

The Acting EPA Administrator, Andrew R. Wheeler, signed the following notice on 7/13/2018, and EPA is submitting it for publication in the *Federal Register* (FR). While we have taken steps to ensure the accuracy of this Internet version of the rule, it is not the official version of the rule for purposes of compliance. Please refer to the official version in a forthcoming FR publication, which will appear on the Government Printing Office's FDSys website (<http://gpo.gov/fdsys/search/home.action>) and on Regulations.gov (<http://www.regulations.gov>) in Docket No. EPA-HQ-OAR-2016-0442. Once the official version of this document is published in the FR, this version will be removed from the Internet and replaced with a link to the official version.

6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 63

[EPA-HQ-OAR-2016-0442; FRL-]

RIN 2060-AS92

National Emission Standards for Hazardous Air Pollutants From the Portland Cement Manufacturing Industry Residual Risk and Technology Review

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: This action finalizes the residual risk and technology review (RTR) conducted for the Portland Cement Manufacturing Industry source category regulated under national emission standards for hazardous air pollutants (NESHAP). These final amendments include no revisions to the numerical emission limits of the rule based on the RTR. The amendments reflect corrections and clarifications of the rule requirements and provisions. While the amendments do not result in reductions in emissions of hazardous air pollutants (HAP), this action results in improved monitoring, compliance, and implementation of the rule.

DATES: This final action is effective on **[insert date of publication in the FEDERAL REGISTER]**.

ADDRESSES: The Environmental Protection Agency (EPA) has established a docket for this action under Docket ID No. EPA-HQ-OAR-2016-0442. All documents in the docket are listed on the <https://www.regulations.gov> website. Although listed, some information is not publicly

available, *e.g.*, confidential business information or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically through <https://www.regulations.gov>, or in hard copy at the EPA Docket Center, WJC West Building, Room Number 3334, 1301 Constitution Ave., NW, Washington, DC. The Public Reading Room hours of operation are 8:30 a.m. to 4:30 p.m. Eastern Standard Time (EST), Monday through Friday. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the Docket Center is (202) 566-1742.

FOR FURTHER INFORMATION CONTACT: For questions about this final action, contact Mr. Brian Storey, Sector Policies and Programs Division (D243-04), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541-1103; fax number: (919) 541-4991; and email address: storey.brian@epa.gov. For specific information regarding the risk modeling methodology, contact Mr. 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 information about the applicability of the NESHAP to a particular entity, contact Ms. Sara Ayres, Office of Enforcement and Compliance Assurance, U.S. Environmental Protection Agency, U.S. EPA Region 5 (E-19J), 77 West Jackson Boulevard, Chicago, Illinois 60604; telephone number: (312) 353-6266; email address: ayres.sara@epa.gov.

SUPPLEMENTARY INFORMATION:

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

ACI	activated carbon injection
CAA	Clean Air Act
CFR	Code of Federal Regulations
CISWI	commercial and industrial solid waste incinerators
D/F	dioxins and furans
EPA	Environmental Protection Agency
HAP	hazardous air pollutants
HCl	hydrochloric acid
HI	hazard index
HQ	hazard quotient
lb	pounds
MACT	maximum achievable control technology
MIR	maximum individual risk
ng/dscm	nanograms per dry standard cubic meters
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
OMB	Office of Management and Budget
PAH	polyaromatic hydrocarbons
PM	particulate matter
ppmvd	parts per million by volume, dry basis
PRA	Paperwork Reduction Act
RFA	Regulatory Flexibility Act
RTO	regenerative thermal oxidizers
RTR	residual risk and technology review
SO ₂	sulfur dioxide
TEF	toxicity equivalence factors
TEQ	toxic equivalents
THC	total hydrocarbons
TOSHI	target organ-specific hazard index
tpy	tons per year

TRIM.FaTE	Total Risk Integrated Methodology. Fate, Transport, and Ecological Exposure model
UMRA	Unfunded Mandates Reform Act
U.S.C.	United States Code

Background information. On September 21, 2017, the EPA proposed revisions to the Portland Cement Manufacturing Industry NESHAP based on our RTR. In this action, we are finalizing decisions and revisions for the rule. We summarize some of the more significant comments we timely received regarding the proposed rule and provide our responses in this preamble. A summary of all other public comments on the proposal and the EPA's responses to those comments is available in "Summary of Public Comments and Responses on Proposed Rules," Docket ID No. EPA-HQ-OAR-2016-0442. A "track changes" version of the regulatory language that incorporates the changes in this action is available in the docket.

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

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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 final rule. Table 1 is not intended to be exhaustive, but rather provides a guide for readers regarding the entities that this action is likely to affect. The rule standards will be directly applicable to the affected sources. Federal, state, local, and tribal government entities are not affected by this action. As defined in the *Initial List of Categories of Sources Under Section 112(c)(1) of the Clean Air Act Amendments of 1990* (57 FR 31576), the Portland Cement Manufacturing Industry source category is any facility engaged in manufacturing portland cement by either the wet or dry process. The category includes, but is not limited to, the following process units: kiln, clinker cooler, raw mill system, finish mill system,

raw mill dryer, raw material storage, clinker storage, finished product storage, conveyor transfer points, bagging, and bulk loading and unloading systems. The source category does not include those kilns that burn hazardous waste and are subject to and regulated under 40 CFR 63, subpart EEE, or kilns that burn solid waste and are subject to the Commercial and Industrial Solid Waste Incineration (CISWI) rule under 40 Code of Federal Regulations (CFR) 60, subpart CCCC, and 40 CFR 60, subpart DDDD.

Table 1. NESHAP and Industrial Source Categories Affected By This Final Action

NESHAP and Source Category	NAICS¹ Code
Portland Cement Manufacturing Industry	327310

¹ North American Industry Classification System.

To determine whether your facility is affected, you should examine the applicability criteria in the appropriate NESHAP. If you have any questions regarding the applicability of any aspect of this NESHAP, please contact the appropriate person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section of this preamble.

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

In addition to being available in the docket, an electronic copy of this final action will also be available on the Internet. Following signature by the EPA Administrator, the EPA will post a copy of this final action at: <https://www.epa.gov/stationary-sources-air-pollution/portland-cement-manufacturing-industry-national-emission-standards>. Following publication in the **Federal Register**, the EPA will post the **Federal Register** version and key technical documents at this same website.

Additional information is available on the RTR website at <https://www.epa.gov/ttn/atw/rrisk/rtrpg.html>. This information includes an overview of the RTR

program, links to project websites for the RTR source categories, and detailed emissions and other data we used as inputs to the risk assessments.

C. Judicial Review and Administrative Reconsideration

Under Clean Air Act (CAA) section 307(b)(1), judicial review of this final action is available only by filing a petition for review in the United States Court of Appeals for the District of Columbia Circuit (the Court) by **[insert date 60 days after date of publication in the Federal Register]**. Under CAA section 307(b)(2), the requirements established by this final rule may not be challenged separately in any civil or criminal proceedings brought by the EPA to enforce the requirements.

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

II. Background

A. What is the statutory authority for this action?

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

For these MACT standards, the statute specifies certain minimum stringency requirements, which are referred to as MACT floor requirements, and which may not be based on cost considerations. See CAA section 112(d)(3). For new sources, the MACT floor cannot be less stringent than the emission control achieved in practice by the best-controlled similar source. The MACT standards for existing sources can be less stringent than floors for new sources, but they cannot be less stringent than the average emission limitation achieved by the best-performing 12 percent of existing sources in the category or subcategory (or the best-performing

five sources for categories or subcategories with fewer than 30 sources). In developing MACT standards, we must also consider control options that are more stringent than the floor under CAA section 112(d)(2). We may establish standards more stringent than the floor, based on the consideration of the cost of achieving the emissions reductions, any non-air quality health and environmental impacts, and energy requirements.

In the second stage of the regulatory process, the CAA requires the EPA to undertake two different analyses, which we refer to as the technology review and the residual risk review. Under the technology review, we must review the technology-based standards and revise them “as necessary (taking into account developments in practices, processes, and control technologies)” no less frequently than every 8 years, pursuant to CAA section 112(d)(6). Under the residual risk review, we must evaluate the risk to public health remaining after application of the technology-based standards and revise the standards, if necessary, to provide an ample margin of safety to protect public health or to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect. The residual risk review is required within 8 years after promulgation of the technology-based standards, pursuant to CAA section 112(f). In conducting the residual risk review, if the EPA determines that the current standards provide an ample margin of safety to protect public health, it is not necessary to revise the MACT standards pursuant to CAA section 112(f).¹ For more information on the statutory authority for this rule, see 82 FR 44254, September 21, 2017.

B. What is the Portland Cement Manufacturing Industry source category and how does the NESHAP regulate HAP emissions from the source category?

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

The EPA initially promulgated the Portland Cement Manufacturing Industry NESHAP on June 14, 1999 (64 FR 31898), under title 40, part 63, subpart LLL of the CFR. The rule was amended on April 5, 2002 (67 FR 16614); July 5, 2002 (67 FR 44766); December 6, 2002 (67 FR 72580); December 20, 2006 (71 FR 76518); September 9, 2010 (75 FR 54970); January 18, 2011 (76 FR 2832); February 12, 2013 (78 FR 10006); July 27, 2015 (80 FR 44772); September 11, 2015 (80 FR 54728); and July 25, 2016 (81 FR 48356). The amendments further defined affected cement kilns as those used to manufacture portland cement, except for kilns that burn hazardous waste, and are subject to and regulated under 40 CFR 63, subpart EEE, and kilns that burn solid waste, which are subject to the CISWI rule under 40 CFR 60, subpart CCCC, and 40 CFR 60, subpart DDDD. Additionally, onsite sources that are subject to standards for nonmetallic mineral processing plants in 40 CFR 60, subpart OOO, are not subject to 40 CFR 63, subpart LLL. Crushers are not covered by 40 CFR 63, subpart LLL, regardless of their location. The subpart LLL NESHAP regulates HAP emissions from new and existing portland cement production facilities that are major or area sources of HAP, with one exception. Kilns located at facilities that are area sources are not regulated for hydrochloric acid (HCl) emissions.

Portland cement manufacturing is an energy-intensive process in which cement is made by grinding and heating a mixture of raw materials such as limestone, clay, sand, and iron ore in a rotary kiln. The kiln is a large furnace that is fueled by coal, oil, gas, coke, and/or various waste materials. The product, known as clinker, from the kiln is cooled, ground, and then mixed with a small amount of gypsum to produce portland cement.

The main source of air toxics emissions from a portland cement plant is the kiln. Emissions originate from the burning of fuels and heating of feed materials. Air toxics are also emitted from the grinding, cooling, and materials handling steps in the manufacturing process.

Pollutants regulated under the 40 CFR 63, subpart LLL, are particulate matter (PM) as a surrogate for non-mercury HAP metals, total hydrocarbons (THC) as a surrogate for organic HAP other than dioxins and furans (D/F), organic HAP as an alternative to the limit for THC, mercury, HCl (from major sources only), and D/F expressed as toxic equivalents (TEQ). The kiln is regulated for all HAP and raw material dryers are regulated for THC or the alternative organic HAP. Clinker coolers are regulated for PM. Finish mills and raw mills are regulated for opacity. During periods of startup and shutdown, the kiln, clinker cooler, and raw material dryer are regulated by work practice standards. Open clinker storage piles are regulated by work practice standards. The emission standards for the affected sources are summarized in Table 2.

Table 2. Emission Limits for Kilns, Clinker Coolers, Raw Material Dryers, Raw and Finish Mills

If your source is a (an):	And the operating mode is:	And it is located at a:	Your emissions limits are:	And the units of the emissions limit are:	The oxygen correction factor is:
1. Existing kiln	Normal operation	Major or area source	PM ¹ 0.07	Pounds (lb)/ton clinker	NA.
			D/F ² 0.2	Nanograms/dry standard cubic meters (ng/dscm) (TEQ)	7 percent.
			Mercury 55	lb/million (MM) tons clinker	NA.
			THC ^{3,4} 24	Parts per million, volumetric dry (ppmvd)	7 percent.
2. Existing kiln	Normal operation	Major source	HCl 3	ppmvd	7 percent.
3. Existing kiln	Startup and shutdown	Major or area source	Work practice standards (63.1346(g))	NA	NA.
4. New kiln	Normal operation	Major or area source	PM ¹ 0.02	lb/ton clinker	NA.

If your source is a (an):	And the operating mode is:	And it is located at a:	Your emissions limits are:	And the units of the emissions limit are:	The oxygen correction factor is:
			D/F ² 0.2	ng/dscm (TEQ)	7 percent.
			Mercury 21	lb/MM tons clinker	NA.
			THC ^{3,4} 24	ppmvd	7 percent.
5. New kiln	Normal operation	Major source	HCl 3	ppmvd	7 percent.
6. New kiln	Startup and shutdown	Major or area source	Work practice standards (63.1346(g))	NA	NA.
7. Existing clinker cooler	Normal operation	Major or area source	PM 0.07	lb/ton clinker	NA.
8. Existing clinker cooler	Startup and shutdown	Major or area source	Work practice standards (63.1348(b)(9))	NA	NA.
9. New clinker cooler	Normal operation	Major or area source	PM 0.02	lb/ton clinker	NA.
10. New clinker cooler	Startup and shutdown	Major or area source	Work practice standards (63.1348(b)(9))	NA	NA.
11. Existing or new raw material dryer	Normal operation	Major or area source	THC ^{3,4} 24	ppmvd	NA.
12. Existing or new raw material dryer	Startup and shutdown	Major or area source	Work practice standards (63.1348(b)(9))	NA	NA.
13. Existing or new raw or finish mill	All operating modes	Major source	Opacity 10	percent	NA.

¹ The initial and subsequent PM performance tests are performed using Method 5 or 5I and consist of three test runs.

² If the average temperature at the inlet to the first PM control device (fabric filter or electrostatic precipitator) during the D/F performance test is 400 degrees Fahrenheit or less, this limit is changed to 0.40 ng/dscm (TEQ).

³ Measured as propane.

⁴ Any source subject to the 24 ppmvd THC limit may elect to meet an alternative limit of 12 ppmvd for total organic HAP.

C. What changes did we propose for the Portland Cement Manufacturing Industry source category in our September 21, 2017, proposed rule?

On September 21, 2017, the EPA published a proposed rule in the **Federal Register** for the Portland Cement Manufacturing Industry NESHAP, 40 CFR 63, subpart LLL, that took into consideration the RTR analyses (82 FR 44254). In the proposed rule, we found that risks due to emissions of air toxics from this source category are acceptable and that the standards provide an ample margin of safety to protect public health, and we identified no new cost-effective controls under the technology review to achieve further emissions reductions. We proposed no revisions to the numerical emission limits based on these analyses. However, the EPA did propose amendments to correct and clarify rule requirements and provisions.

III. What is included in this final rule?

This action finalizes the EPA's determinations pursuant to the RTR provisions of CAA section 112 for the Portland Cement Manufacturing Industry source category. This action also finalizes other changes to the NESHAP including amendments to correct and clarify rule requirements and provisions.

A. What are the final rule amendments based on the risk review for the Portland Cement Manufacturing Industry source category?

The EPA proposed no changes to 40 CFR 63, subpart LLL, based on the risk review conducted pursuant to CAA section 112(f). Specifically, we determined that risks from the Portland Cement Manufacturing Industry source category are acceptable, that the standards provide an ample margin of safety to protect public health, and that it is not necessary to set a more stringent standard to prevent an adverse environmental effect. The EPA received no new

data or other information during the public comment period that changed this determination.

Therefore, we are not requiring additional controls under CAA section 112(f)(2).

B. What are the final rule amendments based on the technology review for the Portland Cement Manufacturing Industry source category?

The EPA proposed no changes to 40 CFR 63, subpart LLL, based on the technology review conducted pursuant to CAA section 112(d)(6). Specifically, we determined that there are no developments in practices, processes, and control technologies that warrant revisions to the MACT standards for this source category. The EPA received no new data or other information during the public comment period that affected the technology review determination. Therefore, we are not requiring additional control under CAA section 112(d)(6).

C. What other changes have been made to the NESHAP?

In the September 21, 2017, proposed rule, we proposed additional revisions, which included changes to clarify monitoring, testing, and recordkeeping, and reporting requirements and the correction of typographical errors. Based on the comments received, we are now finalizing the following amendments to the rule:

- We correct a paragraph in the reporting requirements that mistakenly required that affected sources report their 30-operating day rolling average for D/F temperature monitoring.
- We correct a provision that required facility owners or operators to keep records of both daily clinker production and kiln feed rates.
- We clarify that the submittal dates for semiannual summary reports required under 40 CFR 63.1354(b)(9) are 60 days after the end of the reporting period.

- We resolve conflicting provisions that apply when a sulfur dioxide (SO₂) continuous parametric monitoring system is used to monitor HCl compliance.
- We clarify that the requirement in 40 CFR 63.1349(b)(1)(vi) only applies to kilns with inline raw mills.
- We clarify that the 40 CFR 63, subpart LLL D/F standards were developed based on toxic equivalency factors (TEFs) developed in 1989, as referenced in the TEQ definition section of the rule (40 CFR 63.1341).
- We clarify that the performance test requirements for affected sources that have been idle through one or more periods that required a performance test to demonstrate compliance.
- We remove 40 CFR 63.1343(d) and Table 2 that contain emission limits that were applicable prior to September 2015.
- We revise Equation 18 of the rule to include a missing term in the equation.
- We revise 40 CFR 63.1350(g)(4) to say “record” instead of “report.”

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

Because these amendments only provide corrections and clarifications to the current rule and do not impose new requirements on the industry, we are making these amendments effective and are requiring compliance upon promulgation of the final rule.

IV. What is the rationale for our final decisions and amendments for the Portland Cement Manufacturing Industry source category?

This section provides a description of our proposed action and this final action, the EPA’s rationale for the final decisions and amendments, and a summary of key comments and responses. Other comments, comment summaries, and the EPA’s responses can be found “National Emission Standards for Hazardous Air Pollutants from Portland Cement

Manufacturing (40 CFR Part 63, Subpart LLL) Residual Risk and Technology Review, Final Amendments: Summary of Public Comments and Responses on Proposed Rules,” which is available in the docket for this action (EPA-HQ-OAR-2016-0442).

A. Residual Risk Review for the Portland Cement Manufacturing Industry Source Category

1. What did we propose pursuant to CAA section 112(f) for the Portland Cement Manufacturing Industry source category?

Pursuant to CAA section 112(f), the EPA conducted a residual risk review and presented the results of this review, along with our proposed decisions regarding risk acceptability, ample margin of safety, and adverse environmental effects, in the September 21, 2017, proposed rule (82 FR 44254). The results of the risk assessment are presented briefly in Table 3, and in more detail in the document titled “Residual Risk Assessment for the Portland Cement Manufacturing Source Category in Support of the July 2018 Final Rule,” available in the docket for this rulemaking (Docket ID No. EPA-HQ-OAR-2016-0442).

Table 3: Inhalation Risk Assessment Summary for Portland Cement Manufacturing Industry Source Category

	Cancer MIR (in-1 million)		Cancer Incidence (cases per year) ¹	Population with risk of 1-in-1 million or greater ¹	Population with risk of 10-in-1 million or greater ¹	Max Chronic Noncancer HI --
	Based on Actual Emissions	Based on Allowable Emissions				
Source Category	1 (formaldehyde, benzene)	4 (formaldehyde, benzene)	0.01	130	0	HI < 1 (Actuals and Allowables)
Whole Facility	70 (arsenic and chromium VI)	--	0.02	20,000	690	HI = 1 (Actuals)

¹ Cancer incidence and populations exposed are based upon actual emissions.

The results of the chronic inhalation cancer risk assessment based on actual emissions from the Portland Cement Manufacturing Industry source category indicate that the maximum lifetime individual cancer risk posed by the 91 facilities is 1-in-1 million or less. The total estimated cancer incidence from this source category is 0.01 excess cancer cases per year, or one excess case in every 100 years. Regarding the noncancer risk assessment, the maximum chronic noncancer target organ-specific hazard index (TOSHI) for the source category could be up to 0.02 (for respiratory health effects) from the portland cement manufacturing processes. Regarding short-term (acute) health hazards posed by actual baseline emissions, the highest screening acute hazard quotient (HQ) for the source category is estimated to be 0.2. No facilities were found to have an acute HQ greater than 1 for any of the acute benchmarks examined.

Potential multipathway health risks under a fisher and farmer scenario were identified using a 3-tier screening analysis of HAP known to be persistent and bio-accumulative in the environment emitted by facilities in this source category and, if necessary, a site-specific assessment utilizing TRIM.FaTE. Based on the results of the multipathway cancer screening analyses of arsenic and dioxin emissions, we conclude that the cancer risk from ingestion exposure to the individual most exposed is less than 1-in-1 million for arsenic, and, based on a tier 3 analysis, less than 20-in-1 million for dioxins. Based on the tier 1 multipathway screening analysis of cadmium emissions and the refined site-specific multipathway analysis of mercury emissions, the maximum chronic noncancer TOSHI due to ingestion exposure is less than 1 for actual emissions.

Finally, potential differences between actual emission levels and the maximum emissions allowable under the EPA's standards (*i.e.*, "allowable emissions") were also calculated for the source category. Allowable emissions were calculated using the emission limits for existing

sources in the current NESHAP in conjunction with the emission factors for metallic HAP, organic HAP and D/F congeners, as appropriate, the annual production capacity, and, when the emission limit was a concentration-based limit, the annual hours of operation reported by each source. Risk results from the inhalation risk assessment indicate that the maximum lifetime individual cancer risk could increase from 1-in-1 million for actual emissions to as high as 4-in-1 million for allowable emissions. At the allowable emissions level, the maximum chronic noncancer TOSHI was 0.06 (for respiratory health effects). The total estimated cancer incidence from this source category at the allowable emissions level was about 0.03 excess cancer cases per year, or 3 excess cases in every 100 years.

In determining whether risk is acceptable, the EPA considered all available health information and risk estimation uncertainty, as described above. The results indicate that inhalation cancer risk to the individual most exposed under both actual and allowable emissions scenarios are considerably less than 100-in-1 million, which is the presumptive limit of acceptability. The maximum chronic noncancer TOSHI due to inhalation exposures is less than 1 for both actual emissions and up to 1 due to allowable emissions. The multipathway analysis indicates a cancer risk less than 20-in-1 million from ingestion based upon our tier 3 screening analysis, while a refined site-specific multipathway analysis indicates that the HI for ingestion exposures is less than 1. Finally, the conservative evaluation of acute noncancer risk concluded that acute risk is below a level of concern. Taking into account this information, we proposed that the risks remaining after implementation of the existing MACT standards for the Portland Cement Manufacturing Industry were acceptable.

As directed by CAA section 112(f)(2), we also evaluated whether the existing MACT standards for the Portland Cement Manufacturing Industry provide an ample margin of safety to

protect public health. In addition to considering all of the health risks and other health information considered in the risk acceptability determination, in 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 in this source category to further reduce the risks due to emissions of HAP. Our inhalation risk analysis indicated very low risk from the facilities in the source category based upon actual emissions (1-in-1 million), and just slightly higher risk based upon allowable emissions (4-in-1 million). Therefore, very little reduction in inhalation risk could be realized regardless of the availability of control options.

The HAP risk drivers contributing to the inhalation maximum individual risk (MIR) were gaseous organic HAP: formaldehyde, benzene, naphthalene, and acetaldehyde. More than 62 percent of the mass emissions of these compounds originated from kiln operations. The first technology we considered in our ample margin of safety analysis was a regenerative thermal oxidizer (RTO) used to control organic HAP emissions from the kiln exhaust. It is expected that an RTO, when used in conjunction with the existing activated carbon injection (ACI), only offers an additional 50-percent removal efficiency of organic HAP from the kiln exhaust, due to the reduced THC concentration leaving the ACI. ACI control devices are currently used by industry, and the addition of an RTO as control would include configuring the RTO in series, following the ACI. We found that the use of an RTO in series with the existing ACI control was not cost effective for this industry, and given the small reduction in organic HAP emissions, the addition of an RTO would have little effect on the source category risks.

Other technologies evaluated included the use of an existing ACI with the addition of wet scrubbers to help control organic HAP, including D/F emissions, from the kiln exhaust. For

the March 24, 1998, proposal of the Portland Cement Manufacturing Industry NESHAP (63 FR 14182), we performed a beyond-the-floor analysis and determined that, based on the additional costs and the level of D/F emissions reduction achievable, the costs were not justified (63 FR 14199–14201). In this technology review, we conclude that, as with the findings of the 1998 rule, the use of the combination of an ACI system in series with a wet scrubber is not cost effective for the industry to reduce organic HAP or D/F emissions, and would have little effect on the source category risk.

Although our multipathway screening analysis results did not indicate risks of concern from mercury emissions, we also performed an evaluation of halogenated carbon injection as a control of mercury emissions from the kiln exhaust. In the May 6, 2009, beyond-the-floor analysis for the Portland Cement Manufacturing Industry NESHAP, we determined that, based on the costs of control, and the negligible level of mercury emission reduction achieved by the controls, the costs of using a halogenated carbon injection system were not justified (74 FR 21149). As we determined in the 2009 rule, we do not consider the use of halogenated carbon injection system to be cost effective for the industry to use to reduce mercury emissions, and it would have little effect on the low risks identified for this source category.

Due to the low risk, the minimal risk reductions that could be achieved with the various control options that we evaluated, and the substantial costs associated with additional control options, we proposed that the current standards provide an ample margin of safety to protect public health.

The EPA conducted 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.” Based on the results of the environmental risk screening assessment, the EPA concluded that there was not an adverse environmental effect from the Portland Cement Manufacturing Industry source category.

2. How did the risk review change for the Portland Cement Manufacturing Industry source category?

We received comments both supporting and opposing the proposed residual risk review and our proposed determination that no revisions are warranted under CAA section 112(f)(2). After review of these comments, we determined that no changes to our risk review are necessary. The following section provides a summary of the major comments received and our responses to those comments. All comments and our specific responses can be found in the document titled “National Emission Standards for Hazardous Air Pollutants from Portland Cement Manufacturing (40 CFR Part 63, Subpart LLL) Residual Risk and Technology Review, Final Amendments: Summary of Public Comments and Responses on Proposed Rules,” which is available in the docket for this action.

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

Generally, comments that were not supportive of the proposed determination suggested changes to the underlying risk assessment methodology. One comment specific to the source category stated that the EPA’s National Emissions Inventory (NEI) data from 2014 documented 1,447.25 tons of polycyclic aromatic hydrocarbons (PAH) emitted by the source category, yet PAH emission data were not included in Table 3.1-1, “Summary of Emissions from the Portland Cement Manufacturing Source Category and Dose-Response Values Used in the Residual Risk

Assessment” (Docket ID No. EPA-HQ-OAR-2016-0442-0153), nor were PAH quantitatively assessed elsewhere in the risk assessment.

The EPA disagrees with the commenter that the risk assessment did not address PAH. The Portland Cement Manufacturing Industry NESHAP regulates organic HAP emissions indirectly with an emissions limit for THC. As an alternative, the EPA established an emissions limit for non-dioxin organic HAP. In developing the MACT standard, the EPA reviewed the results of 18 test reports where organic HAP were measured (Docket ID No. EPA-HQ-OAR-2002-0051-3429). Naphthalene was the only PAH reported. Based on a review of emissions test data where organic HAP were measured simultaneously with THC, the EPA found that, on average, organic HAP emissions comprise about 35 percent of the THC. In the test data reviewed for the 2009 proposed rule (74 FR 21136), nine specific organic HAP were identified and are the pollutants that must be tested for when choosing to comply with the organic HAP limit. One of the nine organic HAP identified was the PAH naphthalene. No other PAH species were present in measurable amounts in the test data reviewed. Naphthalene is one of the PAH listed in Table 3.1-1 of the risk assessment report. Based on our review of the test data for organic HAP, the only PAH emitted above detection limits is naphthalene.

The EPA also disputes the commenter’s claim that PAH emissions, as reported in the 2014 NEI, totaled over 1,400 tons. Our inspection of the 2014 NEI data for total PAH from the cement sector showed annual emissions of 1,449 pounds, not tons. That is less than 1 tpy for total PAH, whereas our risk assessment used total naphthalene emissions of 38 tpy from the Portland Cement Manufacturing Industry source category. Furthermore, no additional PAH emissions data were submitted to the EPA by the commenter or other commenters to support their claims.

EPA also received comments and information from representatives of portland cement manufacturing facilities who, while supportive of EPA's residual risk determination, stated that the EPA's risk estimates were based on flawed data, such that emission rates were overestimated for several pollutants. In response, the EPA acknowledges that our risk assessment results for the Portland Cement Manufacturing Industry source category are dependent on the emission rates used in the assessment. If we were to lower emission rates based on more accurate data, we expect lower risk estimates. Because the EPA has determined that the risk is acceptable, and that the existing standards provide an ample margin of safety to protect public health, using the emissions data provided by the commenters would potentially reduce risk further but would not change our determinations under the risk review. Accordingly, we concluded that it was reasonable to not update the risk assessment following proposal. We, therefore, finalized the risk assessment report and re-submitted it to the docket as "Residual Risk Assessment for the Portland Cement Manufacturing Source Category in Support of the July 2018 Final Rule."

4. What is the rationale for our final approach and final decisions for the risk review?

For the reasons explained in the proposed rule, the Agency determined that the risks from the Portland Cement Manufacturing Industry source category are acceptable, and the current standards provide an ample margin of safety to protect public health and prevent an adverse environmental effect. Since proposal, our determinations regarding risk acceptability, ample margin of safety, and adverse environmental effects have not changed. Therefore, we are not revising 40 CFR 63, subpart LLL, to require additional controls pursuant to CAA section 112(f)(2) based on the residual risk review and are readopting the existing emissions standards under CAA section 112(f)(2).

B. Technology Review for the Portland Cement Manufacturing Industry Source Category

1. What did we propose pursuant to CAA section 112(d)(6) for the Portland Cement Manufacturing Industry source category?

Pursuant to CAA section 112(d)(6), the EPA conducted a technology review and summarized the results of the review in the September 21, 2017, proposed rule (82 FR 44277). The results of the technology review are briefly discussed below, and in more detail in the memorandum, “Technology Review for the Portland Cement Production Source Category,” which is available in the docket for this action (Docket ID No. EPA-HQ-OAR-2016-0442-0189). The technology review focused on identifying and evaluating developments in practices, processes, and control technologies for the Portland Cement Manufacturing Industry source category. We reviewed technologies currently available to industry, and reviewed previous beyond-the-floor analyses, to determine if there had been any developments in existing technologies, or whether previous conclusions made by the EPA had changed. Additionally, we reviewed new developments in control technologies and determined the availability of each control, the costs associated with the installation and annual maintenance associated with each control, and the effectiveness of each technology in reducing HAP emissions. Based on information available to the EPA, the technologies reviewed do not provide sufficient reductions in HAP to support changing the standard to reflect technological developments (82 FR 44277).

2. How did the technology review change for the Portland Cement Manufacturing Industry source category?

The technology review for the Portland Cement Manufacturing Industry source category has not changed since proposal. As proposed, the EPA is not making changes to the standards pursuant to CAA section 112(d)(6).

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

We received comments in support of the proposed determination that no revisions to the standards are necessary under CAA section 112(d)(6).

We also received comments opposing our proposed technology review determination. Of the comments received, one commenter specifically opposed the technology review determination, and suggested that the EPA did not consider or recommend the use of selective catalytic reduction technologies (SCR) as mercury control, to control D/F emissions, as THC and volatile organic compound control, and as metallic HAP control.

The EPA disagrees with the commenter's argument that EPA failed to accurately assess SCR as a technology development capable of controlling HAP emissions. SCR technology is used to control nitrogen oxide (NO_x) emissions from gas turbines, internal combustion engines, and fossil fuel-fired utility boilers. The use of SCR by the Portland Cement Manufacturing Industry source category is, however, problematic for various reasons. For example, the chemical composition of raw materials used to manufacture portland cement varies by location across the United States. This variability in raw materials means that the stack gas chemistry also varies across cement plants, often requiring plant-specific controls for certain pollutants, such as NO_x. The presence of pyritic sulfur in raw materials and the resulting SO₂ emissions, for example, requires that higher temperatures be maintained at the kiln to avoid the formation of ammonium bisulfate salt, which can foul SCR catalysts. Additionally, high dust levels and the nature of dusts typical of the portland cement manufacturing process also creates difficulties not found in other industries where SCR works well for NO_x control. In the case of mercury, SCR does not directly reduce mercury emissions. Instead, SCR oxidizes mercury from its elemental form and the oxidized form can then be more easily captured in scrubbers. However, since scrubbers are uncommon in the cement industry, SCR would have little impact in reducing mercury emissions

from cement kilns, unless a scrubber was also installed. Regarding D/F emissions control, the primary method of D/F control at U.S. cement plants is temperature control, which is already a requirement of the current subpart LLL standard. In general, no information is available by facilities operating SCR in the U.S. relevant to the effectiveness of an SCR for HAP control.

Review of comments on our technology review did not change our proposed determination under CAA section 112(d)(6). These comments and our specific responses to those comments can be found in the comment summary and response document titled, “National Emission Standards for Hazardous Air Pollutants from Portland Cement Manufacturing (40 CFR Part 63, Subpart LLL) Residual Risk and Technology Review, Final Amendments: Summary of Public Comments and Responses on Proposed Rules,” which is available in the docket for this action.

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

For the reasons explained in the preamble to the proposed rule, we determined there were several technologies that have the potential for reducing HAP emissions from cement kiln. However, as stated in the proposed rule, most of these technologies have not been widely used in the United States by the Portland Cement Manufacturing Industry, so source category-specific data on their long-term performance and costs are lacking (82 FR 44278). Since proposal, neither the technology review nor our determination as a result of the technology review has changed, and we are not revising 40 CFR part 63, subpart LLL, pursuant to CAA section 112(d)(6).

C. Other Amendments to the Portland Cement Manufacturing Industry NESHAP

1. What amendments did we propose?

In the September 21, 2017, action, we proposed the following amendments to the rule to clarify monitoring, testing, and recordkeeping and reporting requirements and to correct typographical errors:

- We proposed to remove the reference to the D/F temperature monitoring system in 40 CFR 63.1354(b)(9)(vi).
- We proposed to correct a provision that requires facility owners or operators to keep records of both daily clinker production and kiln feed rates.
- We proposed to clarify that the submittal dates for semiannual summary reports required under 40 CFR 63.1354(b)(9) are 60 days after the end of the reporting period consistent with the Agency's statement in the October 2016 rule guidance for 40 CFR 63, subpart LLL.
- We proposed to resolve conflicting provisions in 40 CFR 63.1349(b)(x) and 40 CFR 63.1350(l)(3).
- We proposed to clarify the requirement in 40 CFR 63.1349(b)(1)(vi) to state that the provision of the section only applies to kilns with inline raw mills.
- We proposed that the 1989 TEFs be incorporated into the rule to clarify that they are the appropriate factors for calculating TEQ.
- We proposed to clarify the performance test requirements after extended shutdowns of existing kilns.
- We proposed to remove 40 CFR 63.1343(d) and Table 2 that contain emission limits that were applicable prior to September 2015.

2. What key comments did we receive and what are our responses?

Several commenters stated they generally supported the September 21, 2017, proposed rule, with several stating that the proposed revisions to 40 CFR 63, subpart LLL, would improve monitoring, compliance, and implementation of the rule.

There were some comments that favored, and some that opposed the EPA's proposal to allow facilities 180 days to demonstrate that a kiln can comply with the standards when coming out of an extended idle period (82 FR 44279). These comments are discussed in the following paragraphs.

One commenter in favor of the proposal requested that the EPA clarify that units that were idled during the time when compliance was required to be demonstrated, have 180 days *after coming out of the idle period* to demonstrate compliance. To accomplish this, the commenter recommended that EPA revise the language of proposed 40 CFR 63.1348(a) to state: "For an affected source subject to this subpart, you must demonstrate compliance with the emissions standards and operating limits by using the test methods and procedures in §§ 63.1349 and 63.7. Any affected source that was unable to demonstrate compliance before the compliance date due to being idled, or that had demonstrated compliance but was idled during the normal window for the next compliance test, must demonstrate compliance within 180 days after coming out of the idle period." The EPA believes this request provides additional clarification to the proposed rule amendment, and has revised the rule text to incorporate the suggested change.

In contrast, the EPA received comments opposed to our decision to allow facilities 180 days to demonstrate that a kiln can comply with the rule standards when coming out of an extended idle period. The commenter took issue with the fact that the regulatory language does not make clear whether the 180-day non-compliant period would be just a 6-month exemption or could be even longer, and requested a clear trigger start or end-date, or sources could use this

repeatedly after any shutdown, simply by citing the new provision. Further, the commenter noted that the proposed rule does not define the term “due to being idled,” nor does it include language to limit the use of this exemption. The commenter stated that the EPA’s proposal would contravene the CAA’s requirement for “enforceable” emission limits, and any cement plant that took advantage of the EPA’s proposed 180-day compliance exemption would violate its permit requirements. As stated by the commenter, a facility that restarted operations after being idled and then ran for 6 months without demonstrating compliance could not possibly certify that it was “in compliance” with permit requirements because it would not know if it was in compliance; likewise, it could not “promptly report any deviations” because it would not know if deviations occurred.

The EPA’s response regarding the commenter’s concerns regarding the 180-day exemption is based, in part, on the decision made on March 16, 1994 (59 FR 12425), and promulgated in 40 CFR 63.7(a)(2) to allow new facilities 180 days to demonstrate initial compliance. The provisions of 40 CFR 63.1348(a) are to allow previously idled kilns to reach a steady-state condition and schedule and perform compliance testing, as provided for new emission sources in 40 CFR 63.7(a)(2). It is reasonable to expect that a kiln operating the same controls that previously resulted in compliance would continue to be in compliance when operating the same equipment in the same manner, and the 180-day extension is simply a period during which they must complete the process of demonstrating compliance. There is no change to the facilities obligation to operate in compliance.

Additionally, it is unreasonable to assume that portland cement manufacturing facilities would cease operations of a kiln for a period of time in order to circumvent compliance demonstration requirements. It is our opinion that this would not be in the best economic interest

of the facility, by potentially limiting production, and profitability, for the sake of circumventing a rule requirement for demonstrating compliance.

Lastly, we believe the recommended amendment to the proposed rule suggested by the previous commenter would allow a specific time to demonstrate compliance, and therefore, are revising the rule to state, “Any affected source that was unable to demonstrate compliance before the compliance date due to being idled, or that had demonstrated compliance but was idled during the normal window for the next compliance test, must demonstrate compliance within 180 days after coming out of the idle period.”

These comments and our specific responses to those comments can be found in the comment summary and response document titled, “National Emission Standards for Hazardous Air Pollutants from Portland Cement Manufacturing (40 CFR Part 63, Subpart LLL) Residual Risk and Technology Review, Final Amendments: Summary of Public Comments and Responses on Proposed Rules,” which is available in the docket for this action.

3. How did the requirements change since proposal?

Based on the comments received, we are now finalizing the following amendments to the rule:

- We correct a paragraph in the reporting requirements that mistakenly required that affected sources report their 30-operating day rolling average for D/F temperature monitoring, including a revision to 40 CFR 63.1350(g)(4) to say “record” instead of “report.”
- We correct a provision that required facility owners or operators to keep records of both daily clinker production and kiln feed rates.
- We clarify that the submittal dates for semiannual summary reports required under 40 CFR 63.1354(b)(9) are 60 days after the end of the reporting period.

- We resolve conflicting provisions that apply when an SO₂ continuous parametric monitoring system is used to monitor HCl compliance.
- We clarify the requirement in 40 CFR 63.1349(b)(1)(vi) only applies to kilns with inline raw mills.
- We clarify that the 40 CFR 63, subpart LLL, D/F standards were developed based on TEFs developed in 1989, as referenced in the TEQ definition section of the rule (40 CFR 63.1341).
- We clarify the performance test requirements for affected sources that have been idle through one or more periods that required a performance test to demonstrate compliance.
- We remove 40 CFR 63.1343(d) and Table 2 that contain emission limits that were applicable prior to September 2015.
- We revise Equation 18 of the rule to include a missing term in the equation.

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

A. What are the affected sources?

We anticipate that the 91 portland cement manufacturing facilities currently operating in the United States will be affected by this final rule.

B. What are the air quality impacts?

We are not establishing new emission limits and are not requiring additional controls; therefore, no air quality impacts are expected as a result of the final amendments to the rule.

C. What are the cost impacts?

Recent amendments to the Portland Cement Manufacturing Industry NESHAP have addressed electronic reporting and changes in policies regarding startup, shutdown, and

malfunction. Additionally, there are no changes to emission standards or add-on controls associated with this action. Therefore, the final amendments impose no additional costs.

D. What are the economic impacts?

No economic impacts result from this final action.

E. What are the benefits?

While the amendments in this final rule do not result in reductions in emissions of HAP, this action results in improved monitoring, compliance, and implementation of the rule.

VI. 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 the Office of Management and Budget (OMB) for review.

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

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

C. Paperwork Reduction Act (PRA)

This action does not impose any new information collection burden under the PRA. OMB has previously approved the information collection activities contained in the existing regulations (40 CFR 63, subpart LLL) and has assigned OMB control number 2060-0416. This action does not change the information collection requirements.

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. An agency may certify that a rule will not have a significant economic impact on a substantial number of small entities if the rule relieves regulatory burden, has no net burden, or otherwise has a positive economic effect on the small entities subject to the rule. We estimate that three of the 26 existing Portland cement entities are small entities and comprise three plants. After considering the economic impacts of this final action on small entities, we have concluded that this action will have no net regulatory burden for all directly regulated 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. It will neither impose substantial direct compliance costs on federally recognized tribal governments, nor preempt tribal law. The EPA is aware of one tribally owned Portland cement facility currently subject to 40 CFR 63, subpart LLL, that will be subject to this final action. However, the provisions of this rule are not expected to impose new or substantial direct

compliance costs on tribal governments since the provisions in this final action are clarifying and correcting monitoring and testing requirements and recordkeeping and reporting requirements. This final action also provides clarification for owners and operators on bringing new or previously furloughed kilns back on line. Thus, Executive Order 13175 does not apply to this action.

H. Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks

The EPA interprets Executive Order 13045 as applying only to those regulatory actions that concern environmental health or safety risks that the EPA has reason to believe may disproportionately affect children, per the definition of “covered regulatory action” in section 2-202 of the Executive Order. This action is not subject to Executive Order 13045 because it does not concern an environmental health risk or safety risk.

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)

This rulemaking does not involve technical standards.

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).

L. Congressional Review Act (CRA)

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

List of Subjects for 40 CFR Part 63

Environmental protection, Administrative practice and procedures, Air pollution control,
Hazardous substances, Intergovernmental relations, Reporting and recordkeeping requirements.

Dated:

Andrew R. Wheeler
Acting Administrator.

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

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

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

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

**Subpart LLL—National Emission Standards for Hazardous Air Pollutants for the
Portland Cement Manufacturing Industry**

2. Section 63.1341 is amended by:

- a. Removing the definition of “affirmative defense”; and
- b. Revising the definitions of “dioxins and furans (D/F),” “in-line coal mill,” and “TEQ.”

The revisions read as follows:

§ 63.1341 Definitions

* * * * *

Dioxins and furans (D/F) means tetra-, penta-, hexa-, hepta-, and octa-chlorinated dibenzo dioxins and furans.

* * * * *

In-line coal mill means a coal mill using kiln exhaust gases in their process. A coal mill with a heat source other than the kiln or a coal mill using exhaust gases from the clinker cooler is not an in-line coal mill.

* * * * *

TEQ means the international method of expressing toxicity equivalents for dioxins and furans as defined in U.S. EPA, Interim Procedures for Estimating Risks Associated with

Exposures to Mixtures of Chlorinated Dibenzo-p-dioxins and -dibenzofurans (CDDs and CDFs) and 1989 Update, March 1989. The 1989 Toxic Equivalency Factors (TEFs) used to determine the dioxin and furan TEQs are listed in Table 2 to subpart LLL of Part 63.

* * * * *

3. Section 63.1343 is amended by removing paragraph (d) and Table 2.

4. Section 63.1348 is amended by:

- a. Adding a new second sentence in paragraph (a) introductory text;
- b. Revising paragraph (a)(3)(i);
- c. Revising the second sentence in paragraph (a)(3)(iv);
- d. Revising paragraphs (a)(4)(ii), (a)(7)(ii), (b)(3)(ii), and (b)(4);
- e. Redesignating paragraph (b)(5)(i) as paragraph (b)(5) introductory text;
- f. Revising newly redesignated paragraph (b)(5) introductory text; and
- g. Adding new paragraph (b)(5)(i).

The revisions and addition read as follows:

§ 63.1348 Compliance requirements.

(a) *Initial Performance Test Requirements.* For an affected source subject to this subpart, you must demonstrate compliance with the emissions standards and operating limits by using the test methods and procedures in §§ 63.1349 and 63.7. Any affected source that was unable to demonstrate compliance before the compliance date due to being idled, or that had demonstrated compliance but was idled during the normal window for the next compliance test, must demonstrate compliance within 180 days after coming out of the idle period. * * *

* * * * *

(3) *D/F compliance.* (i) If you are subject to limitations on D/F emissions under § 63.1343(b), you must demonstrate initial compliance with the D/F emissions standards by using the performance test methods and procedures in § 63.1349(b)(3). The owner or operator of a kiln with an in-line raw mill must demonstrate initial compliance by conducting separate performance tests while the raw mill is operating and the raw mill is not operating. Determine the D/F TEQ concentration for each run and calculate the arithmetic average of the TEQ concentrations measured for the three runs to determine continuous compliance.

* * * * *

(iv) If activated carbon injection is used, you must also develop a carrier gas parameter (either the carrier gas flow rate or the carrier gas pressure drop) during the initial performance test and updated during any subsequent performance test conducted under §63.1349(b)(3) that meets the requirements of §63.1349(b)(3)(vi). Compliance is demonstrated if the system is maintained within ± 5 percent accuracy during the performance test determined in accordance with the procedures and criteria submitted for review in your monitoring plan required in § 63.1350(p).

(4) * * *

(ii) *Total Organic HAP Emissions Tests.* If you elect to demonstrate compliance with the total organic HAP emissions limit under § 63.1343(b) in lieu of the THC emissions limit, you must demonstrate compliance with the total organic HAP emissions standards by using the performance test methods and procedures in § 63.1349(b)(7).

* * * * *

(7) * * *

(ii) Perform required emission monitoring and testing of the kiln exhaust prior to the reintroduction of the coal mill exhaust, and also testing the kiln exhaust diverted to the coal mill. All emissions must be added together for all emission points, and must not exceed the limit per each pollutant as listed in § 63.1343(b).

(b) * * *

(3) * * *

(ii) *Bag Leak Detection System (BLDS)*. If you install a BLDS on a raw mill or finish mill in lieu of conducting the daily visible emissions testing, you must demonstrate compliance using a BLDS that is installed, operated, and maintained in accordance with the requirements of § 63.1350(f)(4)(ii).

(4) *D/F Compliance*. If you are subject to a D/F emissions limitation under § 63.1343(b), you must demonstrate compliance using a continuous monitoring system (CMS) that is installed, operated and maintained to record the temperature of specified gas streams in accordance with the requirements of § 63.1350(g).

(5) *Activated Carbon Injection Compliance*. (i) If you use activated carbon injection to comply with the D/F emissions limitation under § 63.1343(b), you must demonstrate compliance using a CMS that is installed, operated, and maintained to record the rate of activated carbon injection in accordance with the requirements § 63.1350(h)(1).

* * * * *

5. Section 63.1349 is amended by:

- a. Revising paragraphs (b)(1)(vi), (3)(iv), (4)(i), (6)(i)(A), (7)(viii)(A), (8)(vi), and (8)(vii)(B); and
- b. Removing and reserving paragraph (d).

The revisions read as follows:

§ 63.1349 Performance testing requirements.

* * * * *

(b)(1) * * *

(vi) For each performance test, conduct at least three separate test runs under the conditions that exist when the affected source is operating at the level reasonably expected to occur. Conduct each test run to collect a minimum sample volume of 2 dscm for determining compliance with a new source limit and 1 dscm for determining compliance with an existing source limit. Calculate the time weighted average of the results from three consecutive runs, including applicable sources as required by (b)(1)(viii), to determine compliance. You need not determine the particulate matter collected in the impingers “back half” of the Method 5 or Method 5I particulate sampling train to demonstrate compliance with the PM standards of this subpart. This shall not preclude the permitting authority from requiring a determination of the “back half” for other purposes. For kilns with inline raw mills, testing must be conducted while the raw mill is on and while the raw mill is off. If the exhaust streams of a kiln with an inline raw mill and a clinker cooler are comingled, then the comingled exhaust stream must be tested with the raw mill on and the raw mill off.

* * * * *

(3) * * *

(iv) 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 determine the applicable temperature limit in accordance with § 63.1346(b).

* * * * *

(4) * * *

(i) If you are subject to limitations on THC emissions, you must operate a CEMS in accordance with the requirements in § 63.1350(i). For the purposes of conducting the accuracy and quality assurance evaluations for CEMS, the THC span value (as propane) is 50 to 60 ppmvw and the reference method (RM) is Method 25A of appendix A to part 60 of this chapter.

* * * * *

(6) * * *

(i)(A) If the source is equipped with a wet scrubber, tray tower or dry scrubber, you must conduct performance testing using Method 321 of appendix A to this part unless you have installed a CEMS that meets the requirements § 63.1350(l)(1). For kilns with inline raw mills, testing must be conducted for the raw mill on and raw mill off conditions.

* * * * *

(7) * * *

(viii) * * *

(A) Determine the THC CEMS average values in ppmvw, and the average of your corresponding three total organic HAP compliance test runs, using Equation 12.

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n X_i, \bar{y} = \frac{1}{n} \sum_{i=1}^n Y_i \quad (\text{Eq. 12})$$

Where:

\bar{x} = The THC CEMS average values in ppmvw.

X_i = The THC CEMS data points for all three test runs i.

\bar{y} = The organic HAP average values in ppmvw.

Y_i = The organic HAP concentrations for all three test runs i.

n = The number of data points.

* * * * *

(8) * * *

(vi) If your kiln has an inline kiln/raw mill, you must conduct separate performance tests while the raw mill is operating (“mill on”) and while the raw mill is not operating (“mill off”). Using the fraction of time the raw mill is on and the fraction of time that the raw mill is off, calculate this limit as a weighted average of the SO₂ levels measured during raw mill on and raw mill off compliance testing with Equation 17.

$$R = (y * t) + x * (1 - t) \quad (\text{Eq. 17})$$

Where:

R = Operating limit as SO₂, ppmvw.

y = Average SO₂ CEMS value during mill on operations, ppmvw.

t = Percentage of operating time with mill on, expressed as a decimal.

x = Average SO₂ CEMS value during mill off operations, ppmvw.

1-t = Percentage of operating time with mill off, expressed as a decimal.

(vii) * * *

(B) Determine your SO₂ CEMS instrument average ppm, and the average of your corresponding three HCl compliance test runs, using equation 18.

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n X_1, \bar{y} = \frac{1}{n} \sum_{i=1}^n Y_1 \quad (\text{Eq. 18})$$

Where:

\bar{x} = The SO₂ CEMS average values in ppmvw.

X₁ = The SO₂ CEMS data points for the three runs constituting the performance test.

\bar{y} = The HCl average values in ppmvw.

Y_1 = The HCl emission concentration expressed as ppmv corrected to 7 percent oxygen for the three runs constituting the performance test.

n = The number of data points.

* * * * *

6. Section 63.1350 is amended by:

a. Revising paragraphs (g) introductory text, (g)(4), (h)(2)(ii), (j), (k)(2) introductory text, (k)(2)(ii), and (k)(2)(iii); and

b. Revising paragraphs (k)(5)(ii), (l)(1) introductory text, and (l)(3).

The revisions read as follows:

§ 63.1350 Monitoring requirements.

* * * * *

(g) *D/F monitoring requirements.* If you are subject to an emissions limitation on D/F emissions, you must comply with the monitoring requirements of paragraphs (g)(1) through (g)(5) and paragraphs (m)(1) through (m)(4) of this section to demonstrate continuous compliance with the D/F emissions standard. You must also develop an emissions monitoring plan in accordance with paragraphs (p)(1) through (p)(4) of this section.

* * * * *

(4) Every hour, record the calculated rolling three-hour average temperature using the average of 180 successive one-minute average temperatures. See S63.1349(b)(3).

* * * * *

(h) * * *

(2) * * *

(ii) Each hour, calculate the 3-hour rolling average of the selected parameter value for the previous 3 hours of process operation using all of the one-minute data available (*i.e.*, the CMS is not out-of-control).

* * * * *

(j) *Total organic HAP monitoring requirements.* If you are complying with the total organic HAP emissions limits, you must continuously monitor THC according to paragraph (i)(1) and (2) of this section or in accordance with Performance Specification 8 or Performance Specification 8A of appendix B to part 60 of this chapter and comply with all of the requirements for continuous monitoring systems found in the general provisions, subpart A of this part. You must operate and maintain each CEMS according to the quality assurance requirements in Procedure 1 of appendix F in part 60 of this chapter. You must also develop an emissions monitoring plan in accordance with paragraphs (p)(1) through (4) of this section.

(k) * * *

(2) In order to quality assure data measured above the span value, you must use one of the four options in paragraphs (k)(2)(i) through (iv) of this section.

* * * * *

(ii) Quality assure any data above the span value by proving instrument linearity beyond the span value established in paragraph (k)(1) of this section using the following procedure. Conduct a weekly “above span linearity” calibration challenge of the monitoring system using a reference gas with a certified value greater than your highest expected hourly concentration or greater than 75 percent of the highest measured hourly concentration. The “above span” reference gas must meet the requirements of PS 12A, Section 7.1 and must be introduced to the measurement system at the probe. Record and report the results of this procedure as you would

for a daily calibration. The “above span linearity” challenge is successful if the value measured by the Hg CEMS falls within 10 percent of the certified value of the reference gas. If the value measured by the Hg CEMS during the above span linearity challenge exceeds ± 10 percent of the certified value of the reference gas, the monitoring system must be evaluated and repaired and a new “above span linearity” challenge met before returning the Hg CEMS to service, or data above span from the Hg CEMS must be subject to the quality assurance procedures established in paragraph (k)(2)(iii) of this section. In this manner all hourly average values exceeding the span value measured by the Hg CEMS during the week following the above span linearity challenge when the CEMS response exceeds ± 20 percent of the certified value of the reference gas must be normalized using Equation 22.

$$\frac{\text{Certified reference gas value}}{\text{Measured value of reference gas}} \times \text{Measured stack gas result} \quad (\text{Eq. 22})$$

$$= \text{Normalized stack gas result}$$

(iii) Quality assure any data above the span value established in paragraph (k)(1) of this section using the following procedure. Any time two consecutive 1-hour average measured concentrations of Hg exceeds the span value you must, within 24 hours before or after, introduce a higher, “above span” Hg reference gas standard to the Hg CEMS. The “above span” reference gas must meet the requirements of PS 12A, Section 7.1, must target a concentration level between 50 and 150 percent of the highest expected hourly concentration measured during the period of measurements above span, and must be introduced at the probe. While this target represents a desired concentration range that is not always achievable in practice, it is expected that the intent to meet this range is demonstrated by the value of the reference gas. Expected values may include “above span” calibrations done before or after the above span measurement period. Record and report the results of this procedure as you would for a daily calibration. The

“above span” calibration is successful if the value measured by the Hg CEMS is within 20 percent of the certified value of the reference gas. If the value measured by the Hg CEMS exceeds 20 percent of the certified value of the reference gas, then you must normalize the one-hour average stack gas values measured above the span during the 24-hour period preceding or following the “above span” calibration for reporting based on the Hg CEMS response to the reference gas as shown in equation 22. Only one “above span” calibration is needed per 24-hour period.

* * * * *

(5) * * *

(ii) On a continuous basis, determine the mass emissions of mercury in lb/hr from the alkali bypass and coal mill exhausts by using the mercury hourly emissions rate and the exhaust gas flow rate to calculate hourly mercury emissions in lb/hr.

* * * * *

(1) * * *

(1) If you monitor compliance with the HCl emissions limit by operating an HCl CEMS, you must do so in accordance with Performance Specification 15 (PS 15) or PS 18 of appendix B to part 60 of this chapter, or, upon promulgation, in accordance with any other performance specification for HCl CEMS in appendix B to part 60 of this chapter. You must operate, maintain, and quality assure a HCl CEMS installed and certified under PS 15 according to the quality assurance requirements in Procedure 1 of appendix F to part 60 of this chapter except that the Relative Accuracy Test Audit requirements of Procedure 1 must be replaced with the validation requirements and criteria of sections 11.1.1 and 12.0 of PS 15. If you choose to install and operate an HCl CEMS in accordance with PS 18 of appendix B to part 60 of this chapter,

you must operate, maintain, and quality assure the HCl CEMS using the associated Procedure 6 of appendix F to part 60 of this chapter. For any performance specification that you use, you must use Method 321 of appendix A to part 63 of this chapter as the reference test method for conducting relative accuracy testing. The span value and calibration requirements in paragraphs (l)(1)(i) and (ii) of this section apply to HCl CEMS other than those installed and certified under PS 15 or PS 18.

* * * * *

(3) If the source is equipped with a wet or dry scrubber or tray tower, and you choose to monitor SO₂ emissions, monitor SO₂ emissions continuously according to the requirements of § 60.63(e) and (f) of part 60 subpart F of this chapter. If SO₂ levels increase above the 30-day rolling average SO₂ operating limit established during your performance test by 10 percent or more, you must:

(i) As soon as possible but no later than 30 days after you exceed the established SO₂ value conduct an inspection and take corrective action to return the SO₂ emissions to within the operating limit; and

(ii) Within 90 days of the exceedance or at the time of the next compliance test, whichever comes first, conduct an HCl emissions compliance test to determine compliance with the HCl emissions limit and to verify or re-establish the SO₂ CEMS operating limit.

* * * * *

7. Section 63.1354 is amended by:

a. Revising paragraphs (b)(9) introductory text and (9)(vi);

b. Redesignating paragraph (b)(9)(viii) as paragraph (b)(11)(i) introductory paragraph and revising the newly redesignated paragraph;

- c. Adding new paragraphs (b)(11)(i)(A)-(C);
- d. Redesignating paragraph (b)(9)(ix) as paragraph (b)(11)(ii);
- e. Redesignating paragraph (b)(9)(x) as paragraph (b)(12) and revising the newly redesignated paragraph; and
- f. Revising paragraphs (b)(10) and (c).

The revisions read as follows:

§ 63.1354 Reporting requirements.

* * * * *

(b) * * *

(9) The owner or operator shall submit a summary report semiannually within 60 days of the reporting period to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI). (CEDRI can be accessed through the EPA's Central Data Exchange (CDX) (<https://cdx.epa.gov/>). You must use the appropriate electronic report in CEDRI for this subpart. Instead of using the electronic report in CEDRI for this subpart, you may submit an alternate electronic file consistent with the extensible markup language (XML) schema listed on the CEDRI website (<https://www.epa.gov/electronic-reporting-air-emissions/compliance-and-emissions-data-reporting-interface-cedri>), once the XML schema is available. If the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, you must submit the report the Administrator at the appropriate address listed in § 63.13. You must begin submitting reports via CEDRI no later than 90 days after the form becomes available in CEDRI. The excess emissions and summary reports must be submitted no later than 60 days after the end of the reporting period, regardless of the method in which the reports are submitted. The report

must contain the information specified in § 63.10(e)(3)(vi). In addition, the summary report shall include:

* * * * *

(vi) For each PM CPMS, HCl, Hg, and THC CEMS, SO₂ CEMS, or Hg sorbent trap monitoring system, within 60 days after the reporting periods, you must report all of the calculated 30-operating day rolling average values derived from the CPMS, CEMS, CMS, or Hg sorbent trap monitoring systems.

* * * * *

(10) If the total continuous monitoring system downtime for any CEM or any CMS for the reporting period is 10 percent or greater of the total operating time for the reporting period, the owner or operator shall submit an excess emissions and continuous monitoring system performance report along with the summary report.

(11)(i) You must submit the information specified in paragraphs (b)(11)(i)(A) and (B) of this section no later than 60 days following the initial performance test. All reports must be signed by a responsible official.

(A) The initial performance test data as recorded under § 63.1349(a) of this section.

(B) The values for the site-specific operating limits or parameters established pursuant to § 63.1349 (b)(1), (3), (6), (7), and (8), as applicable, and a description, including sample calculations, of how the operating parameters were established during the initial performance test.

(C) As of December 31, 2011, and within 60 days after the date of completing each performance evaluation or test, as defined in § 63.2, conducted to demonstrate compliance with any standard covered by this subpart, you must submit the relative accuracy test audit data and

performance test data, except opacity data, to the EPA by successfully submitting the data electronically via CEDRI and by using the Electronic Reporting Tool (ERT) (see <https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert>). For any performance evaluations with no corresponding RATA pollutants listed on the ERT website, you must submit the results of the performance evaluation to the Administrator at the appropriate address listed in § 63.13.

* * * * *

(12) All reports required by this subpart not subject to the requirements in paragraphs (b)(9) introductory text and (b)(11)(i) of this section must be sent to the Administrator at the appropriate address listed in § 63.13. The Administrator or the delegated authority may request a report in any form suitable for the specific case (*e.g.*, by commonly used electronic media such as Excel spreadsheet, on CD or hard copy). The Administrator retains the right to require submittal of reports subject to paragraph (b)(9) introductory text and (b)(11)(i) of this section in paper format.

(c) *Reporting a failure to meet a standard due to a malfunction.* For each failure to meet a standard or emissions limit caused by a malfunction at an affected source, you must report the failure in the semi-annual compliance report required by §63.1354(b)(9). The report must contain the date, time and duration, and the cause of each event (including unknown cause, if applicable), and a sum of the number of events in the reporting period. The report must list for each event the affected source or equipment, an estimate of the amount of each regulated pollutant emitted over the emission limit for which the source failed to meet a standard, and a description of the method used to estimate the emissions. The report must also include a description of actions taken by an owner or operator during a malfunction of an affected source

to minimize emissions in accordance with §63.1348(d), including actions taken to correct a malfunction.

* * * * *

8. Section 63.1355 is amended by revising paragraph (e) to read as follows:

§ 63.1355 Recordkeeping requirements.

* * * * *

(e) You must keep records of the daily clinker production rates according to the clinker production monitoring requirements in § 63.1350(d).

* * * * *

9. Table 1 to subpart LLL of part 63 is amended by adding the entry “63.10(e)(3)(v)” to read as follows:

1. Table 1 to Subpart LLL of Part 63—Applicability of General Provisions

Citation	Requirement	Applies to subpart LLL	Explanation
* * * * *			
63.10(e)(3)(v)	Due Dates for Excess Emissions and CMS Performance Reports	No	§63.1354(b)(9) specifies due date.
* * * * *			

10. Add Table 2 to subpart LLL of part 63 to read as follows:

2. Table 2 to Subpart LLL of Part 63—1989 Toxic Equivalency Factors (TEFs)

Dioxins/Furans	TEFs 1989
2,3,7,8-TCDD	1
1,2,3,7,8-PeCDD	0.5
1,2,3,4,7,8-HxCDD	0.1

Dioxins/Furans	TEFs 1989
1,2,3,6,7,8-HxCDD	0.1
1,2,3,7,8,9-HxCDD	0.1
1,2,3,4,6,7,8-HpCDD	0.01
OCDD	0.001
2,3,7,8-TCDF	0.1
1,2,3,7,8-PeCDF	0.05
2,3,4,7,8-PeCDF	0.5
1,2,3,4,7,8-HxCDF	0.1
1,2,3,6,7,8-HxCDF	0.1
1,2,3,7,8,9-HxCDF	0.1
2,3,4,6,7,8-HxCDF	0.1
1,2,3,4,6,7,8-HpCDF	0.01
1,2,3,4,7,8,9-HpCDF	0.01
OCDF	0.001