	The continuous pressure drop measurement device must be accurate within plus or minus 1 percent; you must collect the pressure drop data during the period of the performance test and determine the operating limit according to §63.7112(j).
9. Each lime kiln equipped with a wet scrubber	Establish the operating limit for the average liquid flow rate to the scrubber	Data from the liquid flow rate measurement device during the kiln PM performance test	The continuous scrubbing liquid flow rate measuring device must be accurate within plus or minus 1 percent; you must collect the flow rate data during the period of the performance test and determine the operating limit according to §63.7112(j).
10. Each lime kiln equipped with a FF or ESP that is monitored with a PM detector	Have installed and have operating the BLDS or PM detector prior to the performance test	Standard operating procedures incorporated into the OM&M plan	According to the requirements in §63.7113(d) or (e), respectively.
11. Each lime kiln equipped with a FF or ESP that is monitored with a COMS	Have installed and have operating the COMS prior to the performance test	Standard operating procedures incorporated into the OM&M plan and as required by 40 CFR part 63, subpart A, General Provisions and according to PS-1 of appendix B to part 60 of this chapter, except as	According to the requirements in §63.7113(g).

		specified in §63.7113(g)(2)	
12. Each stack emission from a PSH operation, vent from a building enclosing a PSH operation, or set of multiple storage bins with combined stack emissions, which is subject to a PM emission limit	Measure PM emissions	Method 5 or Method 17 in appendix A to part 60 of this chapter	The sample volume must be at least 1.70 dscm (60 dscf); for Method 5, if the gas stream being sampled is at ambient temperature, the sampling probe and filter may be operated without heaters; and if the gas stream is above ambient temperature, the sampling probe and filter may be operated at a temperature high enough, but no higher than 121 °C (250 °F), to prevent water condensation on the filter (Method 17 may be used only with exhaust gas temperatures of not more than 250 °F).
13. Each stack emission from a PSH operation, vent from a building enclosing a PSH operation, or set of multiple storage bins with combined stack emissions, which is subject to an opacity limit	Conduct opacity observations	Method 9 in appendix A to part 60 of this chapter	The test duration must be for at least 3 hours and you must obtain at least thirty, 6-minute averages.
14. Each stack emissions source from a PSH operation subject to a PM or opacity limit, which uses a wet scrubber	Establish the average gas stream pressure drop across the wet scrubber	Data for the gas stream pressure drop measurement device during the PSH operation stack PM performance test	The pressure drop measurement device must be accurate within plus or minus 1 percent; you must collect the pressure drop data during the period of the performance test and determine the operating limit according to §63.7112(j).
15. Each stack emissions source from a PSH operation subject to a PM or opacity	Establish the operating limit for the average liquid flow rate to the scrubber	Data from the liquid flow rate measurement device during the PSH operation stack PM performance test	The continuous scrubbing liquid flow rate measuring device must be accurate within plus or minus 1 percent; you must collect the flow rate data during the period

limit, which uses a wet scrubber			of the performance test and determine the operating limit according to §63.7112(j).
16. Each FF that controls emissions from only an individual, enclosed, new or existing storage bin	Conduct opacity observations	Method 9 in appendix A to part 60 of this chapter	The test duration must be for at least 1 hour and you must obtain ten 6-minute averages.
17. Fugitive emissions from any PSH operation subject to an opacity limit	Conduct opacity observations	Method 9 in appendix A to part 60 of this chapter	The test duration must be for at least 3 hours, but the 3-hour test may be reduced to 1 hour if, during the first 1-hour period, there are no individual readings greater than 10 percent opacity and there are no more than three readings of 10 percent during the first 1-hour period.
18. Each building enclosing any PSH operation, that is subject to a VE limit	Conduct VE check	The specifications in §63.7112(k)	The performance test must be conducted while all affected PSH operations within the building are operating; the performance test for each affected building must be at least 75 minutes, with each side of the building and roof being observed for at least 15 minutes.

20. Table 7 of subpart AAAAA is amended to read as follows:

Table 7 to Subpart AAAAA of Part 63—Requirements for Reports

As required in §63.7131, you must submit each report in this table that applies to you.

You must submit a . . .	The report must contain . . .	You must submit the report . . .
1. Compliance report	a. If there are no deviations from any emission limitations (emission limit, operating limit, work practice, opacity limit, and VE limit) that applies to you, a statement that there were no deviations from the emission limitations during the reporting period;	Semiannually according to the requirements in §63.7131(b).

	b. If there were no periods during which the CMS, including any operating parameter monitoring system, was out-of-control as specified in §63.8(c)(7), a statement that there were no periods during which the CMS was out-of-control during the reporting period;	Semiannually according to the requirements in §63.7131(b).
	c. If you have a deviation from any emission limitation (emission limit, operating limit, work practice, opacity limit, and VE limit) during the reporting period, the report must contain the information in §63.7131(d);	Semiannually according to the requirements in §63.7131(b).
	d. If there were periods during which the CMS, including any operating parameter monitoring system, was out-of-control, as specified in §63.8(c)(7), the report must contain the information in §63.7131(e); and	Semiannually according to the requirements in §63.7131(b).
	e. Before **[DATE 181 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, if you had a startup, shutdown or malfunction during the reporting period and you took actions consistent with your SSMP, the compliance report must include the information in §63.10(d)(5)(i). After **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, if you had a startup, shutdown or malfunction during the reporting period and you failed to meet an applicable standard, the compliance report must include the information in §63.7131(c)(3).	Semiannually according to the requirements in §63.7131(b).

2. Before **[DATE 181 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, an immediate startup, shutdown, and malfunction report if you had a startup, shutdown, or malfunction during the reporting period that is not consistent with your SSMP	Actions taken for the event	By fax or telephone within 2 working days after starting actions inconsistent with the SSMP.
3. Before **[DATE 181 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, an immediate startup, shutdown, and malfunction report if you had a startup, shutdown, or malfunction during the reporting period that is not consistent with your SSMP	The information in §63.10(d)(5)(ii)	By letter within 7 working days after the end of the event unless you have made alternative arrangements with the permitting authority. See §63.10(d)(5)(ii).
(4) Performance Test Report	The information required in §63.7(g)	According to the requirements of §63.7131

20. Table 8 of subpart AAAAA is amended to read as follows:

Table 8 to Subpart AAAAA of Part 63—Applicability of General Provisions to Subpart AAAAA

As required in §63.7140, you must comply with the applicable General Provisions requirements according to the following table:

Citation	Summary of requirement	Am I subject to this requirement?	Explanations
§63.1(a)(1)-(4)	Applicability	Yes	
§63.1(a)(5)		No	
§63.1(a)(6)	Applicability	Yes	
§63.1(a)(7)-(a)(9)		No	
§63.1(a)(10)-(a)(14)	Applicability	Yes	

§63.1(b)(1)	Initial Applicability Determination	Yes	§§63.7081 and 63.7142 specify additional applicability determination requirements.
§63.1(b)(2)		No	
§63.1(b)(3)	Initial Applicability Determination	Yes	
§63.1(c)(1)	Applicability After Standard Established	Yes	
§63.1(c)(2)	Permit Requirements	No	Area sources not subject to subpart AAAAA, except all sources must make initial applicability determination.
§63.1(c)(3)-(4)		No	
§63.1(c)(5)	Area Source Becomes Major	Yes	
§63.1(d)		No	
§63.1(e)	Applicability of Permit Program	Yes	
§63.2	Definitions	Yes	Additional definitions in §63.7143.
§63.3(a)-(c)	Units and Abbreviations	Yes	
§63.4(a)(1)-(a)(2)	Prohibited Activities	Yes	
§63.4(a)(3)-(a)(5)		No	
§63.4(b)-(c)	Circumvention, Severability	Yes	
§63.5(a)(1)-(2)	Construction/Reconstruction	Yes	
§63.5(b)(1)	Compliance Dates	Yes	
§63.5(b)(2)		No	
§63.5(b)(3)-(4)	Construction Approval, Applicability	Yes	
§63.5(b)(5)		No	
§63.5(b)(6)	Applicability	Yes	
§63.5(c)		No	

§63.5(d)(1)-(4)	Approval of Construction/Reconstruction	Yes	
§63.5(e)	Approval of Construction/Reconstruction	Yes	
§63.5(f)(1)-(2)	Approval of Construction/Reconstruction	Yes	
§63.6(a)	Compliance for Standards and Maintenance	Yes	
§63.6(b)(1)-(5)	Compliance Dates	Yes	
§63.6(b)(6)		No	
§63.6(b)(7)	Compliance Dates	Yes	
§63.6(c)(1)-(2)	Compliance Dates	Yes	
§63.6(c)(3)-(c)(4)		No	
§63.6(c)(5)	Compliance Dates	Yes	
§63.6(d)		No	
§63.6(e)(1)(i)	General Duty to Minimize Emissions	Yes before **[DATE 181 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]** No after **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**	After **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, see §63.7100 for general duty requirement.
§63.6(e)(1)(ii)	Requirement to Correct Malfunctions ASAP	Yes before **[DATE 181 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE**	

		FEDERAL REGISTER] No after **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**	
§63.6(e)(1)(iii)	Operation and Maintenance Requirements	Yes	
§63.6(e)(2)		No	[Reserved]
§63.6(e)(3)	Startup, Shutdown Malfunction Plan	Yes before **[DATE 181 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]** No after **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**	After **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, the OM&M plan must address periods of startup and shutdown. See §63.7100(d).
§63.6(f)(1)	SSM exemption	Yes before **[DATE 181 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]** No after **[DATE 180 DAYS AFTER DATE OF**	After **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, for periods of startup and shutdown, see §63.7090(c).

		PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]	
§63.6(f)(2)-(3)	Methods for Determining Compliance	Yes	
§63.6(g)(1)-(g)(3)	Alternative Standard	Yes	
§63.6(h)(1)	SSM exemption	Yes before **[DATE 181 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]** No after **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**	After **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, for periods of startup and shutdown, see §63.7090(c).
§63.6(h)(2)	Methods for Determining Compliance	Yes	
§63.6(h)(3)		No	
§63.6(h)(4)-(h)(5)(i)	Opacity/VE Standards	Yes	This requirement only applies to opacity and VE performance checks required in Table 4 to subpart AAAAA.
§63.6(h)(5) (ii)-(iii)	Opacity/VE Standards	No	Test durations are specified in subpart AAAAA; subpart AAAAA takes precedence.
§63.6(h)(5)(iv)	Opacity/VE Standards	No	
§63.6(h)(5)(v)	Opacity/VE Standards	Yes	

§63.6(h)(6)	Opacity/VE Standards	Yes	
§63.6(h)(7)	COM Use	Yes	
§63.6(h)(8)	Compliance with Opacity and VE	Yes	
§63.6(h)(9)	Adjustment of Opacity Limit	Yes	
§63.6(i)(1)-(i)(14)	Extension of Compliance	Yes	
§63.6(i)(15)		No	
§63.6(i)(16)	Extension of Compliance	Yes	
§63.6(j)	Exemption from Compliance	Yes	
§63.7(a)(1)-(a)(3)	Performance Testing Requirements	Yes	§63.7110 specifies deadlines; §63.7112 has additional specific requirements.
§63.7(b)	Notification	Yes	
§63.7(c)	Quality Assurance/Test Plan	Yes	
§63.7(d)	Testing Facilities	Yes	
§63.7(e)(1)	Conduct of Tests	Yes before **[DATE 181 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]** No after **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**	After **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, see §63.7112(b).
§63.7(e)(2)-(4)	Conduct of Tests	Yes	
§63.7(f)	Alternative Test Method	Yes	
§63.7(g)	Data Analysis	Yes	

§63.7(h)	Waiver of Tests	Yes	
§63.8(a)(1)	Monitoring Requirements	Yes	See §63.7113.
§63.8(a)(2)	Monitoring	Yes	
§63.8(a)(3)		No	
§63.8(a)(4)	Monitoring	No	Flares not applicable.
§63.8(b)(1)-(3)	Conduct of Monitoring	Yes	
§63.8(c)(1)(i)	CMS Operation/Maintenance	Yes before **[DATE 181 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]** No after **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**	After **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, see §63.7100 for OM&M requirements.
§63.8(c)(1)(ii)	CMS Spare Parts	Yes	
§63.8(c)(1)(iii)	Requirement to Develop SSM Plan for CMS	Yes before **[DATE 181 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]** No after **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**	After **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, no longer required.

§63.8(c)(2)-(3)	CMS Operation/Maintenance	Yes	
§63.8(c)(4)	CMS Requirements	No	See §63.7121.
§63.8(c)(4)(i)-(ii)	Cycle Time for COM and CEMS	Yes	No CEMS are required under subpart AAAAA; see §63.7113 for CPMS requirements.
§63.8(c)(5)	Minimum COM procedures	Yes	COM not required.
§63.8(c)(6)	CMS Requirements	No	See §63.7113.
§63.8(c)(7)-(8)	CMS Requirements	Yes	
§63.8(d)(1)-(2)	Quality Control	Yes	See also §63.7113.
§63.8(d)(3)	Quality Control	Yes before **[DATE 181 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]** No after **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**	
§63.8(e)	Performance Evaluation for CMS	Yes	See also §63.7113
§63.8(f)(1)-(f)(5)	Alternative Monitoring Method	Yes	
§63.8(f)(6)	Alternative to Relative Accuracy Test for CEMS	No	No CEMS required in subpart AAAAA.
§63.8(g)(1)-(g)(5)	Data Reduction; Data That Cannot Be Used	No	See data reduction requirements in §§63.7120 and 63.7121.
§63.9(a)	Notification Requirements	Yes	See §63.7130.
§63.9(b)	Initial Notifications	Yes	

§63.9(c)	Request for Compliance Extension	Yes	
§63.9(d)	New Source Notification for Special Compliance Requirements	Yes	
§63.9(e)	Notification of Performance Test	Yes	
§63.9(f)	Notification of VE/Opacity Test	Yes	This requirement only applies to opacity and VE performance tests required in Table 4 to subpart AAAAA. Notification not required for VE/opacity test under Table 6 to subpart AAAAA.
§63.9(g)	Additional CMS Notifications	No	Not required for operating parameter monitoring.
§63.9(h)(1)-(h)(3)	Notification of Compliance Status	Yes	
§63.9(h)(4)		No	
§63.9(h)(5)-(h)(6)	Notification of Compliance Status	Yes	
§63.9(i)	Adjustment of Deadlines	Yes	
§63.9(j)	Change in Previous Information	Yes	
§63.10(a)	Recordkeeping/Reporting General Requirements	Yes	See §§63.7131 through 63.7133.
§63.10(b)(1)	Records	Yes	
§63.10 (b)(2)(i)	Recordkeeping of Occurrence and Duration of Startups and Shutdowns	Yes before **[DATE 181 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]** No after **[DATE 180 DAYS AFTER**	

		DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]	
§63.10(b)(2)(ii)	Recordkeeping of Failures to Meet a Standard	Yes before **[DATE 181 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]** No after **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**	After **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, see §63.7132 for recordkeeping of (1) date, time and duration; (2) listing of affected source or equipment, and an estimate of the quantity of each regulated pollutant emitted over the standard; and (3) actions to minimize emissions and correct the failure.
§63.10(b)(2)(iii)	Maintenance Records	Yes	
§63.10(b)(2)(iv)-(v)	Actions Taken to Minimize Emissions During SSM	Yes before **[DATE 181 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]** No after **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**	After **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, see §63.7100 for OM&M requirements.
§63.10(b)(2)(vi)-(xii)	Recordkeeping for CMS	Yes	

§63.10(b)(2)(xiii)	Records for Relative Accuracy Test	No	
§63.10(b)(2)(xiv)	Records for Notification	Yes	
§63.10(b)(3)	Applicability Determinations	Yes	
§63.10(c)	Additional CMS Recordkeeping	No	See §63.7132.
§63.10(d)(1)	General Reporting Requirements	Yes	
§63.10(d)(2)	Performance Test Results	Yes	
§63.10(d)(3)	Opacity or VE Observations	Yes	For the periodic monitoring requirements in Table 6 to subpart AAAAA, report according to §63.10(d)(3) only if VE observed and subsequent visual opacity test is required.
§63.10(d)(4)	Progress Reports	Yes	
§63.10(d)(5)(i)	Periodic Startup, Shutdown, Malfunction Reports	Yes before **[DATE 181 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]** No after **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**	After **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**, see §63.7131 for malfunction reporting requirements.
§63.10(d)(5)(ii)	Immediate Startup, Shutdown, Malfunction Reports	Yes before **[DATE 181 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE**	

		FEDERAL REGISTER] No after **[DATE 180 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE FEDERAL REGISTER]**	
§63.10(e)	Additional CMS Reports	No	See specific requirements in subpart AAAAA, see §63.7131.
§63.10(f)	Waiver for Recordkeeping/Reporting	Yes	
§63.11(a)-(b)	Control Device and Work Practice Requirements	No	Flares not applicable.
§63.12(a)-(c)	State Authority and Delegations	Yes	
§63.13(a)-(c)	State/Regional Addresses	Yes	
§63.14(a)-(b)	Incorporation by Reference	No	
§63.15(a)-(b)	Availability of Information and Confidentiality	Yes	
§63.16	Performance Track Provisions	Yes	