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National Emission Standards for Hazardous Air Pollutants for the Portland Cement Manufacturing Industry and Standards of Performance for Portland Cement Plants; Proposed Rule

**ENVIRONMENTAL PROTECTION
AGENCY**
40 CFR Parts 60 and 63

[EPA-HQ-OAR-2011-0817; FRL-9692-9]

RIN 2060-AQ93

**National Emission Standards for
Hazardous Air Pollutants for the
Portland Cement Manufacturing
Industry and Standards of
Performance for Portland Cement
Plants**
AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rules on reconsideration.

SUMMARY: The EPA is proposing amendments to the National Emission Standards for Hazardous Air Pollutants for the Portland cement industry for Portland cement plants issued under sections 112(d) of the Clean Air Act. Specifically, the EPA is proposing to amend the existing and new source standards for particulate matter (PM). The EPA is also proposing amendments with respect to issues on which it granted reconsideration on May 17, 2011. In addition, the EPA is proposing amendments to the new source performance standard for PM issued pursuant to section 111(b) of the Clean Air Act. These proposed amendments would promote flexibility, reduce costs, and ease compliance burdens. EPA is also addressing the remand of the emission standards in the NESHAP by the D.C. Circuit on December 9, 2011. Finally, the EPA is proposing to extend the date for compliance with the existing source national emission standards for hazardous air pollutants to September 9, 2015.

DATES: Comments must be received on or before August 17, 2012. Any requests for a public hearing must be received by July 30, 2012. If the EPA holds a public hearing, the EPA will keep the record of the hearing open for thirty days after completion of the hearing to provide an opportunity for submission of rebuttal and supplementary information. Under the Paperwork Reduction Act, comments on the information collection provisions are best assured of having full effect if the Office of Management and Budget receives a copy of your comments on or before August 17, 2012.

ADDRESSES: Submit your comments, identified by Docket ID Number EPA-HQ-OAR-2011-0817, by one of the following methods:

- *Federal Rulemaking Portal:* <http://www.regulations.gov>. Follow the online instructions for submitting comments.

- *Agency Web site:* <http://www.epa.gov/oar/docket.html>. Follow the instructions for submitting comments on the EPA Air and Radiation Docket Web site.

- *Email:* a-and-r-docket@epa.gov. Include EPA-HQ-OAR-2011-0817 in the subject line of the message.

- *Fax:* Fax your comments to: (202) 566-9744, Attention Docket ID Number EPA-HQ-OAR-2011-0817.

- *Mail:* Send your comments to: The EPA Docket Center (EPA/DC), Environmental Protection Agency, Mailcode: 2822T, 1200 Pennsylvania Ave. NW., Washington, DC 20460, Attention: Docket ID Number EPA-HQ-OAR-2011-0817. Please include a total of two copies. In addition, please mail a copy of your comments on the information collection provisions to the Office of Information and Regulatory Affairs, Office of Management and Budget (OMB), Attn: Desk Officer for the EPA, 725 17th Street NW., Washington, DC 20503.

- *Hand Delivery or Courier:* In person or by courier, deliver comments to the EPA Docket Center, EPA West (Air Docket), Room 3334, 1301 Constitution Ave. NW., Washington, DC 20460, Attention Docket ID Number EPA-HQ-OAR-2011-0817. Such deliveries are only accepted during the Docket's normal hours of operation (8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays), and special arrangements should be made for deliveries of boxed information. Please include two copies.

Instructions: Direct your comments to Docket ID Number EPA-HQ-OAR-2011-0817. The EPA policy is that all comments received will be included in the public docket without change and may be made available online at <http://www.regulations.gov>, including any personal information provided unless the comment includes information claimed to be confidential business information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through <http://www.regulations.gov> or email. The <http://www.regulations.gov> Web site is an "anonymous access" system, 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 <http://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 disk or CD-ROM 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 avoid the use of special characters, any form of encryption and be free of any defects or viruses. For additional information about the EPA public docket, visit the EPA Docket Center homepage at <http://www.epa.gov/epahome/dockets.htm>.

Docket. The EPA has established a docket for this rulemaking under Docket ID Number EPA-HQ-OAR-2011-0817. All documents in the docket are listed in the <http://www.regulations.gov> index. Although listed in the index, some information is not publicly available (e.g., CBI or other information whose disclosure is restricted by statute). Certain other material, such as copyrighted material, will be publicly available only in hard copy. Publicly available docket materials are available either electronically in <http://www.regulations.gov> or in hard copy at the EPA Docket Center, EPA West, Room 3334, 1301 Constitution Ave. 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. Note that information pertinent to the previous Portland cement rulemakings discussed in this document is contained in dockets EPA-HQ-OAR-2002-0051 and EPA-HQ-OAR-2007-0877.

Public Hearing. If a public hearing is held, it will begin at 10:00 a.m. on August 2, 2012 and will be held at the EPA campus in Research Triangle Park, North Carolina, or at an alternate facility nearby. Persons interested in presenting oral testimony or inquiring as to whether a public hearing is to be held should contact Ms. Pamela Garrett, Office of Air Quality Planning and Standards, Sector Policies and Programs Division, Metals and Minerals Group (D243-01), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; email: garrett.pamela@epa.gov; telephone number: (919) 541-7966. Persons interested in presenting oral testimony or inquiring as to whether a public hearing is to be held should contact Ms. Garrett at least 2 days in advance of the potential date of the public hearing.

FOR FURTHER INFORMATION CONTACT: Ms. Sharon Nizich, Office of Air Quality Planning and Standards; Sector Policies and Programs Division, Minerals and Manufacturing Group (D243-04); Environmental Protection Agency; Research Triangle Park, NC 27111; telephone number: (919) 541-2825; fax number: (919) 541-5450; email address: nizich.sharon@epa.gov.

SUPPLEMENTARY INFORMATION: The information presented in this preamble is organized as follows:

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I. General Information

A. Executive Summary

The EPA is proposing amendments to the emissions standards for hazardous air pollutants (HAP) and to the performance standards for Portland cement plants. These proposed amendments respond to petitions for reconsideration filed by the Portland cement industry and to a decision by the United States Court of Appeals for the District of Columbia Circuit (D.C. Circuit). These amendments, which are consistent with the CAA, if adopted, will also provide less costly compliance options and compliance flexibilities, and thereby result in cost savings for the Portland cement industry. This result would also be consistent with Executive Order 13563. The proposed amendments include a new compliance date for the PM, mercury, HCl, and THC existing source standards.

(1) Purpose of the Regulatory Action

a. Need for the Regulatory Action. The EPA is proposing amendments to the national emission standards for hazardous air pollutants (NESHAP) for the Portland cement source category and to the new source performance standards (NSPS) for Portland cement plants issued under sections 112(d) and 111(b) of the Clean Air Act (CAA). Section 112 of the CAA establishes a regulatory process to address emissions of HAP from stationary sources. After the EPA identifies categories of sources emitting one or more of the HAP listed in section 112(b) of the CAA, section 112(d) requires the EPA to promulgate technology-based NESHAP for those sources. Section 111 of the CAA requires that NSPS reflect the application of the best system of

emission reductions achievable which, taking into consideration the cost of achieving such emission reductions, and any non-air quality health and environmental impact and energy requirements, the Administrator determines has been adequately demonstrated.

This proposal addresses the remand by the D.C. Circuit in *Portland Cement Ass'n v. EPA*, 665 F. 3d 177 (D.C. Cir. 2011). In that case, the court upheld all of the EPA's methodology for establishing the Portland cement NESHAP, denied all petitions for review challenging the NSPS, but also held that the EPA had arbitrarily denied reconsideration of the NESHAP to take into account the effect of the EPA's Nonhazardous Secondary Materials (NHSM) rule on the standards. The NHSM rule, issued after the NESHAP was promulgated, had the effect of reclassifying some cement kilns as commercial and industrial solid waste incinerators (CISWI) and thus could have an effect on the standards.

The proposal also addresses technical issues with respect to the standard for PM in both the NESHAP and the NSPS that have emerged since these rules' promulgation. We are proposing to amend the standard for PM, and also proposing to amend various implementation requirements in a way that would provide more compliance flexibilities. In addition, the proposal addresses the issues on which the EPA previously granted reconsideration.

b. Legal Authority for the Regulatory Action. These proposed amendments implement sections 112(d) and 111(b) of the CAA.

(2) Summary of Major Proposed Provisions

a. PM (PM) Emission Standards. The EPA is proposing changes to the emission standards for PM that potentially make available compliance alternatives unavailable under the promulgated existing source standards. The promulgated rule requires compliance to be demonstrated using a Continuous Emission Monitoring System (CEMS) (see section 63.1348 (75 FR 55056)). Based on the information the EPA now has, we believe that it may be problematic for a PM CEMS to meet the mandated Performance Specification 11 (PS 11) correlation requirements complying with the promulgated PM standards. (See section III.D.) As a consequence, the EPA is proposing to amend the existing and new source PM standards in the NESHAP to require manual stack testing in lieu of PM CEMS for compliance determinations. An additional consequence of this

proposed change of compliance measurement methods is that the EPA is proposing to change the averaging time and numeric emissions value of those standards. The EPA is proposing amended PM standards under the NESHAP for existing sources of 0.07 pounds per ton (lb/ton) clinker based on manual stack testing, (from 0.04 lb/ton in the 2010 rule, 30-day average with a PM CEMS) and 0.02 lb/ton clinker for new sources based on stack testing (from 0.01 lb/ton in the 2010 rule, 30-day average with a PM CEMS). The EPA is proposing amended PM standards under the NSPS for modified sources of 0.07 lb/ton clinker based on manual stack testing, (from 0.01 lb/ton in the 2010 rule, 30-day average with a PM CEMS) and 0.02 lb/ton clinker for new and reconstructed sources based on stack testing (from 0.01 lb/ton in the 2010 rule, 30-day average with a PM CEMS). The EPA is further proposing that a site-specific parametric operating limit be established, that there be continuous monitoring of that parametric limit using a PM CPMS, that an exceedance of that site-specific operating limit be reported as a deviation, triggering corrective action including conducting a Method 5 performance test within 45 days. Further, multiple deviations from the parametric limit can constitute a violation of the emissions standard.

b. Response to Remand. Consistent with the court’s remand, the EPA has removed all the CISWI kilns from the database used to set the 2010 existing

source standards for PM, mercury, hydrochloric acid and total hydrocarbons (THC). The EPA then recalculated existing source floors for each of these pollutants, and determined what standards to propose in light of that analysis. This analysis informed the level of the proposed standards for PM just discussed. The resulting standards are discussed immediately below.

c. Other Emissions Standards. The EPA is not proposing any changes to the existing source standards for mercury, total THC or hydrogen chloride (HCl). The reasons are set out in sections III A, B and C below.

With respect to new source standards, under section 112(d)(3) of the CAA, new source floors can be based on the performance of the “best controlled similar source.” A CISWI cement kiln is a similar source for purposes of this provision. The EPA, therefore, is not proposing to amend any of the new source floors or standards for mercury, THC or HCl where the best performing source in the database used to set the standards was a CISWI cement kiln.

The EPA is also proposing to amend the alternative standard for organic HAP, whereby organic HAP are measured directly. To avoid a situation where the alternative organic standard level is lower than the practical quantitation limit of the relevant analytic methods, the EPA is proposing to increase the alternative organic HAP standard from 9 parts per million (ppm) to 12 ppm. See additional discussion in section III.H below.

d. Standards during Startup and Shutdown. In the final 2010 NESHAP, the EPA established specific numerical standards for startup and shutdown for each pollutant to be measured using a CEMS over an accumulative 7-day rolling average. Because raw materials (the source of most cement kiln air emissions) are not introduced into cement kilns during startup and shutdown, cement kilns’ emissions during these periods should be appreciably lower than the level of the standards. The EPA is, therefore, proposing that sources monitor compliance with these standards via recordkeeping.

e. Proposed Compliance Dates. The EPA is proposing that the compliance date for all existing source standards including standards for PM, mercury, HCl and THC, clinker piles and the standards for startup and shutdown be extended to September 9, 2015. The EPA believes that the proposed change to the PM standard makes possible compliance alternatives unavailable under the promulgated existing source standards) and that an extension until September 9, 2015, is the period in which these new compliance strategies can be implemented most expeditiously.

f. The EPA is also taking action on the remaining issues on which it granted reconsideration on May 17, 2011.

(3) Costs and Benefits

The following table 1 summarizes the costs and emissions reductions of this proposed action.

TABLE 1—COSTS AND EMISSIONS REDUCTIONS OF PROPOSED AMENDMENTS RELATIVE TO THE 2010 RULE^{a b c d e}

Proposed amendment	Capital cost	Annualized cost	Emissions reduction
Revised PM standard	– \$18,640,106	– \$4,200,000	– 135 tons/yr (emissions increase).
Replace PM CEMS with PM CPMS	0	– 7,980,000	0
Total	– 18,640,106	– 12,180,000	

^a See section III below for further discussion of impacts of the proposed amendments.

^b Negative numbers indicate cost savings or emissions increase. All costs are in 2005 dollars.

^c We also estimate that there will be a one-time cost of \$25,000 for each facility to develop the calculation that will allow them to demonstrate compliance during periods of startup and shutdown.

^d Emissions reductions are the total relative to the 2010 rule once full compliance is achieved in 2015.

^e Full compliance costs will not occur until September 9, 2015.

The cost information in Table 1 is in 2005 dollars at a discount rate of 7 percent. The net change in annualized costs in 2015 is a \$12.2 million savings compared to the 2010 rule. The EPA did

not have sufficient information to quantify the overall change in benefits or costs for 2013 to 2015 that might arise due to the proposed change in compliance dates.

4. Summary of Proposed Standards

The following Table 2 shows the proposed standards.

TABLE 2—PROPOSED EXISTING AND NEW SOURCE STANDARDS

Pollutant	Existing source standard	New source standard
Mercury	55 lb/MM tons clinker	21 lb/MM tons clinker.
THC	24 ppmvd	24 ppmvd.

TABLE 2—PROPOSED EXISTING AND NEW SOURCE STANDARDS—Continued

Pollutant	Existing source standard	New source standard
PM	0.07 lb/ton clinker (3-run test average)	0.02 lb/ton clinker (3-run test average).
HCl	3 ppmvd	3 ppmvd.
Organic HAP (alternative to Total Hydrocarbon)	12 ppmvd	12 ppmvd.

B. Does this action apply to me?

Categories and entities potentially regulated by this final rule include:

Category	NAICS Code ¹	Examples of regulated entities
Industry	327310	Portland cement manufacturing plants.
Federal government	Not affected.
State/local/tribal government	Portland cement manufacturing plants.

¹ North American Industry Classification System.

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. To determine whether your facility will be regulated by this action, you should examine the applicability criteria in 40 CFR 60.60 (subpart F) or in 40 CFR 63.1340 (subpart LLL). If you have any questions regarding the applicability of this final action to a particular entity, contact the person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

C. What should I consider as I prepare my comments to the EPA?

Submitting CBI

Do not submit information containing CBI to the EPA through <http://www.regulations.gov> or email. Clearly mark the part or all of the information that you claim to be CBI. For CBI information on a disk or CD-ROM that you mail to the EPA, mark the outside of the disk or CD-ROM as CBI and then identify electronically within the disk or CD-ROM the specific information that is claimed as CBI. In addition to one complete version of the comment that includes information claimed as CBI, a copy of the comment that does not contain the information claimed as CBI must be submitted for inclusion in the public docket. If you submit a CD-ROM or disk that does not contain CBI, mark the outside of the disk or CD-ROM 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 CFR part 2. Send or deliver information identified as CBI only to the following address: Roberto Morales,

QAQPS Document Control Officer (C404-02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, Attention Docket ID Number EPA-HQ-OAR-2011-0817.

D. Where can I get a copy of this document?

In addition to being available in the docket, an electronic copy of this proposal will also be available on the World Wide Web (WWW) through the EPA's Technology Transfer Network (TTN). Following signature by the EPA Administrator, a copy of this proposed action will be posted on the TTN's policy and guidance page for newly proposed or promulgated rules at the following address: <http://www.epa.gov/ttn/oarpg>. The TTN provides information and technology exchange in various areas of air pollution control.

II. Background Information

A. What is the statutory authority for these proposed amendments?

Section 112 of the CAA establishes a regulatory process to address emissions of HAP from stationary sources. After the EPA has identified categories of sources emitting one or more of the HAP listed in section 112(b) of the CAA, section 112(d) requires us to promulgate NESHAP for those sources. For "major sources" 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 a combination of HAP, these technology-based standards must reflect the maximum reductions of HAP achievable (after considering cost, energy requirements and non-air quality health and environmental impacts) and are commonly referred to as maximum

achievable control technology (MACT) standards.

The statute specifies certain minimum stringency requirements for MACT standards, which are referred to as "floor" requirements. See CAA section 112(d)(3). Specifically, for new sources, the MACT floor cannot be less stringent than the emission control that is achieved in practice by the best controlled similar source. The MACT standards for existing sources can be less stringent than standards for new sources, but they cannot be less stringent than the average emission limitation achieved by the best-performing 12 percent of existing sources (for which the Administrator has emissions information) in the category or subcategory (or the best-performing five sources for categories or subcategories with fewer than 30 sources).

In developing MACT, we must also consider control options that are more stringent than the floor. 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. See CAA section 112(d)(2).¹

Section 111(b) requires the EPA to set standards for emissions that "reflect the

¹ Section 112(d)(7) states that "[n]o other emission standard * * * under this section shall be interpreted, construed or applied to diminish or replace the requirements of a more stringent emission limitation or other applicable requirement established pursuant to section 7411 of this title, part C or D of this subchapter, or other authority of this chapter or a standard issued under State authority." This provision indicates that a section 112(d) standard does not "trump" any standard established under other authority which is more stringent. Section 112(d)(7) does not bar the EPA from amending section 112(d) standards to correct technical deficiencies.

degree of emission limitation achievable through the application of the best system of emission reduction.” See CAA section 111(a)(1). In contrast to the NESHAP floor setting process, NSPS requires the EPA to take into account the “cost of achieving” emissions reductions, as well as health, environmental, and energy considerations. *Id.*

B. What actions preceded this proposed rule?

The history of this proposed rule, commencing with the 1999 standards and proceeding through the amendments issued in September 2009, is set out in detail in 75 FR 54970 (Sept 9, 2010). Various parties filed petitions for reconsideration of aspects of those amendments. On May 17, 2011, the EPA granted reconsideration of various issues, and denied the petitions to reconsider as to the remaining issues. See 76 FR 28318 (May 17, 2011). On December 9, 2011, the D.C. Circuit issued an opinion upholding the NESHAP itself (as well as the section 111 NSPS), but found that the EPA had arbitrarily failed to grant reconsideration to consider the effect of the EPA’s NHSM rule on the standards (76 FR 15456 (March 21, 2011)), which rule had the effect of reclassifying some cement kilns as commercial and solid waste incinerators. See *Portland Cement Ass’n v. EPA*, 665 F. 3d 177, 186–189 (D.C. Cir. 2011). That court did not stay the standards for PM, mercury, HCl or THC, but did stay the standard for clinker piles pending the conclusion of the reconsideration process. See 665 F. 3d at 194.

In this action, the EPA is responding to the court’s remand. For existing sources, the EPA is doing so by removing all kilns classified as commercial and industrial solid waste incinerators from the data used to establish the 2010 NESHAP standards. The EPA is then recalculating each of the floors based on this revised dataset and making beyond-the-floor determinations based on the recalculated floors. The EPA believes that this approach is fully responsive to the court’s remand. See 665 F. 3d at 188 where the court referred favorably to this type of recalculation. For new sources, the EPA is basing floors on the performance of the best performing similar source.

III. Description of Proposed Amendments to Subpart LLL and Subpart F

A. Reconsideration of Standards

As just noted, in *Portland Cement Association v. EPA*, the D.C. Circuit upheld all of the EPA’s methodology for establishing the Portland cement NESHAP, but remanded the standards so that the EPA could account for the effects of the EPA’s NHSM rule. This rule, adopted after promulgation of the Portland cement NESHAP, had the effect of reclassifying certain cement kilns as commercial and industrial incinerators because they combust “solid waste” as defined by that rule. See 665 F. 3d at 185–189.

Applying that definition, the EPA has determined that there are 24 cement kilns which combust solid waste. See 76 FR 28322 and Memorandum “Combustion in a Cement Kiln and Cement Kilns’ Use of Tires as Fuel” (April 25, 2011) (“April 25 memorandum”); see also 76 FR 80452 (Dec. 23, 2011) where the EPA identified 23 of the 24 kilns as commercial incinerators as were identified in the April 25 memorandum. The 24th kiln was identified as a CISWI kiln after development of the April 25, 2011, memorandum, but the addition of this kiln did not affect the calculations contained in the May 17, 2011 notice (CISWI Data Revisions since Reconsideration Proposal, docket EPA–HQ–OAR–2003–0119). Although the EPA has proposed to reconsider certain narrow aspects of the NHSM rule, see 76 FR 80598 (Dec. 23, 2011), this count remains unchanged by any of the issues being considered in the reconsideration of the NHSM rule. This is because either the types of secondary materials being addressed in that reconsideration are not combusted by cement kilns or the EPA has already accounted for those materials in its April 25 memorandum analysis. See 76 FR 28319 (May 17, 2011). Specifically, in the NHSM reconsideration proposal, the EPA proposed to clarify that clean cellululosic biomass and clean construction and demolition wood are not solid wastes when burned for energy recovery and that unused, off-specification tires are not wastes when burned for energy recovery. The EPA’s analysis underlying its April 25, 2011, memorandum already reflects that these non-hazardous secondary materials are not wastes when burned by cement kilns for energy recovery. The EPA expects the reconsideration of the NHSM rule to be completed before taking final action on this proposed rule and the EPA will account for any changes resulting from

the reconsidered final NHSM rule when it takes final action here.²

1. Existing Source Floors. We removed the 24 CISWI kilns from the database used to establish existing source standards and recalculated floors for existing sources. Under this analysis, the existing source floor for mercury increased from 55 lb/million (MM) tons clinker to 58 lb/MM tons clinker, the existing source floor for PM increased from 0.04 lb/ton clinker to 0.05 lb/ton clinker, the existing source floor for THC decreased to 15 parts per million by volume, dry (ppmvd), and the existing source floor for HCl stayed the same at 3 ppmvd.

As explained in section B below, the EPA is proposing to establish a beyond the floor standard for mercury of 55 lb/MM tons clinker. Moreover, for reasons independent of this analysis, the EPA is proposing to amend the existing and new source NESHAP for PM. See section D below. The EPA is not proposing to amend the HCl standard or the THC standard.

2. New Source Standards. With respect to new source standards, the EPA does not believe that any reclassification and reanalysis is necessary under the court’s opinion. New source floors can be based on the performance of “the best controlled similar source”, as opposed to existing source floors which must reflect performance of sources “in the category or subcategory”. See CAA section 112(d)(3) and (d)(3)(A). A CISWI cement kiln is similar to a non-CISWI cement kiln since the device is a cement kiln. Equally important, burning secondary materials for energy recovery does not significantly alter a cement kiln’s HAP emission profile. See 76 FR 28320 (May 17, 2011) (documenting both the basis for this conclusion and the cement industry’s agreement with it).^{3 4}

² The EPA has also conducted a bounding analysis of potential floors by removing from the data base all cement kilns that burn any type of secondary material for energy recovery (so that there is no possibility that any CISWI kiln is in the bounding analysis database). Under this analysis, the existing source section 112 floor for HCl was unchanged, the existing source floor for PM was essentially unchanged, the existing source floor for THC becomes more stringent (as in the April 25, 2011, analysis), and the existing source mercury floor increases from 55 lb/MM ton clinker to 66 lb/MM ton clinker. However, even in this case, a beyond-the-floor mercury limit of 55 lb/MM tons clinker would be cost effective and the EPA would propose the same standards as under this proposal if this bounding analysis were used in place of the analysis described in the text. The EPA, thus, does not believe that the precise count of CISWI kilns will affect the outcome of this rulemaking. See Bounding Analysis for Portland Cement MACT Floors, May 14, 2012.

³ The EPA is thus not reopening the new source standards (with the exception of the PM standard,

B. Mercury Standard

1. New Source Standard. As explained above, the new source standard is based on the performance of the best performing similar source.

2. Existing Source Standard. As noted above, the recalculated existing source floor is 58 lb/MM tons clinker produced. The EPA is proposing a beyond-the-floor standard of 55 lb/MM ton clinker produced, the level of the 2010 final standard. As described below, the only difference in cost between the two levels is the incremental cost of removing slightly more mercury, which is estimated at \$2,000/lb of mercury removed. This is because the control equipment needed for mercury would not alter, would not need to be sized differently, and would need to perform on average nearly identically at either a 55 lb/MM tons clinker or a 58 lb/MM tons clinker level. That is, in planning compliance, kilns would calibrate to achieve an average performance of 34.1 lb/MM tons clinker for a standard of 58 lb/MM tons clinker, and 31.7 for a standard of 55 lb/MM tons clinker, which translates to an additional reduction of 2.4 lb/MM tons of clinker per year. This equates to an estimated 180 pounds of nationwide mercury emissions per year, incremental to the recalculated floor. To achieve this additional reduction, we estimated an additional cost of approximately \$355,000 for the industry, the cost of purchasing additional carbon injection materials. This equates to a cost-effectiveness of \$2,000/lb of mercury reduction per year. This is the incremental cost of going from the recalculated floor of 58 lb/MM tons clinker to the proposed 55 lb/MM tons clinker. Because this is the same level as the 2010 rule, there are no incremental costs or emissions impacts when compared to the 2010 rule. See

which the EPA is proposing to amend). We will take comment on whether CISWI cement kilns can be considered a “similar source” under section 112(d)(3) and whether retention of the 2010 new source standards on this basis is consistent with the D.C. Circuit’s opinion. The EPA will not consider comments challenging the data and methodology for the new source standards since these are unchanged from the 2010 rule and the EPA is not reexamining any of these issues.

⁴ If the EPA were to reconsider the new source standards by removing the 24 CISWI kilns from the database, then the mercury new source floor increased from 21 to 24 lb/MM tons clinker, the THC new source floor decreased from 24 to 11 parts per million by volume dry (ppmvd), and the PM and HCl new source floor stayed the same at 0.01 lb/ton clinker and 3 ppmvd, respectively (see Memorandum, Revised Portland Cement NESHAP with CISWI kilns removed, March 21, 2011). However, as explained in the text, because CISWI cement kilns are “similar sources” for purposes of establishing NESHAP new source standards, the EPA is not relying on this analysis here.

section 8.2, Portland Cement Reconsideration Technical Support Document. Moreover, this reduction is highly cost-effective. A cost effectiveness value of \$2,000/lb. mercury is considerably less than values the EPA have found to be cost effective for removal of mercury in other air toxics rules. For example, in the National Emission Standards for Hazardous Air Pollutants: Mercury Emissions from Mercury Cell Chlor-Alkali Plants, the cost effectiveness was found to be between \$13,000 to \$31,000 per pound for the individual facilities (see Supplemental proposed rule, 76 FR 13858 (March 14, 2011)). The EPA also does not see any adverse energy or non-air quality health or environmental consequences of a 55 lb/MM tons clinker beyond-the-floor standard.

We are not proposing a beyond the floor level below 55 lb/MM tons clinker for the same reasons given in the 2010 final rule—in particular the possibility that a lower standard could force some kilns to find alternative sources of limestone, at enormous cost and disruption. See 75 FR 54980 (September 9, 2010).

C. THC Standard

The THC data for the 2010 standard consist of CEMS data for 15 kilns. After removing the four CISWI kilns, nine kilns remain. Thus, the MACT floor kilns consisted of 12 percent of these nine kilns, or two kilns. The top two kilns were Suwannee and Holcim. As explained above, when CISWI sources are removed from the database for the 2010 standards, the existing source floor for THC becomes more stringent from 24 ppmvd to 15 ppmvd, and the new source standard would drop from 24 ppmvd to 11 ppmvd. This change results from removing from the database a CISWI cement kiln (the Lehigh Union Bridge kiln) with the lowest daily average performance but with more associated variability than the other kilns with the next highest daily average performance. See also 76 FR 28322 (May 17, 2011) n. 11 and 665 F. 3d at 188. However, notwithstanding this calculation, the EPA is not proposing to reduce the level of either the new source or the existing source THC standard.

1. New Source Standard. As just explained, the new source standard can be based on performance of a “best controlled similar source”, so there is no reason under the statute or the court’s remand to amend the new source THC standard. The standard is also technically appropriate. See 75 FR 54981 (September 9, 2010) (explaining basis for the THC new source standard, which discussion is summarized below

for the readers’ convenience). Removing the CISWI Union Bridge kiln as the best performing new source would leave the Suwannee kiln as the lowest emitter based on its daily average THC emissions. See Portland Cement Reconsideration Technical Support Document (TSD), section 8.4, which is available in this rulemaking docket. This kiln has higher average emissions than the Union Bridge kiln (that is, its daily average emissions are higher than the Union Bridge kiln). This kiln thus emits more THC than the Union Bridge kiln, so the EPA identified the kiln emitting less THC on average—the Union Bridge kiln—to be the best performer. The Suwannee kiln has less measured variability than the Union Bridge kiln, but also has hundreds of fewer observations. For this reason, the EPA considered the Union Bridge kiln to be more representative of variability, and used its 99th percentile performance as the measure of performance of the best performing similar source in establishing the new source standard. See 75 FR 54981 (September 9, 2010).⁵

2. Under the calculation described above, the existing source floor would be reduced from 24 ppmvd to 15 ppmvd. Subject to any comments the EPA receives on this proposed action, the EPA believes that such a floor level would not be technically appropriate. It omits the variability of the similar source with the best average performance for THC (the Union Bridge kiln), and so may not be fully representative of variability of best performing sources. As noted above, cement kiln HAP emissions are not appreciably affected by burning secondary materials for energy recovery so the Union Bridge’s variability is representative of cement kiln variability. In addition, as noted above, the number of daily observations for the Union Bridge kiln is among the most robust in the database, containing over 3 times the number of observations as the next best performing cement kiln. Thus, there is a “demonstrated relationship” between the variability of the Union Bridge kiln and the variability of the best performing sources in the existing source floor pool. *Sierra Club v. EPA*, 479 F. 3d 875, 882 (D.C. Cir. 2007). The EPA consequently believes it is technically justified to consider the

⁵ For purposes of comparing the relative variability of the THC CEMS data for each of the kilns in our THC data set, we used the ratio of the 99th percentile for each kiln divided by its daily average. A ratio of 1.0 indicates no variability. As the ratio increases, variability increases. See Portland Cement Reconsideration TSD, section 8.4, which is available in this rulemaking docket.

Union Bridge kiln's variability in estimating the variability of the best performing cement kilns for THC emissions.

If the variability of the Union Bridge kiln is included along with the variability of the two best performing cement kilns, and applied to the two best performing cement kilns' performance, the floor would be 24 ppm, which the EPA is proposing as a floor. See Portland Cement Reconsideration TSD, section 8.4. This is the level of the 2010 standard.

3. Beyond the floor standards. The EPA is not proposing a beyond the floor THC standard for existing cement kiln sources. The reasons given in the rulemaking remain valid. See 75 FR 54983 (September 9, 2010); 74 FR 21153 (May 6, 2009). We especially note that a more stringent standard for THC would force the increased use of energy-intense control technologies like regenerative thermal oxidizers (RTO) which have negative environmental implications, notably increased emission of carbon dioxide (CO₂) and other greenhouse gases, as well as increased emissions of nitrogen oxide (NO_x), carbon monoxide, sulfur dioxide (SO₂) and PM₁₀. See 74 FR 21153 (May 6, 2009).⁶ These devices are also extremely costly and not cost-effective. See 74 FR 21153 (May 6, 2009). For a description of the costs, energy requirements and environmental impacts of RTO, see Summary of Environmental and Cost Impacts for Final Portland Cement NESHAP and NSPS, August 6, 2010, docket no. EPA-HQ-OAR-2002-0051-3438. For all these reasons, the EPA does not consider a beyond-the-floor standard for THC to be justified under section 112(d)(2). Consequently, the EPA is not proposing a beyond-the-floor standard for THC for existing sources.⁷

D. Proposed Amendments to Existing Source and New Source Standards for PM Under Section 112(d) and 111(b)

Based largely on developments which have occurred after the EPA granted reconsideration on certain aspects of the NESHAP⁸, the EPA is proposing

⁶ The EPA estimates that each thermal oxidizer emits an added increment of 0.02 tons of CO₂ for each ton of clinker produced. A typical kiln producing 1.2 million tons of clinker per year and controlled by an RTO would emit an additional 24,000 tons of CO₂ per year. See RTO Secondary Impacts, May 16, 2012, in this rulemaking docket.

⁷ The EPA is also proposing to amend the alternative standard for organic HAP under which organic HAP is measured directly. See section I below.

⁸ On November 15, 2011, Holcim (US) Inc., a domestic cement company, submitted a petition for reconsideration to the EPA requesting that the EPA reconsider and stay the NESHAP PM standard. The

revisions to the testing and monitoring methods used to demonstrate continuous compliance with the existing and new source PM emissions standards and is proposing changes to the averaging time, level, and compliance demonstration for those standards. The EPA has also removed all CISWI kilns from the data base used to establish the standards for PM and used this revised data base in determining the level of the standard, consistent with the court's remand. We explain these proposed changes below.

In comments to the 2009 proposal, industry commenters maintained that there were several problems with implementing the monitoring requirements to demonstrate compliance using a PM CEMS and with the requirements to conduct a periodic audit of the PM CEMS in accordance with Performance Specification (PS) 11 of appendix B and Procedure 2 of appendix F to part 60. The EPA responded to these comments in the 2010 final rule. See 75 FR 55007 (September 9, 2010); NESHAP Response to Comment Document pp. 163–166. Since that time, the Portland cement industry has identified further technical issues associated with the current PM CEMS technology in satisfying PS 11 correlation requirements that have emerged as the industry has attempted to develop a CEMS-based compliance strategy for PM pursuant to the 2010 NESHAP.

1. PS 11. The EPA has continued to review the application of PM CEMS in relation to the procedures and acceptance criteria of PS 11, the protocol mandated by the promulgated

basis for the petition was CEMS data for PM from four of Holcim's kilns (some of which are either waste-burning or hazardous waste burning). Petition pp. 5–6. This information was collected commencing in January 2011. Since the information in the petition was gathered outside the time period mandated by section 307(d)(7)(B) of the Act—even assuming it was impractical to raise the objection during the public comment period, the grounds arose outside the time period for judicial review which ended in November 2010. Thus, the EPA believes that it is not compelled to grant this petition. Moreover, as discussed in the text below, because the EPA is proposing to no longer use a CEMS-based regime for the PM standard, the Holcim information is no longer of direct relevance in setting the level of the PM standard. A further issue with the data is that they were not obtained using CEMS calibrated according to PS-11, the protocol specified in the rule. Accordingly, the EPA is not basing its proposal of a revised PM standard on these data. The EPA is not, however, taking final action on the Holcim petition at this time, but intends to do so in conjunction with the issuance of the final reconsideration rule.

On January 17 2012, LaFarge Cement submitted a petition for reconsideration containing no new data or information but arguing that the Holcim petition justified reconsideration of the standards. The EPA believes that this petition is subsumed by the Holcim petition.

rule. See section 63.1350(b)(1). PS 11 is structured differently than other PS that apply to validating the performance of gaseous pollutant CEMS. This is primarily because the pollutant, PM, is defined entirely by the test method specified by regulation to measure it. As the industry commenters note, there are no independent standard reference materials for PM concentrations as there are for gaseous pollutants (e.g., NIST traceable compressed gases for validating SO₂ or NO_x instrumental measurements). The only reference standard for determining the PM concentration in an air or stack gas sample is the reference test method. In the case of the Portland cement NESHAP (and NSPS), the rule specifies the EPA Method 5 for measuring filterable PM concentration or mass rate (e.g., in mg/dscm or lb/hr).

PS 11 provides procedures and acceptance criteria for validating the performance of several types of PM CEMS technologies. Although there are multiple instrument and data reporting operational performance checks in PS 11 that are similar in concept to those for gaseous pollutant CEMS, there is the principal PM CEMS performance requirement that is distinctly different. That requirement is the development of a site-specific PM CEMS correlation or mathematical response curve. There is a key procedural element to developing that correlation. That is, PS 11 requires that the source conduct multiple stack test runs using an EPA PM test method (e.g., Method 5) and simultaneously collect corresponding PM CEMS output data. PS 11, section 8.6, requires at least five test runs at each of three different operating (i.e., low, mid, and high PM concentration) conditions that range from 25 to 100 percent of allowable emissions, if possible, for a total of 15 or more test runs. Then the source must use the test method data and the corresponding PM CEMS output data to develop an equation (i.e., a calculated linear or nonlinear curve) that will be used to define the relationship between the PM CEMS output and the test method measured PM concentrations. Each site-specific correlation must meet several PS 11 acceptance criteria including limits on confidence interval and tolerance interval equating to ±25 percent of the applicable emissions limit.

2. Discussion of Technical Issues. A particular challenge in applying PM CEMS to source emissions monitoring is in measuring the very low PM concentrations associated with a low applicable emissions limits for PM precisely enough to meet the PS 11 correlation requirements. In addition to

measurement uncertainty inherent in PM CEMS data, the measurement uncertainty associated with the reference test method (e.g., Method 5) is a significant contributor to successful development of a PM CEMS correlation regardless of the type of PM CEMS used.

As noted above, PS 11 specifies acceptable criteria for a correlation directly related to the applicable emissions limit. The Portland cement NESHAP PM emissions limit for existing sources of 0.04 lb/ton of clinker equates to 5 to 8 mg/dscm, depending on production rate (assuming a typical total gas flow rate per clinker production rate). For a PM CEMS set up to measure compliance with a 5 to 8 mg/dscm equivalent limit, the inherent uncertainty associated with a 1 hour Method 5 measurement (± 0.6 to 1.2 mg/dscm) would constitute more than half of the ± 25 percent of the applicable PS 11 acceptance threshold (i.e., ± 1.2 to 2.0 mg/dscm) of the mid-level PS 11 correlation test (i.e. the correlation for the middle of the three PS 11 correlation points).

Although one can improve the method detection capabilities of the Method 5 or other filterable PM test method by increasing sampling volume and run time, uncertainties in measurement would remain. For example to achieve a practical quantitation limit of 1 mg/dscm, one would need to conduct a test run of 6 hours or longer. The measurement uncertainty associated with a 6-hour Method 5 test runs at this concentration would be ± 0.01 to 0.2 mg/dscm. At this level, the uncertainty associated with the PM test method measurements alone would be about half of the correlation limit allowed in PS 11. The PS 11 correlation calculations would also have to account for any PM CEMS measurement uncertainty.

Factoring in the inherent PM CEMS response variability and the uncertainty associated with the representative sampling (e.g., PM and flow stratification), we agree with commenters that trying to satisfy PS 11 at such low concentrations using 1 hour Method 5 test runs could be problematic. The same issue arises for the new source standard because of the lower limit of the new source standard.

The industry also argued that the variable raw feed material and chemical additives used in cement production will lead to changes in particle size, refractive index, particle density, and other physical characteristics of the particulate in the exhaust stream. This is important, according to the comments, because correlations developed for the light scatter and

scintillation PM CEMS technology may be adversely affected by these physical changes in particles irrespective of changes in mass emissions rates or concentrations.

In developing the 2010 final rule, the EPA assumed that cement kilns would be using light-scatter or scintillation PM CEMS.⁹ The output or response of these light based detectors is a function of the index of refraction or photoelectric effects and the size distribution of the particles in the exhaust stream. In addition to being more sensitive than opacity monitors, light based detectors provide several degrees of design freedom not applicable to opacity monitors. PM CEMS manufacturers account for characteristics such as light wavelength, scattering angle, and solid angle of detection in designing instruments with desired response features. These types of PM CEMS can be reliably calibrated per PS 11 where the relative characteristics (e.g., distribution of size, shape, and constituents) of the PM in the exhaust remain relatively constant. Such may be the case, for example, where the PM being measured is predominantly combustion ash from burning fossil fuels in a boiler or an electricity generating unit.

The dominant sources of PM from a cement kiln are not from fuel combustion but from processing raw materials. Cement kilns process mostly limestone with naturally occurring variability in component percentages. See 74 FR 21142 (May 6, 2009); 75 FR 54977 (September 9, 2010). Cement kiln operators also add other chemical additives in variable concentrations to produce certain product characteristics. See 74 FR 21142. As noted in the EPA's technology background documents (e.g., <http://www.epa.gov/ttn/emc/cem/pmcemsknowfinalrep.pdf> and <http://www.epa.gov/ttn/emc/cem/r4703-02-07.pdf>), the correlations developed for light-scatter or scintillation PM CEMS devices may be adversely affected when there are changes in the particle structure, size, and other physical characteristics of the emissions. These changes in emissions characteristics can occur with the variability inherent in the composition of fuels and raw feed materials, with use of mixed multiple fuels, or with addition of chemical additives in various proportions.¹⁰

This is an issue of special import for cement kilns. One can expect significant variations in particle size distribution

and other particle characteristics in Portland cement kiln exhaust because of the complicating effects of variable content feed materials and chemical additives. That means that correlations developed for one set of conditions may not apply with changes in feed materials or under other operating conditions (e.g., different chemical additives).

The EPA has investigated whether PM CEMS that work on principles other than light scattering could effectively measure cement kiln PM and be calibrated per PS 11 requirements. There is at least one other PM CEMS technology, beta attenuation PM CEMS, also referred to as beta gauge technology that is much less sensitive to changes in particle characteristics than are light based detectors. The beta attenuation PM CEMS extracts a sample for the stack gas and collects the PM on a filter tape. The device periodically advances the tape from the sampling mode to an area where the sample is exposed to Beta radiation. The detector measures the amount of beta radiation emitted by the sample and that amount can be directly related to the mass of PM on the filter.

The majority of PM CEMS devices used to date by cement kilns are based on light scatter or scintillation detection. We understand that a few Portland cement operators have applied beta attenuation devices. Since the EPA premised the rule on use of a different type of PM CEMS, since there is minimal operating experience with beta gauge PM CEMS in this industry, and because we are not aware that the experience includes a beta gauge PM CEMS calibrated per PS 11, the EPA believes that some type of research effort involving testing would be needed before predicating a PM standard on use of a beta gauge PM CEMS. Such an effort is likely to take several years to implement.¹¹

These issues exacerbate the uncertainties of calibrating PM CEMS at the level of the 2010 p.m. standards noted above. Using data from longer Method 5 test runs will improve the probability of a PM CEMS meeting PS 11 correlation requirements but will also raise practicality concerns potentially without completely resolving the problems. Given the combination of the low emissions concentrations PM CEMS measurement

¹¹ We also note that PS 11 provides for means to minimize the effects of changing particle sizes, for example by developing multiple correlation curves, each of which requires 15 Method 5 test runs. The EPA did not consider such an approach in promulgating the rule and again, further technical work is needed to ascertain if such an approach would yield reliable results.

⁹ US EPA, CEMS Cost Model, July 2006.

¹⁰ Memorandum, from C. Oldham to B. Schell, Particulate Matter Continuous Emission Monitoring System (PM CEMS) Capabilities, June 13, 2012.

uncertainty factors discussed above, the variability in composition of cement PM, and need for extraordinarily long test runs to reduce Method 5 uncertainty to a level that compensates sufficiently for the PM CEMS measurement uncertainty, the EPA believes that this correlation will not be technically or practically achievable for a significant number of cement kiln sources.

3. A monitoring approach alternative to PM CEMS and PS 11. To address technical issues associated with PM CEMS meeting PS 11 correlation requirements at low PM emissions concentrations from cement kilns and the potentially variable PM emissions characteristics expected from Portland cement kilns, the EPA is proposing to change the compliance basis for the PM emissions limit from PM CEMS and the 30-day average emissions calculation. For monitoring continuous compliance, the rule would require PM CEMS equipment but, as explained below, that equipment would be used for continuous parametric monitoring rather than for direct measure of compliance with the numerical PM emissions limit.

The EPA is proposing to change the means of demonstrating compliance from PM CEMS to Method 5 stack testing. In applying Method 5, PM is withdrawn isokinetically from the source and collected on a glass fiber filter maintained at a temperature of 120 ± 14 °C (248 ± 25 °F). The PM mass, which includes any material that condenses at or above the filtration temperature, is determined gravimetrically after the removal of uncombined water. Compliance with the numerical emissions limit is then based on an average of three 2-hour test runs rather than a 30-day average determined from PM CEMS data. The numerical level of the standard would change to reflect the different averaging period. See 75 FR 54988 (September 9, 2010) (explaining that more measurements of a properly designed and operated control device decreases measured variability since there are likely to be more measurements at the mean of performance); see also 75 FR 54975 (September 9, 2010) (explaining how this phenomenon is reflected in the Upper Prediction Limit (UPL) equation used to project variability, since the m term (i.e., the number of measurements) in the equation becomes larger with more observations resulting in a larger denominator and hence lower ultimate level). By changing from a 30-day average with potentially 720 hourly values to a three-run test average producing three test run values, we

reviewed and revised the calculation of the PM emissions floor and standard, and consistent with the court's remand, removed all CISWI kilns from the database in doing so. In calculating the PM MACT floor, the best performing kilns used in the analysis changed as a result of removing the kilns identified as CISWI kilns.

In addition, we realized that in the original analysis PM emissions data for a single kiln were inadvertently treated as test results for three different kilns. After making that correction and after eliminating kilns identified as CISWI, the number of kilns in the data set was reduced from 45 kilns to 28 kilns. Therefore, the best performing 12 percent was represented by four kilns. As a result of removing the CISWI kilns, two kilns which were not best performers in the 2010 dataset are now best performers. See TSD section 8.3 and Appendices E and F.

As in the 2009 proposal, we used individual test run data from our best performing kilns and calculated the 99th confidence UPL. Rather than using $m = 30$ in the equation as we did in the 2010 final rule where compliance was based on a 30 day rolling average, see 75 FR 54988 (September 9, 2010), we used $m = 3$ consistent with the proposed requirement to determine compliance using a three run Method 5 test. Under this analysis, we determined the revised proposed PM MACT floor to be 0.07 lb/ton clinker produced when based on the three run Method 5 test. Beyond-the-floor standards do not appear to be justified for the same reasons given in the 2010 final rule. See 75 FR 54988 (September 9, 2010). We are, therefore, proposing this emissions limit for the kiln and clinker cooler and an initial and annual compliance test using Method 5 to demonstrate compliance.

These issues affecting the existing source PM limit also apply to the new source PM limit. Based on this revised compliance regime, the new source floor would change from 0.01 lb/ton clinker produced, to 0.02 lb/ton clinker produced, based on a three run average from a Method 5 stack test. See Portland Cement Reconsideration TSD, section 8.3. The best performing kiln used to set the MACT floor for new sources in the 2010 rule was a cement kiln, not a CISWI kiln, so the same kiln was used for this analysis. The difference is that because a 3-run test would be used to determine compliance rather than a 30-day rolling average, the calculation of the 99th confidence UPL used $m = 3$ rather than 30, which results in a floor of 0.02 lb/ton clinker. The EPA is not proposing a beyond-the-floor standard

for the reasons given at 75 FR 54988 (September 9, 2010).

As indicated above, the EPA is further proposing to use PM CEMS technology for continuous parametric monitoring of the proposed PM standards. The EPA has developed requirements for continuously monitoring operating parameters in instances where compliance is based on non-continuous measurements, as would now be the case for PM. This implements section 114(a)(3) of the CAA which requires major sources to use enhanced monitoring for compliance certifications. The EPA's historic approach has been to require monitoring of a control device operating condition (e.g., electrical power, water flow rate, pH) the limit of which is based on a periodic compliance test with the compliance test method. The use of a continuous parametric monitoring system (CPMS) based on PM CEMS technology (PM CPMS) is a significant step closer to direct measurement of emissions in units of the emissions limit and an improvement over less direct monitoring of a process control device conditions.

Specifically, this proposal recognizes the value of PM monitoring technology sensitive to changes in PM emissions concentrations and use of such a tool to assure continued good operation of PM control equipment. This approach avoids the PM CEMS calibration (i.e., PS 11 correlation) issues that can be exacerbated for Portland cement installations. PM CEMS technology can be effective in monitoring control device performance (see, e.g., 77 FR 9371 (February 16, 2012)) where the EPA established PM CPMS parametric operating limits for electricity generating units).

As a result, this proposed rule would require the installation and operation of a PM CPMS for parametric monitoring associated with the proposed PM standard. The source owner would not have to meet PS 11 requirements but would have to prepare and submit for approval, if requested by a permitting authority, a site-specific monitoring plan to apply sound practices for installing, calibrating and operating the PM CPMS.

Current PM CPMS have an operating principle based on in-stack or extractive light scatter, light scintillation or beta attenuation. The source owner or operator would need to examine the fuel and process conditions of his stack as well as the capabilities of these devices before selecting a particular CPMS technology. The reportable measurement output from the PM CPMS may be expressed as milliamps, stack

concentration or other raw data signal. For the purposes of this proposed rule, the source owner would establish an operating limit based on the highest PM CPMS hourly value collected during the most recent PM compliance test (or other stack tests accepted as a legitimate basis for compliance, as explained below). The source would collect PM CPMS data continuously and calculate a 30 operating day rolling average PM CPMS output value from the hourly PM CPMS data collected during process operating hours and compare that average to the site specific operating limit. For these reasons (i.e., 30 days to mitigate the effects of measurement and emissions variability and using the highest hourly average from the stack testing), the EPA believes that use of the PM CPMS for parametric monitoring should not pose the same technical issues as those underlying the proposed decision to base compliance on PM CEMS measurements.

We are proposing a number of consequences if the kiln PM monitoring parameter is exceeded. First, the source owner will have 48 hours to conduct an inspection of the control device and to take action to restore the controls if necessary and 45 days to conduct a new PM Method 5 compliance test to verify ongoing compliance with the PM limit. Within 60 days complete the emissions sampling, sample analyses and verification that the source is in compliance with the emissions limit in accordance with the test procedures in either section 60.64 or 63.1349(b)(1). Also, determine an operating limit based on the PM CPMS data collected during the performance test. Compare the recalculated operating limit with the existing operating limit and, as

appropriate, adjust the numerical operating limit to reflect compliance performance. Adjustments may include applying the most recently established highest of the three test run hourly averages or combining the data collected over multiple performance tests to establish a more representative value. Apply the reverified or adjusted operating limit value from that time forward.

Second, the EPA is proposing that this proposed rule limit the number of deviations of the site-specific CPMS limit leading to follow up performance tests in any 12-month process operating period and an excess of this number be considered to be a violation of the standard. This presumption could be rebutted by the source, but would require more than a Method 5 test to do so (e.g., results of physical inspections). This additional information is necessary since a Method 5 test could not be conducted following the discovery of deviations and would not necessarily represent conditions identical to those when the deviations occurred. The basis for this part of the proposal is that the site-specific CPMS limit could represent an emissions level higher than the proposed numerical emissions limit since the PM CPMS operating limit corresponds to the highest of the three runs collected during the Method 5 performance test. Second, the PM CPMS operating limit reflects a 30-day average that should represent an actual emissions level lower than the three test run numerical emissions limit since variability is mitigated over time. See 75 FR 54988 (September 9, 2010); 54975–76. Consequently, we believe that there should be few if any deviations from the 30-day parametric limit and there is a

reasonable basis for presuming that deviations that lead to multiple performance tests to represent poor control device performance and to be a violation of the standard.

Therefore, the EPA is proposing that PM CPMS deviations leading to more than four required performance tests in a 12-month process operating period to be presumed a violation of this standard, subject to the source's ability to rebut that presumption with information about process and control device operations in addition to the Method 5 performance test results.

Finally, the EPA is proposing that the NSPS for PM established pursuant to section 111(bb) also be revised so that these limits are no longer CEMS-based and reflect the resulting different numerical values and averaging times. Although the NSPS for PM rests on a justification independent of the NESHAP PM standard (see *PCA v. EPA*, 665 F. 3d at 192–93), the technical issues associated with the use of PM CEMS in this industry are common to both standards and the proposed amendments, therefore, appear appropriate for the NSPS as well. The EPA believes that these proposed requirements represent Best Demonstrated Available Technology for new cement kilns given that the standards remain predicated on the performance of the best industry performers and the costs remain those already found to be reasonable. See *id.* at 191–92 discussing and upholding the EPA's NSPS for PM.

E. Summary of Proposed Standards Resulting From Reconsideration

The EPA is proposing the following revised MACT standards:

TABLE 3—PROPOSED EXISTING AND NEW SOURCE FLOORS AND STANDARDS ^a

Pollutant	Existing source standard	New source standard
Mercury	55 lb/MM tons clinker	21 lb/MM tons clinker.
THC	24 ppmvd	24 ppmvd.
PM	0.07 lb/ton clinker (3-run test average)	0.02 lb/ton clinker (3-run test average).
HCl	3 ppmvd	3 ppmvd.
Organic HAP	12 ppmvd	12 ppmvd.

^aStandards for mercury and THC are based on a 30-day rolling average. The standard for PM is based on a three run test. If using a CEMS to determine compliance with the HCl standard, the floor is also a 30-day rolling average. Organic HAP standards are discussed in section H below.

F. Standards for Fugitive Emissions From Clinker Storage Piles

In the September 2010 rule, the agency established work practice requirements to reduce fugitive emissions from outdoor clinker storage piles. The agency had information that these storage piles emit HAP in the form of fugitive PM containing HAP metals,

so that regulation of these sources was necessary. Because the emissions in question were fugitive dusts for which measurement was not feasible, the agency adopted work practices as the standard, specifically the work practice standards and opacity emissions limits contained in California's South Coast Air Quality Management District Rule

1156 as amended on March 6, 2009. Because there were only two plants which we could state definitively had open storage piles and both were complying with Rule 1156, we believed that the regulatory standards under Rule 1156 constituted the floor level of control. The current promulgated work practices consist of providing varying

degrees of enclosures or barriers to prevent wind erosion of the storage piles. See generally 75 FR 54989 (September 9, 2010).

In their reconsideration petition, the cement industry maintained that the EPA did not provide sufficient notice of the standards it might adopt for clinker storage piles. We agreed and granted reconsideration. See 76 FR 28325 (May 17, 2011). The D.C. Circuit stayed the standard pending the conclusion of the EPA's reconsideration. See 665 F. 3d at 189.

Industry also noted, correctly, that more than two plants are potentially affected by clinker pile standards, so that the California rule is not necessarily a floor level of control. To evaluate which work practices are currently used in the industry, we requested data from the industry on currently used work practices. We also undertook a review of state permits to determine the level of controls to which open clinker piles are currently subject. Based on this information, the EPA is proposing to amend the work practices for clinker storage piles.

1. What is a clinker pile?

Clinker storage is necessary to allow near continuous kiln operation and intermittent grinding and processing of the clinker. Clinker storage is also necessary in the event of unplanned or planned kiln shutdowns. Cement plants use silos, domes or other enclosure for clinker storage. Additional clinker storage may also be necessary to accommodate extended shutdown periods for kiln maintenance and/or market conditions. When the conventional enclosed storage is not adequate, clinker may be stored in outdoor piles. Unlike automated systems for drawing down clinker from enclosed silos, these temporary outdoor storage piles are drawn down using equipment such as front end loaders or other reclaiming equipment. Outdoor clinker storage may be temporary, lasting a few days or weeks and up to several months. There are also open clinker piles that have been in existence for years and are essentially permanent.

2. What are the proposed standards?

We are proposing amended standards that will control HAP metal emissions from open clinker piles. Because the emissions are fugitive, we are proposing work practices instead of an emissions limit since it is "not feasible to prescribe or enforce an emission standard" for these emissions because, as fugitive emissions, they are not "emitted through a conveyance designed and constructed to emit or capture such

pollutant". See CAA section 112 (h)(2)(A). The work practices would apply to any open clinker piles regardless of the quantity of clinker or the length of time that the clinker pile is in existence.

According to industry stakeholders, virtually all Title V permits oblige cement plant operators to "minimize" fugitive emissions including those from open clinker piles. See Portland Cement Reconsideration TSD, section 2, which is available in this rulemaking docket. Our examination of relevant permits indicates that some permits establish an opacity limit not to be exceeded in conjunction with materials management. Others contain a "no visible emissions" limitation at the fence line of the facility. Industry stakeholders state that to minimize fugitive emissions from open clinker piles, plants employ a number of practices, the most common being to use water sprays to form a concrete-like crust on the exposed surface of the clinker pile. Clinker has cement like properties and when exposed to water will hydrate and harden. The crust formed by this practice is very effective at reducing fugitive emissions as long as the pile is not disturbed. Another common practice is to cover clinker piles with tarps, which may be held down with tires, which effectively minimizes fugitive emissions. Some plants also use foam sprays on the exposed surface of the pile, forming a coating which reduces or prevents fugitive emissions.

Based on our review of 88 state Title V permits, all but one permit required one or a combination of the following control measures to reduce fugitive emissions generally: Work practices, opacity or visible emission limits, prohibitions against open clinker piles and some type of general duty requirements to minimize fugitive dust emissions. Eight of the permits contained requirements specific to open or outdoor clinker piles. Eighteen permits contained standards that restricted emissions more generally from outdoor storage piles including opacity and visible emissions limits and general duty requirements to not produce PM or dust emissions at the property line. Seventy-seven permits contained facility-wide restrictions that applied to a variety of fugitive sources at the cement facilities (e.g. roads, storage, raw materials). In only one permit was it not clear that there were requirements to minimize fugitive dust emissions.

With the exception of total enclosure of all open clinker piles, the EPA believes that the control measures in the

permits are equally effective in reducing fugitive emissions. These measures are, therefore, consistent with section 112(d) controls and reflect a level of performance analogous to a MACT floor. See CAA section 112(h)(1) (in promulgating work practices, the EPA is to adopt standards "which in the Administrator's judgment [are] consistent with section (d) or (f) of this section.") The option of full enclosures, somewhat analogous to a beyond-the-floor standard under section 112(d)(2), would be extremely costly with minimum associated emissions reductions incremental to the measures already undertaken (which already reduce most or all of the fugitive emissions from these piles). The EPA, therefore, is not proposing to mandate such a practice. Industry cost estimates for a full enclosure with a capacity of 50,000 tons of clinker range from \$10-\$25 million in capital cost and \$400,000-\$500,000 annual operating cost (See Portland Cement Association, Clinker Piles, September 7, 2011, available in the rulemaking docket). We also are not proposing opacity or visible emission standards, for several reasons. If work practices are properly implemented, we believe fugitive emissions, including visible emissions, from clinker piles will be effectively controlled. Such emission limits would also be redundant with work practice requirements. Moreover, in many cases, the temporary, short-term nature of clinker piles would make it impractical to implement an emissions monitoring program that would be more effective than the proposed work practices.

We are proposing that one or more of the following control measures be used when adding clinker to a pile, during on-going clinker storage, and when reclaiming the clinker for processing, to minimize to the greatest extent practicable fugitive dust emissions from open clinker storage piles: Locating the source inside a partial enclosure (such as a three sided structure with tarp), installing and operating a water spray or fogging system, applying appropriate chemical dust suppression agents on the pile, use of a wind barrier or use of a tarp. The owner or operator must select, from the list provided, the control measure or combination of control measures that are most appropriate for the site conditions. We are allowing the owner or operator to select the most appropriate control measure or combination of measures for their situation.

We are proposing that the owner or operator must include as part of their operations and maintenance plan (required in § 63.1347) the fugitive dust

control measures that they will implement to control fugitive dust emissions from open clinker piles. These control measures would apply to the addition of clinker to the pile, on-going clinker storage and reclaiming the clinker for processing.

We are proposing the same standards for new sources as existing sources. In the case of a clinker storage pile, there is no essential difference between 'new' and 'existing'. These piles generally reflect temporary storage situations, and are not analogous to building a one-time stationary structure where there are opportunities for newly-constructed entities that do not exist for existing entities. The EPA consequently is proposing the same standards for both.

G. Affirmative Defense to Civil Penalties for Exceedances Occurring During Malfunctions

In response to comments, the EPA added to the September 9, 2010, final rule an affirmative defense to civil penalties for exceedances of emissions limits that are caused by malfunctions. Various environmental advocacy groups, as well as the Portland Cement Association (PCA), indicated that there had been insufficient notice of this provision. The EPA agreed and granted reconsideration. See 76 FR 28325 (May 17, 2011). We are proposing to retain the affirmative defense on reconsideration. This provision seeks to balance a tension, inherent in many types of air regulation, to ensure adequate compliance while simultaneously recognizing that despite the most diligent of efforts, emission limits may be exceeded under circumstances beyond the control of the source. The EPA must establish emission standards that "limit the quantity, rate, or concentration of emissions of air pollutants on a continuous basis." See 42 U.S.C. 7602(k) (defining "emission limitation and emission standard"). See generally *Sierra Club v. EPA*, 551 F.3d 1019, 1021 (D.C. Cir. 2008) Thus, the EPA is required to ensure that section 112 emissions limitations are continuous. The affirmative defense for malfunction events meets this requirement by ensuring that even where there is a malfunction, the emission limitation is still enforceable through injunctive relief. Although "continuous" limitations, on the one hand, are required, there is also case law indicating that in many situations it is appropriate for the EPA to account for the practical realities of control technology. For example, in *Essex Chemical v. Ruckelshaus*, 486 F.2d 427, 433 (D.C. Cir. 1973), the D.C. Circuit acknowledged that in setting standards

under CAA section 111 "variant provisions" such as provisions allowing for upsets during startup, shutdown and equipment malfunction "appear necessary to preserve the reasonableness of the standards as a whole and that the record does not support the 'never to be exceeded' standard currently in force." See also, *Portland Cement Association v. Ruckelshaus*, 486 F.2d 375 (D.C. Cir. 1973). Though intervening case law such as *Sierra Club v. EPA* and the CAA 1977 amendments undermine the relevance of these cases today, they support the EPA's view that a system that incorporates some level of flexibility is reasonable. The affirmative defense simply provides for a defense to civil penalties for excess emissions that are proven to be beyond the control of the source. By incorporating an affirmative defense, the EPA has formalized its approach to upset events. In a Clean Water Act setting, the Ninth Circuit required this type of formalized approach when regulating "upsets beyond the control of the permit holder." *Marathon Oil Co. v. EPA*, 564 F.2d 1253, 1272-73 (9th Cir. 1977); see also, *Mont. Sulphur & Chem. Co. v. United States EPA*, 2012 U.S. App. LEXIS 1056 (Jan 19, 2012) (rejecting industry argument that reliance on the affirmative defense was not adequate). But see, *Weyerhaeuser Co. v. Costle*, 590 F.2d 1011, 1057-58 (D.C. Cir. 1978) (holding that an informal approach is adequate). The affirmative defense provisions give the EPA the flexibility to both ensure that its emission limitations are "continuous" as required by 42 U.S.C. § 7602(k), and account for unplanned upsets and thus support the reasonableness of the standard as a whole.

Petitions filed by environmental advocacy groups question the EPA's authority to promulgate the affirmative defense arguing, among other things, that the affirmative defense is inconsistent with the provisions of CAA sections 113(e) and 304(b) governing penalty assessment and citizen suits, respectively. The EPA's view is that the affirmative defense is not inconsistent with CAA section 113(e) or 304. Section 304 gives district courts' jurisdiction "to apply appropriate civil penalties." Section 113(e)(1) identifies the factors that the Administrator or a court shall take into consideration in determining the amount of a penalty to be assessed, once it has been determined that a penalty is appropriate. The affirmative defense regulatory provision is not relevant to the amount of any penalty to be assessed. If a court determines that the affirmative defense elements have

been established, then a penalty is not appropriate and penalty assessment pursuant to the section 113(e)(1) factors does not occur.

In exercising its authority under section 112 to establish emission standards (at a level that meets the stringency requirements of section 112), the EPA necessarily defines conduct that constitutes a violation. The EPA view is that the affirmative defense is part of the emission standard and defines two categories of violation. If there is a violation of the emission standard and the source demonstrates that all the elements of the affirmative defense are met, only injunctive relief is available. All other violations of the emission standard are subject to injunctive relief and penalties. A citizen suit claim under section 304 allows citizens to commence a civil action against any person alleged to be in violation of "an emission standard or limitation under this chapter." The CAA, however, allows the EPA to establish such "enforceable emission limitations." Thus, the citizen suit provision clearly contemplates enforcement of the standards that are defined by the EPA. As a result, where the EPA defines its emissions limitations and enforcement measures to allow a source the opportunity to prove its entitlement to a lesser degree of violation (not subject to penalties) in narrow, specified circumstances, as the EPA did here, penalties are not "appropriate" under section 304.

The EPA solicits comments on this issue of the EPA's authority to promulgate an affirmative defense. The EPA's view is that an affirmative defense to civil penalties for exceedances of applicable emission standards during periods of malfunction appropriately balances competing concerns. On the one hand, citizen enforcers are concerned about additional complications in their enforcement actions. On the other hand, industrial sources are concerned about being penalized for violations caused by malfunctions that they could not have prevented and were otherwise appropriately handled (as reflected in the affirmative defense criteria). The EPA has used its section 301(a)(1) authority to issue regulations necessary to carry out the Act in a manner that appropriately balances these competing concerns. However, the EPA also solicits comment on alternatives to, or variations on, the affirmative defense provisions promulgated in the 2010 final rule.

In its petition for reconsideration, the PCA expressed support for the affirmative defense, but maintains that

“the affirmative defense process that EPA codified in the final rules is cumbersome and will be exceedingly difficult for facilities to employ.” The EPA is soliciting comment on the terms and condition of the affirmative defense. In recent rules promulgated under section 112 and 129, the EPA has revised certain terms and conditions of the affirmative defense in response to concerns raised by various commenters. The EPA is proposing to adopt those same revisions in this proposed rule. The EPA is proposing to revise the affirmative defense language to delete “short” from section 63.1344(a)(1)(i), because other criteria in the affirmative defense require that the source assure that the duration of the excess emissions “were minimized to the maximum extent practicable.” The EPA is also proposing to delete the term “severe” in the phrase “severe personal injury” in 63.1344(a)(4) because we do not think it is appropriate to make the affirmative defense available only when bypass was unavoidable to prevent severe personal injury. In addition, the EPA is proposing to revise section 63.1344(a)(8) to add “consistent with good air pollution control practice for minimizing emissions.” The EPA is also proposing to revise the language of 63.1344(a)(9) to clarify that the purpose of the root cause analysis is to determine, correct and eliminate the primary cause of the malfunction. The root cause analysis itself does not necessarily require that the cause be determined, corrected or eliminated. However, in most cases, the EPA believes that a properly conducted root cause analysis will have such results. Further, the EPA is proposing to revise 63.1344(b) to state that “[t]he owner or operator seeking to assert an affirmative defense shall submit a written report to the Administrator in a semiannual report with all necessary supporting documentation, that it has met the requirements set forth in section 63.1354(c) of this subpart.” This report must be included in the first semiannual report, required by section 63.1354(b)(9), after the initial occurrence of the violation of the relevant standard. If the semiannual report is due less than 45 days after the initial occurrence of the violation, the affirmative defense report may be included in the second semiannual report due after the initial occurrence of the violation of the relevant standard. See proposed regulatory text for other proposed minor wording changes to improve clarity.

H. Continuously Monitored Parameters for Alternative Organic HAP Standard (With THC Monitoring Parameter)

In the September 2010 final rule, the EPA promulgated an alternative standard for non-dioxin organic HAP, based on measuring the organic HAP itself rather than the THC surrogate. Section 63.1343(b)(1) provides two options for meeting a standard for organic HAP. One is to meet a THC standard of 24 ppmvd; the other is to meet a limit of 9 ppmvd of total organic HAP. This equivalent alternative standard is intended to provide additional flexibility in determining compliance, and it would be appropriate for those cases in which methane and ethane comprise a disproportionately high amount of the organic compounds in the feed because these non-HAP compounds could be emitted and would be measured as THC. The specific organic compounds that are to be measured to determine compliance with the equivalent alternative standard are benzene, toluene, styrene, xylene (ortho-, meta-, and para-), acetaldehyde, formaldehyde and naphthalene. Compliance with the equivalent alternative standard under the September 2010 standard will be determined through organic HAP emissions testing using EPA Method 18 or 320, as appropriate for the compound of interest. The 2010 rule further requires that each source complying with the alternative standard establish a site-specific THC limit to be met continuously. The site-specific THC limit will be measured as a 30 day rolling average, with an annual compliance test requirement. It would be correlated with the organic HAP limit and is therefore not tied to the THC standard of 24 ppmvd. We granted reconsideration on the level of this site-specific THC limit used as a continuously monitored parameter for those sources selecting the alternative HAP compliance method. See 76 FR 28318 (May 17, 2011).

Since THC includes compounds that are not considered to be hazardous, either of the two standards are considered to be reasonable.

While the September 2010 final rule required an organic HAP limit of 9 ppmvd, a recent review of the method detection limits used to measure organic HAP revealed that three times the representative method detection level (3*RMDL) is actually 12 ppmvd, therefore, we propose to revise the alternative organic HAP limit to 12 ppmvd. As discussed in the final rule, the expected measurement imprecision for an emissions value at or near the

method detection level is about 40 to 50 percent and decreases to a consistent 10 to 15 percent for values that are three times the method detection level. See 75 FR 54984 (September 9, 2010); see also section D above. Thus, measured values less than three times the representative method detection level are highly uncertain and therefore not reasonable for compliance determinations. The 3*RMDL of 12 ppmvd was determined as follows: we determined method detection capabilities for Method 320 and Method 18 as appropriate for the various compounds (e.g., Method 320 for aldehydes, Method 18 for aromatic hydrocarbons (arenes)). This approach is consistent with procedures practiced by the better performing testing companies and laboratories using sensitive analytical procedures. We determined for each of the organic HAP the expected method detection level for the respective method based on internal experience and method capabilities reported by testing companies. With these reported values, we identified the resulting mean of the method detection levels, adjusted them for dilution and moisture, summed them, and then multiplied the sum by three to determine the representative detection level (RDL). The resulting RDL value was found to be 11.2 ppmvd @ 7 percent oxygen (O₂), dry. This value is greater than the final 9 ppmvd @ 7 percent O₂, dry, in the final rule. We are, therefore, proposing to adjust the total organic HAP limit to 12 ppmvd @ 7 percent O₂, dry (rounded up from the 11.2 ppm RDL). At this level, we believe that currently available emissions testing procedures and technologies can be used to provide measurements of sufficient certainty for sources to demonstrate compliance. A detailed discussion of the use of the RDL to arrive at the proposed organic HAP limit is found in the Portland Cement Reconsideration TSD, section 3, which can be found in the docket for this rulemaking.

A consequence of this analysis is that the accuracy of the analytic methods for organic HAP appear to be insufficient to allow sources to scale up their site-specific THC limit based on the degree to which the measured organic HAP levels were below the organic HAP limit—the organic HAP limit, even as proposed to be revised, is at the reliable limit of detection as just explained. Therefore, this proposed rule retains the provision whereby the site-specific THC operating parameter is established at the same time the performance test is conducted for organic HAP. If the site-specific THC operating parameter is

exceeded, then the kiln would have to be retested to determine compliance with the organic HAP limit. This proposed rule would further require that the tests for organic HAP and THC be repeated annually to establish a new annual site-specific THC parameter reflecting the organic HAP level. We also are proposing, similar to the PM compliance test procedure, that the highest 1-hour average THC concentration measured during the 3-hour organic HAP test, be used as the site-specific THC parameter, and are allowing facilities to extend the testing time (or number of tests) if they believe extended testing is required to adequately capture THC variability over time. The EPA specifically solicits comment on the changes on the organic HAP limit. In addition, we solicit comment on if it would be appropriate to allow sources to scale up their site-specific THC limit based on the degree to which the measured organic HAP levels are below the organic HAP limit.

I. Allowing Sources With Dry Caustic Scrubbers To Comply With HCl Standard Using Performance Tests

To demonstrate compliance with the HCl emissions limit, the September 2010 final rule allows sources equipped with wet scrubbers to comply with the HCl standard by means of periodic performance tests rather than with continuous monitoring of HCl with a CEMS (see § 63.1349(b)(6)). We reasoned that a source that uses a limestone wet scrubber for HCl control will have minimal HCl emissions even if kiln inputs change because limestone wet scrubbers are more efficient in removing HCl than they are required to be, to meet the standard. Sources electing to comply by means of stack tests must establish continuously monitored parameters including liquid flow rate, pressure and pH. Sources using a limestone wet scrubber are required to perform an initial compliance test using Method 321 in Appendix A to 40 CFR part 63 and to test every 30 months thereafter.

In their petition, industry stakeholders indicated that this compliance option should not be limited to wet scrubber equipped units, but should also be available for units equipped with caustic scrubbers, in part because some sources will be equipped with dry scrubbers (due to water shortages) and should have the same operating flexibilities as wet scrubber equipped kilns.

A recent review of data from a vendor of acid gas controls using a standard hydrated lime and a high performance

hydrated lime at a U.S. cement manufacturing plant, revealed that HCl removal from dry scrubbers on kilns ranged from 90 to 95 percent HCl removal, depending on lime injection rates (Lhoist North America, Cement Industry Experience, DSI for Acid Gas Control, October 5, 2011). The results also showed the plant could meet the 3 ppm HCl limit. The EPA also evaluated HCl removal efficiency using dry sprayer absorber with a fabric filter as part of the electric utility generating MACT rulemaking. Removal efficiencies ranged from 95 percent to nearly 100 percent with an average of about 99.8 percent (Hutson to Nizich, HCl control using SDA/FF, November 29, 2011). In addition, information from the National Lime Association (http://www.lime.org/uses_of_lime/environmental/flue_gas.asp) and the Institute for Clean Air Companies (<http://www.icac.com/i4a/pages/index.cfm?pageid=3401>) report HCl emissions reductions using dry lime injection technology of 95 to 99 percent from coal-fired boilers in the electric utility industry, from municipal waste-to-energy facilities and from other industries. In the secondary aluminum industry, reductions in HCl emissions greater than 99 percent have been achieved (National Lime Association, Flue Gas Desulfurization, http://www.lime.org/uses_of_lime/environmental/flue_gas.asp).

Given these high reported removal efficiencies, we propose to extend the same option provided to kilns equipped with wet scrubbers to dry scrubber-equipped kilns. Thus, kilns with either type of scrubber could demonstrate compliance with the HCl limit by means of an initial and periodic stack test rather than with continuous compliance monitoring with a CEMS. In order to assure that the dry lime injection equipment is operated effectively between tests, the proposed amendment would require that the lime injection rate used during the performance test demonstrating compliance with the HCl limit be recorded and then continuously monitored between performance tests to show that the injection rate remains at or above the rate used during the performance test.

We are also proposing an additional alternative for all kilns equipped with a dry or wet scrubber (and, under this proposal, could therefore do periodic HCl performance testing and parametric monitoring). Where either wet or dry scrubbers are used, we are proposing that an owner or operator would have the option of using SO₂ monitoring as a continuously monitored parameter for purposes of compliance monitoring. Because HCl is a water-soluble

compound and because it has a large acid dissociation constant (i.e., HCl is a strong acid), it will be more rapidly and readily removed than SO₂ from a gas stream treated with either caustic sorbents (e.g., lime, limestone) or plain water. We acknowledge that at proposal (see 74 FR 21154, May 6, 2009) we rejected setting a standard (as opposed to a continuously monitored parameter) that used SO₂ as a surrogate for HCl because we had no data that demonstrated a direct link between HCl emissions and SO₂ emissions. However, pilot-scale tests by the EPA at its Multi-pollutant Control Research Facility support the use of the more easily measured SO₂ as a surrogate for HCl where either wet or dry scrubbers are used. See Docket item EPA-HQ-OAR-2009-0234-3893. Further, we are aware that there are existing kilns equipped with SO₂ CEMS and that this monitoring technology is less expensive and more mature than HCl CEMS. Thus, we are proposing that SO₂ is an indicator for HCl compliance, and that monitoring the emissions of SO₂ will provide a reliable indication of HCl removal, making SO₂ monitoring an appropriate parameter for monitoring continuing compliance.

Owners or operators of kilns equipped with dry or wet scrubbers that choose to use SO₂ monitoring would need to conduct an initial performance test for HCl and establish the SO₂ operating limit equal to the highest 1 hour average recorded during the HCl performance test, so that there is an indication of proper operation of the HCl control device. The owner or operator of a kiln controlled using either a dry or wet scrubber that chooses to monitor SO₂ would not be required to also establish continuously monitored parameters reflecting the performance test results, such as lime injection rate for a dry scrubber and liquid flow rate, pressure and pH for a wet scrubber. Deviation from any established parameter level or established SO₂ operating level would trigger a requirement to retest for HCl in order to verify compliance with the HCl limits and to verify or re-establish the parameter levels.

At a minimum, a repeat performance test to confirm compliance with the HCl emissions limit and to reset the SO₂ limit and monitoring parameters is required every 5 years. We are requesting comment on the efficacy of continuously monitoring SO₂ as a continuously monitored parameter in lieu of continuously monitoring HCl control device parameters, and also solicit comment on testing every 30 months for HCl for purposes of

monitoring compliance with the HCl emissions limit.

J. Alternative PM Limit

Some kilns combine kiln exhaust gas with exhaust gas from other unit operations, such as the clinker cooler, as an energy saving practice. The September 2010 final rule sought to accommodate commingled flows from the kiln and clinker cooler by providing a site specific PM limit. See section 63.1343(b)(2). In its reconsideration petition, the PCA pointed out, however, that other flows besides the exhaust gas flow from the clinker cooler can be commingled as well. The petitioner provided the example of coal mill exhaust and exhaust from an alkali bypass as instances of additional flows that can be commingled with the exhaust gas flow from the kiln. The petitioner observed that without an allowance for these additional flows, the site specific PM limit is stricter than the EPA intended (since the PM concentration will be divided by a lower number in the implementing equation), and penalizes the energy-saving practice of commingling these flows.

The agency agreed with the petitioner that the alternative PM equations for existing and new sources contained in the final rule do not adequately account for commingled exhaust gas flows from sources other than the clinker cooler, and granted reconsideration for this reason. See 76 FR 28325 (May 17, 2011). We believe that although the form of the equation is correct, the equation is not written to accommodate sources other than exhaust gases from the clinker cooler. We are proposing to revise the equation so that it includes exhaust gas flows for all potential sources that would potentially be combined, including exhausts from the kiln, the alkali bypass, the coal mill, and the clinker cooler, for an existing kiln, the EPA is proposing the following equation:

$$PM_{alt} = 0.0060 \times 1.65 \times (Q_k + Q_c + Q_{ab} + Q_{cm}) / (7000)$$

Where:

PM_{alt} = The alternative PM emission limit for commingled sources.

0.006 = The PM exhaust concentration (gr/dscf) equivalent to 0.07 lb per ton clinker where clinker cooler and kiln exhaust gas are not combined.¹²

1.65 = The conversion factor of lb feed per lb clinker.

Q_k = The exhaust flow of the kiln (dscf/ton raw feed).

Q_c = The exhaust flow of the clinker cooler (dscf/ton raw feed).

Q_{ab} = The exhaust flow of the alkali bypass (dscf/ton raw feed).

Q_{cm} = The exhaust flow of the coal mill (dscf/ton raw feed).

7000 = The conversion factor for grains (gr) per lb.

If exhaust gases for any of the sources contained in the equation are not commingled and are exhausted through a separate stack, their value in the equation would be zero. The alternative PM equation for new sources is identical to the existing source equation except the PM exhaust concentration used in the equation is 0.002 grains per dry standard cubic foot, which is equivalent to the new source PM limit of 0.02 lb/ton clinker.

K. Standards During Startup and Shutdown

In the final NESHAP, the EPA established separate standards for startup and shutdown which differ from the main standards. These standards require kilns to meet numerical limits for each pollutant regulated by the rule, each standard to be measured using a CEMS over an accumulative 7-day rolling average. 75 FR 54991 (September 9, 2010). Industry petitioned the EPA to reconsider these standards claiming lack of notice, but the EPA denied these petitions because the agency had already provided ample opportunity for comment which petitioners had used. See 76 FR 28323 (May 17, 2011). The D.C. Circuit dismissed all challenges to these startup and shutdown provisions (see 665 F 3d at 189). The EPA did grant reconsideration on several technical issues related to startup and shutdown—certain aspects of CEM-based monitoring of mercury and PM during startup and shutdown—issues which would be moot if the EPA adopts the approach proposed below—and having an HCl limit of zero for kilns not equipped with CEMS (see 76 FR 28325 (May 17, 2011)).

The EPA is proposing to retain the startup and shutdown standards for mercury and THC, to amend the startup and shutdown standards for PM to be consistent with the proposed numeric levels in this proposal, and to amend the level of the startup and shutdown standard for HCl to be 3 ppm in all circumstances.

The EPA is further proposing to clarify that startup begins when the kiln's induced fan is turned on and continues until continuous raw material feed is introduced into the kiln. Shutdown begins when feed to the kiln is halted. Thus, during startup and shutdown, as defined, a kiln would not

be firing coal or coke and would not be introducing feed material into the kiln continuously. HAP emissions from cement kilns are attributable almost entirely to one or the other of these feeds, with raw materials contributing the great preponderance. In addition, kilns burn fuels during startup and shutdown which are cleaner than coal and coke (natural gas is used for the most of the startup). Thus, HAP emissions during startup and shutdown necessarily should be far less than the numerical limits in the standards since the kiln will not be introducing raw materials, and will be burning fuels which are cleaner than its normal fuels.

Accordingly, the EPA is further proposing to change the means of monitoring for compliance with the startup and shutdown standards. Rather than require monitoring by a CEM or by stack testing, the EPA is proposing that a source keep records of the volumes of fuels introduced into the kiln during startup and shutdown to verify that raw materials are not introduced into the kiln, although, by definition, if raw materials are introduced continuously into the kiln, the kiln is not operating in startup and shutdown and the monitoring requirements of the main standards would therefore apply. Kiln owners and operators would then make conservative assumptions as to the combustion efficiency of the kiln so as to reasonably estimate destruction of organics, and include mass balance calculations showing that the startup/shutdown standards would not be exceeded.

These proposed recordkeeping requirements would serve as the basis for compliance monitoring. The EPA believes that these proposed recordkeeping requirements are both sufficient to yield reliable information for the startup and shutdown periods, and to establish a source's compliance or non-compliance with the startup and shutdown standards. The EPA also believes that this proposed requirement would satisfy the requirements of 40 CFR section 70.6(c)(1) which requires that Title V permits shall contain "monitoring * * * requirements sufficient to assure compliance with the terms and conditions of the permit."

The EPA is further proposing that the standard for HCl during startup and shutdown be 3 ppmvd under all circumstances, and thus is proposing to eliminate the current provision that the startup and shutdown standard be zero for kilns measuring compliance by means other than a CEM. As shown in the petitions for reconsideration, HCl can be formed even when normal fuels and raw materials are not being

¹² Note that this figure would change correspondingly if the EPA were to amend the existing source PM standard. The same is true of the PM term in the new source equation.

introduced into the kiln (for example, from residual chlorides in the kiln refractory). See PCA Petition for Reconsideration Exh. 1. Consequently, the promulgated limit of zero is technically inappropriate, and the EPA is proposing to amend it to 3 ppmvd, the same standard which applies in all other operating modes. Monitoring during startup and shutdown would be accomplished by recordkeeping, as explained above.

The EPA also solicits comment on whether the numeric standards during startup and shutdown should be amended to provide work practices, rather than numeric standards. Work practices could require operation of emission control devices during startup and shutdown, minimizing the time periods of startup/shutdown, and following manufacturer's best practices. We rejected work practices for startup and shutdown periods in the 2010 final rule because the commenters requesting such standard failed to demonstrate why it is "not feasible * * * to prescribe or enforce an emission standard" for mercury, THC, PM and HCl during startup and shutdown at cement kilns, within the meaning of section 112(h) of the Act. See NESHAP from the Portland Cement Manufacturing Industry Response to Comments Received on Proposed Rule Published on May 6, 2009, 74 FR 21135, August 6, 2010 at p. 184.

L. Coal Mills

Cement kilns burn coal as their main fuel, and mill the coal before firing it. From the standpoint of air emissions, these coal mills are sometimes physically distinct from the cement kiln, generating emissions solely attributable to the coal mill and emitting exhaust through a dedicated stack. However, some kilns are configured so that coal mill emissions are commingled with kiln exhaust and the emissions are discharged through the main kiln stack. Finally, there are some configurations whereby kiln emissions are routed to the coal mill and discharged through the coal mill stack. This part of the preamble discusses the regulatory treatment of these different scenarios.

First, the EPA has promulgated new source performance standards (40 CFR part 60 subpart Y) for coal mills. See 74 FR 51952 (October 8, 2009). These standards apply to coal mills, including coal mills at cement manufacturing facilities, which emit through a dedicated stack. Subpart Y standards do not apply to coal mills at cement facilities whose only heat source is kiln exhaust. See section 60.251(j) (definition of indirect thermal dryer).

This leaves ambiguous, or partially ambiguous, the regulatory treatment of the second and third situations mentioned above: A kiln whose coal emissions are discharged through the main kiln stack, and the coal mill which receives some exhaust from the cement kiln so that some portion of the coal mill exhaust can reflect cement kiln emissions. Because we did not address these issues in the 2010 final NESHAP for Portland cement kilns, we granted reconsideration in order to do so. See 76 FR 28326 (May 17, 2011).

A cement kiln which commingles emissions from its coal mill with all other emissions and discharges through kiln emission points would have to meet all of the NESHAP. In the case of PM, the additional flow from the coal mill would be accounted for in the equation used to determine PM contributions from commingled flows. See section K above.

In the case of a coal mill which receives and discharges some of the cement kiln exhaust, the regulatory concern is that this re-routing of kiln exhaust not result in uncontrolled HAP emissions.

Our basic principle for this situation could be that the kiln demonstrate that it is meeting all of the NESHAP standards for pollutants not regulated under the subpart Y coal mill standard, that is mercury, THC and HCl. Because the subpart Y standards contain a PM standard predicated on use of fabric filter control technology, we do not believe it necessary to account for diverted PM emissions.

We are soliciting comment on the following compliance mechanism for the mercury, THC and HCl standards in this situation: The sum of the mercury, THC and HCl in the kiln exhaust diverted to the coal mill, and the kiln exhaust exhausted in the main kiln stack, must not exceed the subpart LLL NESHAP emission limits for each respective HAP or HAP surrogate. Under this approach, the rule could contain requirements to document the contribution of the emissions diverted to the coal mill. With respect to THC and HCl, because coal may be a source of these emissions, we are soliciting comment on a requirement that performance tests for THC and HCl be performed upstream of the coal mill. For mercury, we are soliciting comment on a requirement that tests be required downstream to account for any mercury removal in the coal mill air pollution control device (APCD), and to avoid double counting emissions of mercury from mercury that becomes re-entrained in the coal, which is then burned by the cement kiln (which emissions are

otherwise accounted for in the NESHAP).

We note further that an analogous situation is when a cement kiln has an alkali bypass which receives and exhausts emissions from the kiln. We are proposing that these emissions be subject to controls reflecting the same principle—the total emissions of the kiln and alkali bypass must meet the subpart LLL NESHAP. We are also proposing to use the same monitoring procedures to document compliance. The one (slight) exception is for PM. Because there is no independent PM standard for an alkali bypass (unlike the situation for coal mills, where subpart Y regulates PM emissions), the summed PM emissions from the kiln and alkali bypass would have to be equal to or less than the PM limit in the subpart LLL NESHAP. Tests for PM from the alkali bypass would be downstream of the alkali bypass APCD to account for those emission reductions. Though we are not proposing the coal mill requirements in this action, we have placed the appropriate regulatory text in the proposed rule language to allow comment on actual rule language.

We expand on these monitoring provisions below.

1. Mercury. Although mercury from the main stack is monitored using a CEMS, there is no need for such monitoring for the gas streams from the coal mill. The gas stream to the coal mill is small in comparison to the kiln exhaust, operation of the coal mill is intermittent, and the cost of requiring additional CEMS for coal mills would be overly burdensome. Instead, the performance tests for mercury could be conducted at such a coal mill once per year, and, as explained above, that the tests be conducted downstream of the coal mill. Performance tests for mercury could be conducted using either Methods 29 or 30B in Appendix A-8 to 40 CFR Part 60. These performance tests could be required annually until the tested mercury levels are below the method detection limits for two consecutive years, after which tests may be conducted every 30 months. If test results at any time exceed the method detection limit, annual performance testing could again be required until mercury levels are below the method detection limit for two consecutive years. The results of the performance test could then be summed with the emissions from the kiln stack to determine compliance with the mercury emissions limit. Since kiln stack emissions are measured continuously with a CEMS, the coal gas emissions could be normalized on both a CEMS and production basis (lb/MM ton

clinker) in order to be summed with the kiln stack emissions. To do so, the flow rate to the coal mill could be continuously monitored. Using the results of the annual performance test and the continuous flow rate from the coal mill, the owner or operator could develop a mercury hourly mass emission rate for the coal mill. Hourly mercury emissions from the coal mill could be summed with the mercury emissions from the kiln to determine continuous compliance as follows:

$$\frac{((Q_{ab} \times C_{ab}) + (Q_{cm} \times C_{cm}) + (Q_{ks} \times C_{ks}))}{P} \leq \text{MACT Limit}$$

Where:

- Q_{ab} = Alkali bypass flow rate (volume/hr)
- C_{ab} = Alkali bypass concentration (lb/dscf)
- Q_{cm} = Coal mill flow rate (volume/hr)

- C_{cm} = Coal mill concentration (lb/dscf)
- Q_{ks} = Kiln stack flow rate (volume/hr)
- C_{ks} = Kiln stack concentration (lb/dscf)
- P = Kiln production rate (million tons clinker/hr)
- MACT Limit = Limit for mercury (55 lb mercury/MM tons clinker)

This equation requires all values to be at or corrected to 7 percent O₂.

Thus, if the normalized test results at the coal mill control device outlet shows mercury emissions of 10 lb/MM tons clinker, emissions from the kiln should be less than 45 lb/MM tons of clinker to be in compliance with the proposed kiln mercury emissions limit. See section 63.1350(k)(5).

For kilns also equipped with an alkali bypass, the same procedure as that for the coal mill would apply. Where a

portion of kiln gases are diverted to a coal mill and to an alkali bypass, emissions from the coal mill and alkali bypass would be tested, normalized and summed and with the mercury emissions from the kiln to determine compliance with the emissions limit.

2. THC and HCl. Because THC and HCl are concentration-based limits, the compliance demonstration could differ in certain details from the procedure described above for the production based limits for mercury. Kiln stack emission limits (to be continuously monitored) could be calculated taking into consideration the volumetric exhaust gas flow rates and concentrations of all applicable effluent streams (kiln stack, coal mill, and alkali bypass) for the kiln unit as follows:

$$\frac{(Q_{ab} \times C_{ab}) + (Q_{cm} \times C_{cm}) + (Q_{ks} \times C_{ks})}{(Q_{ab} + Q_{cm} + Q_{ks})} \leq \text{MACT Limit}$$

Where:

- Q_{ab} = Alkali bypass flow rate (volume/hr)
 - C_{ab} = Alkali bypass concentration (ppmvd)
 - Q_{cm} = Coal mill flow rate (volume/hr)
 - C_{cm} = Coal mill concentration (ppmvd)
 - Q_{ks} = Kiln stack flow rate (volume/hr)
 - C_{ks} = Kiln stack concentration (ppmvd)
 - MACT Limit = Limit for THC or HCl (ppmvd)
- This equation requires all values to be at or corrected to 7 percent O₂.¹³

In order to determine the flow rates and concentrations of THC and HCl in the coal mill and alkali bypass streams, the source could test annually using the appropriate test method and could monitor the flow rate of the kiln stack with CMS. For HCl, the performance test could be performed using Method 321 in Appendix A to 40 CFR Part 63. For measurement of THC, Method 25A

in Appendix A-7 to 40 CFR Part 60 could be required. With these data, the concentration of THC and HCl that must be monitored in the CEMS in order to demonstrate compliance with the kiln MACT limit under this proposal can be calculated by solving for C_{ks} (kiln stack concentration) from the equation above, as shown:

$$C_{ks} \leq \frac{(\text{MACT Limit} \times (Q_{ab} + Q_{cm} + Q_{ks})) - (Q_{ab} \times C_{ab}) - (Q_{cm} \times C_{cm})}{Q_{ks}}$$

This equation is based on the following:

- The total allowable mass emissions of THC and HCl for the kiln unit can be determined with the sum of all flow rates (coal mill, alkali bypass and kiln stack) and the applicable NESHAP limit (THC or HCl) concentration. This yields the total allowable mass emissions per unit of time for the kiln unit according to the MACT limits and the site specific flow rates for the coal mill, alkali bypass and kiln stack.

- By testing the coal mill and alkali bypass streams for concentration and flow rate, the actual mass of THC and HCl emitted per unit of time can be determined.
- Subtracting the actual mass emissions of THC and HCl leaving the coal mill and alkali by pass from the total allowable mass emissions for the kiln unit determines the remainder of allowable mass emissions that can be emitted through the kiln stack.
- With knowledge of the flow rate at the kiln stack (measured by CMS) and

the allowable mass emissions (i.e. remainder) that can be emitted through the kiln stack, a site specific concentration can be determined. The equation above provides a simplified approach to determining this value.

The following example indicates how compliance could be demonstrated. In this example, we assume a kiln stack, coal mill and alkali bypass with the following volumetric flow rates and THC concentrations:

Effluent stream	Flow rate (dscm/hr)	THC concentration (ppmvd) (@7% O ₂)	Notes	MACT LIMIT (ppmvd) (@7% O ₂)
Alkali Bypass	Q _{ab} 38,233	C _{ab} 56	Determined through test	24
Coal Mill	Q _{cm} 57,349	C _{cm} 56	Determined through test.	
Kiln Stack	Q _{ks} 286,746	C _{ks} ?	Flow rate monitored by CMS.	

¹³ The proposed approach is conceptually similar to that for PM from multiple sources discussed in

K. above—an equation which accounts for the flow-weighted concentration of PM from all sources.

With the simplified equation provided above, the THC value that must not be exceeded in the kiln stack

(verified with CEMS) is determined as follows:

$$C_{ks} \leq \frac{(24 \times (38,233 + 57,349 + 286,746)) - (38,233 \times 56) - (57,349 \times 56)}{286}, 746$$

Using the equation above, C_{ks} is less than or equal to 13.3 ppmvd @ 7 percent O_2 . This value could be monitored by a CEMS in order to demonstrate compliance with the NESHAP limit—i.e., to demonstrate that the summed values are less than or equal to the standard of 24 ppmvd.

The requirements for THC and HCl could be essentially the same as that for mercury (except that limits are concentration based as opposed to production-normalized mass based): the flow-weighted averages of THC and HCl could be less than or equal to the subpart LLL NESHAP. The kiln stack emissions are measured by a CEMS (for THC) or by other applicable means (for HCl). The flow-weighted contributions from other sources (the alkali bypass and the kiln exhaust diverted to the coal mill) could be assessed by annual testing and applied continuously with flow being measured continuously (explained further in the next paragraph). As noted above, testing of the kiln exhaust diverted to the coal mill could be conducted upstream of the coal mill for THC and HCl so that only the kiln exhaust contribution is assessed.

To monitor compliance continuously, the gas flow rate from the coal mill could be monitored continuously. This flow rate measured during the annual performance test could be the maximum flow rate allowed during the year. If a higher flow rate is observed, the owner/operator could retest THC and HCl to obtain a new flow-weighted concentration which would be summed with the kiln main stack THC or HCl concentration to determine whether the kiln is still in compliance. Because of this requirement, the owner/operator should perform their test at a flow rate that would cover the range of conditions expected.

3. PM. As explained above, in the situation where a cement kiln diverts some exhaust to an integrated coal mill, the coal mill could meet the subpart Y standards, and the kiln could meet the subpart LLL NESHAP standard but would not have to account for the diverted exhaust in doing so. In all other situations, PM contribution from a coal mill (or from an alkali bypass) could be accounted for via the equation

discussed in section J above. If the alkali bypass discharges separately, it would have to sum its PM emissions with those from the main stack and the summed emissions would have to be less than or equal to the subpart LLL NESHAP standard for PM.

As a result of this revision, we would also include a revised definition of “kiln” to clarify that coal mills using kiln exhaust gases in their operation are considered to be an integral part of the kiln (and hence subject to these standards). We would also include a definition for “in-line coal mill” for those coal mills using kiln exhaust gases in their process. The definition would exclude coal mills with a heat source other than the kiln or coal mills using exhaust gases from the clinker cooler.

M. PM Standard for Modified Sources Under the NSPS

The EPA adopted the level of the new source standard under the NESHAP as the NSPS for both new and modified kilns and clinker coolers. See 75 FR 54996 (September 9, 2010). As the PCA noted in its reconsideration petition, there need not be functional equivalence between the NESHAP and NSPS PM limits for modified kilns and clinker coolers. The PCA also noted that the NSPS for modified kilns and clinker coolers could have associated costs which need to be accounted for pursuant to CAA section 111(a)(1). Since such kilns and clinker coolers would not be subject to the section 112(d) new source standard, any costs for such modified kilns and clinker coolers to control PM to the new source limit could not be attributed to the section 112(d) new source limit. In addition, the PCA noted that existing Portland cement kilns cannot be assumed to find ways to avoid triggering the NSPS modification criteria when making physical or operational changes due to the stringency of the newly adopted standards for PM.

The EPA believes that the PCA’s arguments on this point have merit. Under the September 2010 final NESHAP, existing kilns and clinker coolers are subject to the PM limit of 0.04 lb/ton clinker. If the kiln or clinker cooler undergoes modification, it would continue to be subject to 0.04 lb/ton

limit, but would now be subject as well to the NSPS limit of 0.01 lb/ton clinker. Notwithstanding that there are independent justifications under section 111 that could justify this result (see *PCA v. EPA*, 665 F.3d at 190–91), the EPA believes, subject to consideration of comment, that it is more appropriate for modified kilns and clinker coolers to meet the NESHAP PM limit for existing sources. We are proposing that existing kilns and clinker coolers that are subject to the NESHAP existing source emissions limit would continue to be subject to that limit and not to the more stringent limit for new sources under the NSPS. This would be a limit of 0.07 lb per ton clinker, three-run average based on Method 5 stack testing as explained in section D above. The parametric monitoring using a CPMS would likewise apply, as would the requirement of annual stack tests. We have justified the PM standard for modified kilns and clinker coolers under section 111 and need not repeat that rationale here. See *PCA v. EPA*, 665 F.3d at 190–91. This analysis continues to apply when the standards are based on stack tests rather than CEMS and no longer use a 30-day averaging period. The EPA also finds that the costs of meeting the incrementally more stringent proposed new source limit of 0.02 lb/ton clinker (three-run average) are not justified for modified kilns and clinker coolers. For an existing kiln to reduce emissions from 0.07 to 0.02 lb/ton clinker would result in a modest reduction in PM emissions at a cost of more than \$21,000 per ton of PM reduced (the extra cost being attributable to more frequent replacement of bags) and greater still if sources are able to comply with the proposed limit by using controls other than a fabric filter or different types of fabric filters.

N. Proposed NESHAP Compliance Date Extension for Existing Sources

Under section 112 (i)(a)(3) of the Act, the EPA may reset compliance dates for section 112 (d) emission standards if the EPA amends the standards themselves (as opposed to amending some ancillary feature of the standards relating to implementation). See *NRDC v. EPA*, 489 F.3d 1364, 1373–74 (D.C. Cir. 2007).

Such a resetting would be appropriate if the standards are changed in such a way as to warrant more time for compliance, either to develop necessary controls or to otherwise significantly alter control strategy. Cf. *PCA v. EPA*, 655 F. 3d at 189. (Staying NESHAP standards for clinker piles because “the standards could likely change substantially. Thus, industry should not have to build expensive new containment structures until the standard is finally determined”). The EPA believes that may be the case here. Subject to consideration of public comment, the proposed amendments to the PM standard could significantly alter compliance strategies for all of the regulated HAP. The EPA is accordingly proposing that the compliance date for the PM, THC, mercury and HCl standards for existing sources for kilns, clinker coolers and raw material dryers be extended until September 10, 2015, a 2-year extension of the current compliance date.¹⁴ We believe that this date would require compliance “as expeditiously as practicable” as required by section 112 (i)(3)(A) of the Act.¹⁵

The EPA is proposing to amend the standards for PM, changing the compliance regime from CEMS-based to stack-test based, changing the averaging time for compliance, and changing the level of the standard. These proposed changes, in and of themselves, may occasion the need for additional time to study the possibility of different control strategies than are available under the 2010 final rule.

The EPA believes that different compliance strategies may now be available. The 2010 PM standard is achievable but requires the most advanced fabric filters, membrane bags, frequent bag replacement and maintenance. See Docket item EPA–HQ–OAR–2002–0051–3438. The proposed standard of 0.07 lb/ton of clinker (3-run stack test) may be achievable by other means. Potential compliance strategies include use of electrostatic precipitators (ESP) (or an ESP with a polishing baghouse or cyclone), or using a different type of baghouse. Baghouses could, for example, be sized smaller, could use cloth rather than membrane bags, or

could use other variants. The proposed change in the PM limit may also allow some sources to comply using their existing PM control device. As a result, they may be able to cancel a planned upgrade to membrane fabric filters or a replacement of their existing device with a new one. The PM standard also applies to clinker coolers, and sources may be able to meet the 0.07 lb/ton clinker standard with an existing control device for a clinker cooler. See PCA, *The Impact of a Change in the Cement NESHAP PM Limit on Compliance Strategies and Schedules*, April 9, 2012; and PCA letter, *Implications of Altered PM Limit on PCA Technology Analysis*, May 24, 2012. We note that in the database for the 2010 standards, six cement kilns with ESP already were meeting the 0.07 lb/ton clinker standard for PM which we are proposing here. See *Portland Cement Reconsideration TSD*, Section 9. The proposal to amend the standard for PM has implications for all of the standards, not just those for PM. The standards for mercury, HCl and THC all rely (or may rely) on control strategies involving injection and removal of added particulates, whether in the form of activated carbon, or dry or wet sorbent injectant. See Docket item EPA–HQ–OAR–2002–0051–3438, section 2. A change in the PM standard thus affects these collateral PM control strategies as well. For example, it may be possible for a single PM control device to meet the proposed 0.07 lb/ton clinker standard and also control the auxiliary PM collected from control of the other HAP, making polishing filters unnecessary.¹⁶ Conversely, a central baghouse to meet a 0.07 lb/ton clinker standard may be sized smaller, but this may necessitate adding polishing filters to capture PM from control of the other HAP.

New compliance strategies require time to implement. New engineering studies are needed, potential suppliers identified, and a new bidding/procurement process undertaken. Significant plant redesign, in the form of new ductwork and new fan design, and changes in the main control equipment may be needed. See U.S. EPA, *Engineering and Economic Factors Affecting the Installation of Control Technologies for Multipollutant Strategies*, October 2002. Depending on the type of control, this normally requires 15–27 months. Multiple control systems will take longer. Id. Installation of controls at cement kilns normally occurs during winter months (to

coincide with kiln outages during low production seasons). Putting this together, it tentatively appears that summer of 2015 would be an expeditious compliance date, and the EPA is proposing to extend the existing source compliance date until September 9, 2015.

The EPA also solicits comment on a shorter extension. The industry here is not starting from scratch. There should be on-going planning to meet the standards promulgated in 2010 which could shorten the time needed to come into compliance with these proposed revised standards (should the EPA adopt them). Moreover, as explained below, we calculate that sources will need to design controls to meet virtually the same average performance for PM under the proposed standard of 0.07 lb/ton clinker (Method 5) as they would under the promulgated standard of 0.04 lb/ton clinker (30-day average). Again, this could dovetail with on-going compliance efforts and shorten the time needed to come into compliance with a revised standard. Consequently, the EPA solicits comment on a compliance extension until September 2014 (1 year from the current compliance date). This type of extension would recognize that additional time for compliance is needed, and accommodate cement kilns' operating cycle (leaving winter months for control equipment deployment), but recognize that the industry is not starting from scratch. Commenters should take into account that individual sources could still apply to permit writers for an additional extension of one year under section 112 (i)(3)(B) in instances where it is not possible to install control equipment within the specified period.

Notwithstanding that we believe that the proposed PM standard may create new and lower cost opportunities for compliance, we believe the overall emission reductions from the standard to be roughly the same (except that full compliance will not occur until September 9, 2015 as noted below). We believe that sources will still need to design to meet essentially the same daily average as they would under the 2010 standard. That is, sources do not design to meet a standard, but rather to meet a level comfortably lower. They do so in order to provide a compliance margin on those days where emissions rise due to inherent and uncontrollable variability. See Docket item EPA–HQ–OAR–2002–0051–3438, section 2. The difference is too small to be reliably quantified. We have recalculated a design value (i.e. the level to which kilns would design to meet the existing source standard) under the proposal.

¹⁴ This date would be approximately 2 years and 10 months from the December 20, 2012, signature date for final action called for in the draft settlement agreement between EPA and PCA. See 77 FR 27055 (May 8, 2012).

¹⁵ If the EPA were to adopt a THC standard of 15 ppmvd (see section III.C.2 above), an extension of 3 years from the date of final action would be needed since many kilns' control strategies for organics controlled would be fundamentally altered.

¹⁶ The EPA did not believe this possible under the 2010 PM standard, and costed polishing filters in all instances. See EPA–HQ–OAR–2002–0051–3438.

The calculated design value, which reflects the average PM emissions from the sources used to establish the floor in this proposed rule, would be 0.02655 lb/ton clinker vs. a calculated design value of 0.02296 lb/ton clinker under the final

rule. See Portland Cement Reconsideration TSD section 9. These calculations are not so precise as to reliably predict to the third decimal point to the right of zero, so this difference should be viewed as

suggesting a directional difference in the standards. Viewed as a type of bounding, directional difference, the difference in design values would be approximately 1.7 percent.

TABLE 4—COMPARISON OF NATIONWIDE PM EMISSIONS FROM 2010 RULE TO THIS PROPOSED RULE [TSD, section 9]

	2010 rule	Proposed rule	Increment
Emissions limit (lb/ton clinker	0.04 30-day average	0.07 average of three one-hour stack tests.	NA
MACT average emissions for compliance (lb/ton clinker.	0.02296	0.02655	0.00359
2010 baseline emissions (tons/yr)	10,326	10,326	NA
Nationwide emissions reduction (tons/yr)	9,489	9,354	- 135

Under the proposed revisions, full compliance would occur in September, 2015, along with the costs and benefits associated with full compliance. However, because facilities will begin installing or retrofiting controls prior to the full compliance date, the full benefits and costs would be phased-in over 2 years with the full benefits and costs realized by 2015.

O. Eligibility To Be a New Source

The EPA is not proposing a new date for new source eligibility. Thus, a source which commenced construction, modification, or reconstruction after May 6, 2009, would remain subject to the new source standard. Section 112(a)(4) of the Act defines a new source as a stationary source “the construction or reconstruction of which is commenced after the Administrator first proposes regulations under this section establishing an emissions standard applicable to such source.” The EPA views the new source compliance date trigger (the date the EPA “first proposes regulations * * *”) to be the date the rulemaking record under which a standard is developed is proposed. See 74 FR 21158 (May 6, 2009). (This interpretation was not challenged in the underlying rulemaking and the EPA is not reopening it here, but rather is applying it.) Here the key record information is what new sources would need to do to comply and whether there is any change. It is the EPA’s initial technical judgment that new sources would have to adopt the same control strategy—use of the same size fabric filter with membrane bags—under an amended standard of 0.02 lb/ton clinker (stack test) as they would under the promulgated standard of 0.01 lb/ton clinker (30-day average). A standard of 0.02 lb/ton clinker (stack test) remains very stringent and cannot be met (in the

EPA’s view) without using appropriately optimized baghouses and membrane bags. If this is correct (and the EPA solicits comment on the issue), then new sources would not need additional time and would follow through on their present control strategies. We also have performed the same type of analysis regarding the design value to which new sources would need to design under this proposal, reflecting the average performance of the best performing similar source. We believe that there would be no change, corroborating our engineering judgment that new sources will adopt the same control strategy under the proposed standard as under the promulgated standard. See Portland Cement Reconsideration TSD section 9. Consequently, the EPA is not proposing to alter the new source eligibility date of May 6, 2009.

IV. Other Proposed Testing and Monitoring Revisions

Following the September 2010 promulgation of the final rule, we found the following errors and omissions in the testing and monitoring provisions and are proposing to correct them.

- Equations for calculating rolling operating day emissions rates.
- Definition or procedures that include extraneous wording.
- Incorrect units in equations.
- Cross references and typographical errors in the rule.

We are proposing revisions that will clarify that data collected as part of relative accuracy test audits and performance tests are to be submitted to the EPA using their Electronic Reporting Tool. For sources that are required to monitor HCl emissions with a CEMS, we are revising the requirements for using HCl CEMS to define the span value for this source category, to include quality assurance measures for data

collected under “mill off” conditions, and to clarify use of PS 15.

In the September 9, 2010, final rule we noted that raw material dryers have high O₂ contents due to their inherent operation characteristics (and not due to the addition of dilution air). Referencing the raw material dryer standard to 7 percent O₂ would actually result in a more stringent standard than for cement kilns. For example, given the typical O₂ contents of kiln exhaust (7 to 12 percent), a kiln just meeting the THC limit of 24 ppmvd would have an actual stack measurement of approximately 16 to 24 ppmvd. If the raw material dryer standard is referenced to the same O₂ level, they would have to meet a measured THC limit of approximately 3 ppmvd. For this reason, we referenced the O₂ level of the standard for raw materials dryers to 19 percent O₂, which is the typical O₂ level found in the exhaust of these devices. However industry commented that, due to these high O₂ contents, the inherit measurement errors present in O₂ monitors causes high variability in the correction factor, even with a 19 percent reference value, and in some cases results in a negative factor. Given these errors and the fact that raw materials dryers operate at such high O₂ concentrations during normal operation we are removing the O₂ correction factors for raw material dryers.

The EPA is also proposing minor, non-substantive changes to the provisions listed below. These changes are largely for ease of readability or clarity, and do not reopen, reassess or otherwise reconsider these provisions’ substance. The minor editorial and clarifying changes were made in the following sections and paragraphs:

- Section 60.62(d).
- Section 60.63(b)(1)(i) and (ii), (b)(2), (f)(1), (2), (4), (5), (h)(1) and (6) through (9), (i).

- Section 60.64(b)(2).
- Section 60.66.
- Section 63.1340(b)(6) through (8).
- Section 63.1346(a) and (c) through (e).
- Section 63.1348(a)(2), (3)(i) through (iii), (a)(4)(i)(A), (a)(4)(ii) and (iv).
- Section 63.1348(b)(1)(i), (iii) and (iv).
- Section 63.1348(b)(3), (5), (6)(i), (8) and (c)(2)(iv).
- Section 63.1349(a), (b)(3), (d)(1) and (d)(2) and (e).
- Section 63.1350(d)(1)(i) and (ii), (f), (f)(2)(i) and (iii), (f)(3), (f)(4), (g)(1) and (2), (k), (m)(10) and (11), (o) and (p).
- Section 63.1352(b).
- Section 63.1356.

V. Other Changes and Areas Where We Are Requesting Comment

We are also proposing amendments to clarify various requirements in this proposed rule including issues of applicability, treatment of multiple sources that vent to a single stack, third party certification, definitions, startup/shutdown reporting requirements, malfunctions and use of bag leak detection systems when PM CPMS are in use. We are also proposing to revise the definition of raw material dryer to clarify that they may be used for removing the moisture from materials other than kiln feed.

The EPA is proposing to amend 63.1354(c) for reporting startup, shutdown and malfunctions when sources fail to meet a standard. We are proposing language that requires sources that deviate from a standard during startup, shutdown or malfunction to report the information concerning such events in semi-annual compliance reports. We are proposing that the report must contain the number, duration and cause of such events (including unknown cause, if applicable), list the affected source or equipment, the date and time that each event started and stopped, an estimate of the volume 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.

We note that while malfunction events may also be reported under provisions related to assertion of an affirmative defense, this separate malfunction reporting requirement is not redundant of the affirmative defense reporting requirement because reporting of malfunctions under the affirmative defense is not mandatory and would occur only if a source chooses to take advantage of the affirmative defense.

Changes to recordkeeping requirements. The EPA is also

proposing to amend section 63.1355(f) for recordkeeping for events of startup and shutdown. Currently (f) requires a record of the occurrence and duration of each startup or shutdown. The EPA is proposing to refine this requirement based on the requirements applicable during periods of startup and shutdown. Given that some affected sources under subpart LLL are 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 to require that affected sources subject to emission standards during startup or shutdown that differs from the emission standard that applies at all other times (i.e., mercury and PM) must record the occurrence and duration of such periods. The EPA is also proposing to add a requirement that sources record an estimate of the volume of emissions over the standard if the affected source fails to meet a standard during either startup or shutdown, and record the estimating technique.

The EPA is also proposing to amend (g)(1) to obtain similar information on malfunction events. Currently this paragraph requires the creation and retention of a record of the occurrence and duration of each malfunction of process, air pollution control and monitoring equipment. The EPA is proposing that this requirement apply only to malfunctions that cause a failure to meet an applicable standard and is requiring that the source record date and time of the malfunction rather than "occurrence." The EPA is also proposing to add to (g) the requirement that sources keep records that include a list of the affected source or equipment, an estimate of the volume of each regulated pollutant emitted over the standard for which the source failed to meet a standard, and a description of the method used to estimate the emissions. The EPA is proposing to require that sources keep records of this information to ensure that there is adequate information to determine compliance during malfunction events, to allow the EPA to determine the severity of the failure to meet the standard, and to provide data that may document how the source met the general duty to minimize emissions during recorded malfunction events.

VI. Summary of Cost, Environmental, Energy and Economic Impacts of Proposed Amendments

A. What are the affected sources?

As noted in the promulgated rule, the EPA estimates that by 2013 there will be 100 Portland cement manufacturing facilities located in the U.S. and Puerto Rico that are expected to be affected by that rule, and, that approximately 5 of those facilities are complete new greenfield facilities. All these facilities will operate 158 cement kilns and associated clinker coolers. Of these kilns, 24 are CISWI kilns and have been removed from our data set used to establish existing source floors. Based on capacity expansion data provided by the PCA, by 2013 there will be 16 kilns and their associated clinker coolers subject to NESHAP new source emission limits for mercury, HCl and THC, and seven kilns and clinker coolers subject to the amended NSPS for NO_x and SO₂. Some of these new kilns will be built at existing facilities and some at new greenfield facilities.

B. How are the impacts for this proposal evaluated?

For these proposed amendments, we determined whether additional control measures, work practices and monitoring requirements would be required by cement manufacturing facilities to comply with the proposed amendments. For any additional control measure, work practice or monitoring requirement we determined the associated capital and annualized cost that would be incurred by facilities required to implement the measures. Finally, we considered the extent to which any facility in the industry would find it necessary to implement the additional measures in order to comply with the proposed amendments. Using this approach, we assessed potential impacts from the proposed revisions.

These proposed amendments affect the 2010 rule and are expected to result in lower costs for the Portland cement industry. We are evaluating the impacts of these proposed amendments relative to the impacts estimated for the 2010 final rule. As explained in section N above, the proposed amendment to the PM standard affords alternative compliance opportunities for existing sources which are less costly. These could be utilizing existing PM control devices rather than replacing them (for example, retaining an ESP or a smaller baghouse), or supplementing existing PM control rather than replacing it (putting polishing controls ahead of the primary PM control device). Compliance strategies for the other

HAP, all of which involve some element of PM control, also may be affected. Cost savings from these alternatives could be significant. For example, we have performed a case study from the data set used in the 2010 impacts analysis. Under this proposed rule, an estimated 21 ESP-equipped kilns no longer need to install membrane bags on a downstream polishing Fabric Filter (FF), and one FF retain their standard fabric bags rather than replacing them with membrane bags. The difference in annual cost for PM control under the proposal scenario and the more stringent 2010 scenario is \$4.2 million per year. That is, under this proposed rule, the annual cost of compliance will be \$4.2 million less than under the 2010 rule under this scenario (see Portland Cement Reconsideration TSD, section 9). The EPA is not presently able to further quantify potential costs of the proposed changes to the emission standards. This is because the agency lacks the site-specific information necessary to make the engineering determinations as to how individual sources may choose to comply. There are also certain costs, and cost savings, associated with other aspects of the proposal. There may be a minor difference in costs of stack testing for PM and use of a CPMS, rather than use of a PM CEMS. However, since the PM CEMS would be calibrated based on stack testing, and the CPMS is the same type of device as a PM CEMS, the EPA does not believe there is any significant cost difference between these provisions.

The proposed revisions to the alternative organic HAP standard (from 9 ppm to 12 ppm, reflecting the analytic method practical quantitation limit) would not require additional controls or monitoring. The EPA accordingly does not estimate that there would be any cost (or emission reduction benefit) associated with this proposal.

The proposed revisions for open clinker storage piles codify current fugitive dust control measures already required by most states, thus no impacts are expected. These proposed standards would be significantly less expensive than the controls for open piles in the 2010 final rule, which required enclosures.

Although we are reproposing the affirmative defense provisions, impacts were not accounted for in the 2010 rulemaking. Thus, we have estimated

the additional industry burden associated with the affirmative defense provisions. We estimate the additional cost is \$3,142 per year for the entire industry. See Supporting Statement in the docket. One of the proposed revisions would allow sources that control acid gases, including HCl, with dry caustic scrubbers to use periodic performance testing and parameter monitoring rather than with HCl CEMS. This will provide those sources with additional flexibility in complying with the HCl standards. The proposed revision to the alternative PM emissions limit provisions merely recognizes that sources other than the clinker cooler may combine their exhaust with the kiln exhaust gas and corrects the equation for calculating the alternative limit. Therefore, there should be no impacts from this proposed revision. The proposal to use recordkeeping as the monitoring mechanism for the startup and shutdown standards should also result in cost savings because facilities in the industry already keep records on feed and fuel usage and they will not have to install and operate CEMS for these periods. CEMS for monitoring all HAP or HAP surrogates could cost each facility \$569,000 in capital cost and annualized costs of \$198,000. See EPA-HQ-OAR-2002-0051-3438.

The proposed revisions for new testing and monitoring of coal mills that use kiln exhaust gases to dry coal and exhaust through a separate stack are not expected to have significant impacts. The proposed revision would make existing kilns that undergo a modification, as defined by NSPS, subject to the NESHAP PM standard for existing source rather than the PM limit for new sources. This proposed revision is correcting an inadvertent conflict between the two rules and will not result in any impacts.

C. What are the air quality impacts?

In these proposed amendments, emission limits for mercury, THC and HCl are unchanged from the 2010 rule. Thus, we expect no change in emissions from the 2010 rule for these HAP and HAP surrogates. The alternative HAP organic standard would be amended to 12 ppm, but as this reflects the practical quantitative limit of detection, it is not clear if additional emissions are associated with the proposed standard since a lower standard would not be measured reliably.

For PM, the limit for existing sources would change from 0.04 lb/ton clinker to 0.07 lb/ton clinker. The PM limit for new sources also would be changed to 0.02 lb/ton clinker from 0.01 lb/ton clinker. The standard would be measured on a 3-run basis rather than on a 30-day basis with a CEMS. The proposed changes in the PM standards, while not considered significant in absolute terms, may result in a small increase in total nationwide emissions by allowing slightly more variability, although we estimate that design values will be essentially identical under the 2010 and proposed standard. See section III.N above. As explained in the impacts analysis for the 2010 rule (see Docket item EPA-HQ-OAR-2002-0051-3438), emission reductions were estimated by comparing baseline emissions to the long-term average emissions of the MACT floor kilns. The average emissions, rather than the emissions limit, must be used because to comply with the limit all or most of the time, emissions need to be reduced to the average of the MACT floor kilns. Under the 2010 rule, the average PM emissions from the existing floor kilns were 0.02296 lb/ton clinker. Under the reconsideration, the average PM emissions of the existing floor kilns is calculated to be 0.02655 lb/ton clinker although, as noted, this difference is less than the normal analytic variability in PM measurement methods and so must be viewed as directional rather than precisely quantitative. The average emissions for new kilns did not change and we believe new sources will have to adopt identical control strategies as under the promulgated standards. We, therefore, are not estimating an emission increase from new kilns. For existing kilns, with an increase in PM emissions under the proposed rule of 0.00359 lb/ton clinker compared to the 2010 rule, nationwide emissions of PM would increase by 135 tons per year ($0.00359 \times 75,355,116/2000$). Thus, the EPA estimates that the main effect of this proposed rule for PM will be to provide flexibility for those days when emissions increase as a result of normal operating variability, but would not significantly alter long-term average performance for PM.

Emission reductions under the 2010 rule and the proposed rule, in 2015, are compared in Table 5.

TABLE 5—COMPARISON OF NATIONWIDE PM EMISSIONS FROM 2010 RULE TO PROPOSED RULE IN 2015

	Kiln type	2010 rule	Proposed rule	Increment
Emissions limit (lb/ton clinker)	Existing	0.04 (30-day average with a CEMS).	0.07 (3-run stack test)	NA
MACT average emissions for compliance (lb/ton clinker).	Existing	0.02296	0.02655	0.00359
2010 baseline emissions (tons/yr).	10,326	10,326	NA
Nationwide emissions reduction (tons/yr).	Total	9,489	9,354	- 135

The EPA did not have sufficient information to quantify the overall change in emissions for 2013 to 2015 that might arise due to the proposed change in compliance dates. The EPA encourages comment on all aspects of our analysis.

D. What are the water quality impacts?

None of the amendments being proposed will have significant impacts on water quality. To the extent that the proposed revision affecting dry caustic scrubbers encourages their use, some reduction in water consumption may occur although we have no information upon which to base an estimate.

E. What are the solid waste impacts?

None of the amendments being proposed today are expected to have any solid waste impacts.

F. What are the secondary impacts?

Indirect or secondary air quality impacts include impacts that will result

from the increased electricity usage associated with the operation of control devices as well as water quality and solid waste impacts (which were just discussed) that will occur as a result of these proposed revisions. Because we are proposing revisions that reduce the stringency of the existing source emission limits PM from the promulgated 2010 limits, we believe that some facilities may be able to alter their strategy for complying with the standards for the four pollutants to achieve compliance at a lower cost than possible under the original standard. These types of determinations will be made for each facility based on site-specific characteristics such as process type, equipment age, existing air pollution controls, raw material and fuel characteristics, economic factors and others. Therefore, we are not able to reliably predict secondary impacts for individual facilities or for the industry as a whole.

G. What are the energy impacts?

As discussed in the preceding section, because of the proposed revisions to the PM emission limits, some facilities may be able to develop more cost effective compliance strategies. However, we cannot accurately predict the extent to which these site-specific compliance strategies may increase or decrease energy demands.

H. What are the cost impacts?

Under the cost scenario discussed above, we estimate that there could be savings of \$12.2 million associated with alternative compliance strategies for meeting amended PM standards and making corresponding adjustments in compliance strategies for the other HAP. Table 6 summarizes the costs and emissions reductions of this proposed action.

TABLE 6—COSTS AND EMISSIONS REDUCTIONS OF PROPOSED AMENDMENTS RELATIVE TO THE 2010 RULE ^{a b c d e}

Proposed amendment	Capital cost	Annualized cost	Emissions reduction
Revised PM standard	-\$18,640,106	-\$4,200,000	- 135 tons/yr (emissions increase)
Replace PM CEMS with PM CPMS	0	- 7,980,000	0
Total	- 18,640,106	- 12,180,000	

^a See section III below for further discussion of impacts of the proposed amendments.
^b Negative numbers indicate cost savings or emissions increase. All costs are in 2005 dollars.
^c We also estimate that there will be a one-time cost of \$25,000 for each facility to develop the calculation that will allow them to demonstrate compliance during periods of startup and shutdown.
^d Emissions reductions are the total relative to the 2010 rule once full compliance is achieved in 2015.
^e Full compliance costs will not occur until September 9, 2015.

The cost information in Table 6 is in 2005 dollars at a discount rate of 7 percent. The EPA did not have sufficient information to quantify the overall change in benefits or impacts in emissions for 2013 to 2015.

Though we are not proposing the coal mill monitoring requirements in this action, if we required it, sources with integral coal mills that exhaust through a separate exhaust could potentially incur a capital cost of \$36,000 to install

a continuous flow meter. The annualized cost of a flow meter is \$11,000. We do not have information on the number of such coal mills in the industry that would allow us to calculate nationwide costs. We also estimate that there will be a one-time cost of \$25,000 for each facility to develop the calculation that will allow them to demonstrate compliance during periods of startup and shutdown. With the proposed change to PM CPMS

instead of CEMS, it is estimated that the elimination of the PS correlation tests will result in a savings of \$60,000 per kiln.

I. What are the health effects of these pollutants?

In this section, we provide a qualitative description of benefits associated with reducing exposure to PM_{2.5}, HCl and mercury. Controls installed to reduce HAP would also

reduce ambient concentrations of PM_{2.5} as a co-benefit. Reducing exposure to PM_{2.5} is associated with significant human health benefits, including avoiding mortality and morbidity from cardiovascular and respiratory illnesses. Researchers have associated PM_{2.5} exposure with adverse health effects in numerous toxicological, clinical and epidemiological studies (U.S. EPA, 2009).¹⁷ When adequate data and resources are available and an RIA is required, the EPA generally quantifies several health effects associated with exposure to PM_{2.5} (e.g., U.S. EPA, 2011).¹⁸ These health effects include premature mortality for adults and infants, cardiovascular morbidities such as heart attacks, hospital admissions, and respiratory morbidities such as asthma attacks, acute and chronic bronchitis, hospital and emergency department visits, work loss days, restricted activity days, and respiratory symptoms. Although the EPA has not quantified certain outcomes including adverse effects on birth weight, pre-term births, pulmonary function and other cardiovascular and respiratory effects, the scientific literature suggests that exposure to PM_{2.5} is also associated with these impacts (U.S. EPA, 2009). PM_{2.5} also increases light extinction, which is an important aspect of visibility (U.S. EPA, 2009).

Hydrogen chloride (HCl) is a corrosive gas that can cause irritation of the mucous membranes of the nose, throat and respiratory tract. Brief exposure to 35 ppm causes throat irritation, and levels of 50 to 100 ppm are barely tolerable for 1 hour.¹⁹ The greatest impact is on the upper respiratory tract; exposure to high concentrations can rapidly lead to swelling and spasm of the throat and suffocation. Most seriously exposed persons have immediate onset of rapid breathing, blue coloring of the skin and narrowing of the bronchioles. Exposure to HCl can lead to RADS, a chemically- or irritant-

induced type of asthma. Children may be more vulnerable to corrosive agents than adults because of the relatively smaller diameter of their airways. Children may also be more vulnerable to gas exposure because of increased minute ventilation per kilograms and failure to evacuate an area promptly when exposed. Hydrogen chloride has not been classified for carcinogenic effects.²⁰

Mercury in the environment is transformed into a more toxic form, methylmercury (MeHg). Because mercury is a persistent pollutant, MeHg accumulates in the food chain, especially the tissue of fish. When people consume these fish, they consume MeHg. In 2000, the NAS Study was issued which provides a thorough review of the effects of MeHg on human health (NRC, 2000).²¹ Many of the peer-reviewed articles cited in this section are publications originally cited in the MeHg Study. In addition, the EPA has conducted literature searches to obtain other related and more recent publications to complement the material summarized by the NRC in 2000.

In its review of the literature, the National Academy of Science (NAS) found neurodevelopmental effects to be the most sensitive and best documented endpoints and appropriate for establishing an oral reference dose (RfD) (National Research Council (NRC), 2000); in particular NAS supported the use of results from neurobehavioral or neuropsychological tests. The NAS report noted that studies in animals reported sensory effects as well as effects on brain development and memory functions and support the conclusions based on epidemiology studies. The NAS noted that their recommended endpoints for an RfD are associated with the ability of children to learn and to succeed in school. They concluded the following: "The population at highest risk is the children of women who consumed large amounts of fish and seafood during pregnancy. The committee concludes that the risk to that population is likely to be sufficient to result in an increase in the number of children who have to struggle to keep up in school."

The NAS summarized data on cardiovascular effects available up to

2000. Based on these and other studies, the NRC concluded that "Although the data base is not as extensive for cardiovascular effects as it is for other end points (i.e. neurologic effects) the cardiovascular system appears to be a target for MeHg toxicity in humans and animals." The NRC also stated that "additional studies are needed to better characterize the effect of methylmercury exposure on blood pressure and cardiovascular function at various stages of life."

Additional cardiovascular studies have been published since 2000. The EPA did not to develop a quantitative dose-response assessment for cardiovascular effects associated with MeHg exposures, as there is no consensus among scientists on the dose-response functions for these effects. In addition, there is inconsistency among available studies as to the association between MeHg exposure and various cardiovascular system effects. The pharmacokinetics of some of the exposure measures (such as toenail mercury levels) are not well understood. The studies have not yet received the review and scrutiny of the more well-established neurotoxicity data base.

The Mercury Study²² noted that MeHg is not a potent mutagen but is capable of causing chromosomal damage in a number of experimental systems. The NAS concluded that evidence that human exposure to MeHg caused genetic damage is inconclusive; they note that some earlier studies showing chromosomal damage in lymphocytes may not have controlled sufficiently for potential confounders. One study of adults living in the Tapajós River region in Brazil (Amorim et al., 2000) reported a direct relationship between MeHg concentration in hair and DNA damage in lymphocytes; as well as effects on chromosomes.²³ Long-term MeHg exposures in this population were believed to occur through consumption of fish, suggesting that genotoxic effects (largely chromosomal aberrations) may result from dietary, chronic MeHg exposures similar to and above those seen in the Faroes and Seychelles populations.

Although exposure to some forms of mercury can result in a decrease in

¹⁷ U.S. Environmental Protection Agency (U.S. EPA). 2009. *Integrated Science Assessment for Particulate Matter* (Final Report). EPA-600-R-08-139F. National Center for Environmental Assessment-RTP Division. Available on the Internet at <http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=216546>.

¹⁸ U.S. Environmental Protection Agency (U.S. EPA). 2011. *Regulatory Impact Analysis for the Federal Implementation Plans to Reduce Interstate Transport of Fine Particulate Matter and Ozone in 27 States; Correction of SIP Approvals for 22 States*. Office of Air and Radiation, Research Triangle Park, NC. Available on the Internet at <http://www.epa.gov/airtransport/pdfs/FinalRIA.pdf>.

¹⁹ Agency for Toxic Substances and Disease Registry (ATSDR). *Medical Management Guidelines for Hydrogen Chloride*. Atlanta, GA: U.S. Department of Health and Human Services. Available online at <http://www.atsdr.cdc.gov/mmg/mmg.asp?id=758&tid=147#bookmark02>.

²⁰ U.S. Environmental Protection Agency (U.S. EPA). 1995. *Integrated Risk Information System File of Hydrogen Chloride*. Research and Development, National Center for Environmental Assessment, Washington, DC. This material is available electronically at <http://www.epa.gov/iris/subst/0396.htm>.

²¹ National Research Council (NRC). 2000. *Toxicological Effects of Methylmercury*. Washington, DC: National Academies Press.

²² U.S. Environmental Protection Agency (U.S. EPA). 1997. *Mercury Study Report to Congress*, EPA-HQ-OAR-2009-0234-3054. December. Available on the Internet at <http://www.epa.gov/hg/report.htm>.

²³ Amorim, M.I.M., D. Mergler, M.O. Bahia, H. Dubeau, D. Miranda, J. Lebel, R.R. Burbano, and M. Lucotte. 2000. Cytogenetic damage related to low levels of methyl mercury contamination in the Brazilian Amazon. *An. Acad. Bras. Science.* 72(4): 497-507.

immune activity or an autoimmune response (ATSDR, 1999), evidence for immunotoxic effects of MeHg is limited (NRC, 2000).²⁴

Based on limited human and animal data, MeHg is classified as a “possible” human carcinogen by the International Agency for Research on Cancer (IARC, 1994) and in IRIS (U.S. EPA, 2002).^{25 26} The existing evidence supporting the possibility of carcinogenic effects in humans from low-dose chronic exposures is tenuous. Multiple human epidemiological studies have found no significant association between mercury exposure and overall cancer incidence, although a few studies have shown an association between mercury exposure and specific types of cancer incidence (e.g., acute leukemia and liver cancer) (NRC, 2000).

There is also some evidence of reproductive and renal toxicity in humans from MeHg exposure. However, overall, human data regarding reproductive, renal, and hematological toxicity from MeHg are very limited and are based on either studies of the two high-dose poisoning episodes in Iraq and Japan or animal data, rather than epidemiological studies of chronic exposures at the levels of interest in this analysis.

VII. Statutory and Executive Order Reviews

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

Under Executive Order 12866 (58 FR 51735, October 4, 1993), this action is a “significant regulatory action” because it raises novel legal or policy issues. Accordingly, the EPA submitted this action to the OMB for review under Executive Orders 12866 and 13563 (76 FR 3821, January 21, 2011) and any changes made in response to OMB recommendations have been documented in the docket for this action. A RIA was prepared for the

September 2010 final rule and can be found at: <http://www.epa.gov/ttn/ecas/regdata/RIAs/portlandcementfinalria.pdf>. The benefits, cost and economic analysis for the first year of full compliance for the 2010 final rule are expected to be little changed for the first year of full compliance for this action.

B. Paperwork Reduction Act

The information collection requirements in this proposed rule have been submitted for approval to the OMB under the *Paperwork Reduction Act*, 44 U.S.C. 3501 *et seq.* The Information Collection Request (ICR) document prepared by the EPA has been assigned the EPA ICR number 1801.10 for the NESHAP and 1051.12 for the NSPS. The information requirements are based on notification, recordkeeping and reporting requirements in the NESHAP General Provisions (40 CFR part 63, subpart A), which are mandatory for all operators subject to national emissions standards. These recordkeeping and reporting requirements are specifically authorized by CAA section 114 (42 U.S.C. 7414). All information submitted to the EPA pursuant to the recordkeeping and reporting requirements for which a claim of confidentiality is made is safeguarded according to agency policies set forth in 40 CFR part 2, subpart B.

We are proposing new paperwork requirements for the Portland Cement Manufacturing source category in the form of a requirement to incorporate fugitive dust control measures for clinker piles into their existing operations and maintenance plan. We are also proposing to use recordkeeping as the means of monitoring compliance with the startup and shutdown standards.

For this proposed rule, the EPA is also proposing to add an affirmative defense to the estimate of burden in the ICR. To provide the public with an estimate of the relative magnitude of the burden associated with an assertion of the affirmative defense position adopted by a source, the EPA has provided administrative adjustments to this ICR to show what the notification, recordkeeping and reporting requirements associated with the assertion of the affirmative defense might entail. The EPA’s estimate for the required notification, reports and records for any individual incident, including the root cause analysis, totals \$3,142 and is based on the time and effort required of a source to review relevant data, interview plant employees, and document the events surrounding a malfunction that has caused an exceedance of an emissions

limit. The estimate also includes time to produce and retain the record and reports for submission to the EPA. The EPA provides this illustrative estimate of this burden because these costs are only incurred if there has been a violation and a source chooses to take advantage of the affirmative defense.

Given the variety of circumstances under which malfunctions could occur, as well as differences among sources’ operation and maintenance practices, we cannot reliably predict the severity and frequency of malfunction-related excess emissions events for a particular source. It is important to note that the EPA has no basis currently for estimating the number of malfunctions that would qualify for an affirmative defense. Current historical records would be an inappropriate basis, as source owners or operators previously operated their facilities in recognition that they were exempt from the requirement to comply with emissions standards during malfunctions. Of the number of excess emissions events reported by source operators, only a small number would be expected to result from a malfunction (based on the definition above), and only a subset of excess emissions caused by malfunctions would result in the source choosing to assert the affirmative defense. Thus we believe the number of instances in which source operators might be expected to avail themselves of the affirmative defense will be extremely small.

With respect to the Portland Cement Manufacturing source category, the emissions controls are operational before the associated emission source(s) commence operation and remain operational until after the associated emission source(s) cease operation. Also, production operations would not proceed or continue if there is a malfunction of a control device and the time required to shut down production operations (i.e., on the order of a few hours or a day) is small compared to the averaging time of the emission standards (i.e., monthly averages). Thus, we believe it is unlikely that a control device malfunction would cause an exceedance of any emission limit. Therefore, sources within this source category are not expected to have any need or use for the affirmative defense and we believe that there is no burden to the industry for the affirmative defense provisions in this proposed rule.

We expect to gather information on such events in the future and will revise this estimate as better information becomes available. We estimate 86 regulated entities are currently subject

²⁴ Agency for Toxic Substances and Disease Registry (ATSDR). 1999. Toxicological Profile for Mercury. U.S. Department of Health and Human Services, Public Health Service, Atlanta, GA.

²⁵ U.S. Environmental Protection Agency (EPA). 2002. Integrated Risk Information System (IRIS) on Methylmercury. National Center for Environmental Assessment. Office of Research and Development. Available online at <http://www.epa.gov/iris/subst/0073.htm>.

²⁶ International Agency for Research on Cancer (IARC). 1994. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans and their Supplements: Beryllium, Cadmium, Mercury, and Exposures in the Glass Manufacturing Industry. Vol. 58. Jalili, H.A., and A.H. Abbasi. 1961. Poisoning by ethyl mercury toluene sulphonanilide. Br. J. Indust. Med. 18(Oct.):303-308 (as cited in NRC 2000).

to subpart LLL and will be subject to all proposed standards. The annual monitoring, reporting and recordkeeping burden for this collection (averaged over the first 3 years after the effective date of the standards) for these amendments to subpart LLL is estimated to be \$352,814 per year. This includes 496 labor hours per year at a total labor cost of \$47,806 per year, and total non-labor capital and operation and maintenance costs of \$305,008 per year. This estimate includes reporting and recordkeeping associated with the proposed requirements for startup and shutdown and outdoor clinker piles. The total burden for the federal government (averaged over the first 3 years after the effective date of the standard) is estimated to be 263 hours per year at a total labor cost of \$11,885 per year. Burden is defined at 5 CFR 1320.3(b).

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.

To comment on the agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, the EPA has established a public docket for this proposed rule, which includes this ICR, under Docket ID number EPA-HQ-OAR-2011-0817. Submit any comments related to the ICR to the EPA and OMB. See the **ADDRESSES** section at the beginning of this notice for where to submit comments to the EPA. Send comments to OMB at the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street NW., Washington, DC 20503, Attention: Desk Office for the EPA. Since OMB is required to make a decision concerning the ICR between 30 and 60 days after July 18, 2012, a comment to OMB is best assured of having its full effect if OMB receives it by August 17, 2012. The final rule will respond to any OMB or public comments on the information collection requirements contained in this proposal.

C. Regulatory Flexibility Act

The Regulatory Flexibility Act generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities

include small businesses, small organizations and small governmental jurisdictions.

For purposes of assessing the impact of this rule on small entities, small entity is defined as: (1) A small business whose parent company has no more than 750 employees depending on the size definition for the affected NAICS code, as defined by the Small Business Administration size standards; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

We estimate that 3 of the 26 existing Portland cement entities are small entities. After considering the economic impacts of this proposed rule on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. Of the three affected small entities, all are expected to incur an annual compliance cost of less than 1.0 percent of sales to comply with this proposed rule (reflecting potential controls on piles, which are likely to have lower cost when compared to the 2010 rule requirements because these plants already have requirements for control of piles in their Title V permits).

Although this proposed rule will not have a significant economic impact on a substantial number of small entities, the EPA nonetheless has tried to reduce the impact of this proposed rule on small entities. For example, we are proposing to expand the provision that allows periodic HCl performance tests as an alternative to CEMS for sources equipped with wet scrubbers to also apply to those sources that use dry sorbent injection. This proposed rule would add an option for sources using wet or dry scrubbers for HCl control that also use a CEMS for SO₂. These sources would now have the option of using their SO₂ CEMS in conjunction with a periodic stack test to demonstrate compliance with the HCl standard. We continue to be interested in the potential impacts of the proposed rule on small entities and welcome comments on issues related to such impacts.

D. Unfunded Mandates Reform Act

This action does not contain a federal mandate under the provisions of Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), 2 U.S.C. 1531-1538 for state, local or tribal governments or the private sector. The action imposes no enforceable duties on any state, local or

tribal governments or the private sector. Thus, this action is not subject to the requirements of sections 202 or 205 of the UMRA.

This proposed rule is also not subject to the requirements of section 203 of UMRA because it contains no regulatory requirements that might significantly or uniquely affect small governments because it contains no requirements that apply to such governments nor does it impose obligations upon them.

E. Executive Order 13132: Federalism

This proposed 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, as specified in Executive Order 13132. None of the affected facilities are owned or operated by State governments. Thus, Executive Order 13132 does not apply to this action.

In the spirit of Executive Order 13132, and consistent with the EPA policy to promote communications between the EPA and state and local governments, the EPA specifically solicits comment on this proposed action from state and local officials.

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

This action does not have tribal implications, as specified in Executive Order 13175 (65 FR 67249, November 9, 2000). Under the provisions of this proposed rule, there may be an increase in mercury emissions and metal HAP emissions although any increase will be minimal because the same control technology that is necessary under the current NESHAP will be needed to meet the proposed emissions limits. The more stringent limitations of fugitive dust emissions from open clinker piles may result in decreased risk to Indian tribal populations. Thus, Executive Order 13175 does not apply to this action.

The EPA specifically solicits additional comment on this proposed action from tribal officials.

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

The EPA interprets Executive Order 13045 (62 FR 19885, April 23, 1997) as applying to those regulatory actions that concern health or safety risks, such that the analysis required under section 5-501 of the Executive Order has the potential to influence the regulation.

This action is not subject to Executive Order 13045 because it is based solely on technology performance.

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

This proposed action is not a "significant energy action" as defined in Executive Order 13211 (66 FR 28355 (May 22, 2001)), because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. The proposed amendments do not require the use of additional controls as compared to the 2010 rule and may allow the industry to reduce its cost of compliance by increasing the industry's flexibility to institute different and less costly control strategies than under the 2010 rule.

I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 ("NTTAA"), Public Law No. 104-113 (15 U.S.C. 272 note), directs the EPA to use voluntary consensus standards (VCS) in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. VCS are technical standards (e.g., materials specifications, test methods, sampling procedures and business practices) that are developed or adopted by VCS bodies. NTTAA directs the EPA to provide Congress, through OMB, explanations when the agency decides not to use available and applicable VCS.

This proposed rulemaking does not involve technical standards. Therefore, the EPA is not considering the use of any voluntary consensus standards.

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

Executive Order 12898 (59 FR 7629) (February 16, 1994) establishes federal executive policy on environmental justice. Its main provision directs federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies and activities on minority populations and low-income populations in the United States.

An analysis of demographic data was prepared for the 2010 final rule and can be found in the docket for that rulemaking (EPA-docket no. EPA-HQ-

OAR-2002-0051-3415). The impacts of the 2010 rule, which assumed full compliance, are expected to be unchanged as a result of this action. Therefore, beginning from the date of full compliance, the EPA has determined that this proposed rule will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it does not affect the level of protection provided to human health or the environment. The full benefits of this proposed rule will not result until 2015 due to the proposed amended compliance date. The EPA has determined that the proposed amended compliance date will not result in disproportionately high and adverse human health or environmental effects on minority or low-income populations because the demographic analysis showed that the average of populations in close proximity to the sources, and thus most likely to be affected by the sources, were similar in demographic composition to national averages.

List of Subjects in 40 CFR Parts 60 and 63

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

Dated: June 22, 2012.

Lisa P. Jackson, Administrator.

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

PART 60—[AMENDED]

1. The authority citation for part 60 continues to read as follows:

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

Subpart A—[Amended]

2. Section 60.17 is amended by revising paragraph (h)(4) to read as follows:

§ 60.17 Incorporations by reference.

* * * * *

(h) * * * (4) ANSI/ASME PTC 19.10-1981, Flue and Exhaust Gas Analyses [Part 10, Instruments and Apparatus] (issued August 31, 1981), IBR approved for § 60.56c(b) of subpart Ec, § 60.63(f) of subpart F, § 60.106(e) of subpart J, § 60.104a(d), (h), (i) and, (j), § 60.105a(d), (f), and (g), § 60.106a(a), and § 60.107a(a), (c), (d), and (e) of subpart Ja, tables 1 and 3 of subpart

EEEE, tables 2 and 4 of subpart FFFF, table 2 of subpart JJJJ, § 60.4415(a) of subpart KKKK, § 60.2145(s) and, (t), § 60.2710(s) (t), and (w), § 60.2730(q), § 60.4900(b), § 60.5220(b), tables 1 and 2 to subpart LLLL, tables 2 and 3 to subpart MMMM, § 60.5406(c) and § 60.5413(b).

* * * * *

Subpart F—[Amended]

3. Section 60.61 is amended by adding paragraphs (e) and (f) to read as follows:

§ 60.61 Definitions.

* * * * *

(e) Excess emissions means, with respect to this subpart, results of any required measurements outside the applicable range (e.g., emissions limitations, parametric operating limits) that is permitted by this subpart. The values of measurements will be in the same units and averaging time as the values specified in this subpart for the limitations.

(f) Operating day means a 24-hour period beginning at 12:00 midnight during which the kiln operates at any time. For calculating rolling 30-day average emissions, an operating day does not include the hours of operation during startup or shutdown.

- 4. Section 60.62 is amended by:
a. Revising paragraphs (a)(1) and (a)(2);
b. Adding paragraph (a)(1)(iii)
c. Removing paragraph (b)(1)(i);
d. Redesignating paragraph (b)(1)(ii) as paragraph (b)(1)(i);
e. Revising paragraph (b)(1);
f. Removing paragraph (b)(2);
g. Redesignating paragraphs (b)(3) and (4) as (2) and (3);
h. Revising paragraph (d);
The revisions and deletion read as follows:

§ 60.62 Standards.

(a) * * *

(1) Contain particulate matter (PM) in excess of:

- (i) [Reserved]
(ii) 0.02 pound per ton of clinker if construction or reconstruction of the kiln commenced after June 16, 2008.
(iii) Kilns that have undergone a modification may not discharge into the atmosphere any gases which contain PM in excess of 0.07 pound per ton of clinker.

(2) [Reserved]

* * * * *

(b) On and after the date on which the performance test required to be conducted by § 60.8 is completed, you may not discharge into the atmosphere

from any clinker cooler any gases which:

(1) Contain PM in excess of:
(i) 0.02 pound per ton of clinker if construction or reconstruction of the clinker cooler commences after June 16, 2008.

(ii) Clinker coolers that have undergone a modification may not discharge into the atmosphere any gases which contain PM in excess of 0.07 pound per ton of clinker.

* * * * *

(d) If you have an affected source subject to this subpart with a different emissions limit or requirement for the same pollutant under another regulation in title 40 of this chapter, you must comply with the most stringent emissions limit or requirement and are not subject to the less stringent requirement.

5. Section 60.63 is amended by:

- a. Revising paragraphs (b)(1)(i) and (b)(1)(ii);
- b. Adding paragraph (b)(1)(iii);
- c. Revising paragraphs (b)(2) and (b)(3);
- d. Removing paragraph (b)(4);
- e. Revising paragraphs (c) through (f);
- f. Revising paragraph (g) introductory text;
- g. Revising paragraph (g)(2);
- h. Revising paragraph (h) introductory text;
- i. Revising paragraphs (h)(1) and (h)(6);
- j. Revising paragraph (h)(7) introductory text;
- k. Revising paragraph (h)(8) introductory text;
- l. Revising paragraph (h)(9);
- m. Revising paragraph (i) introductory text; and
- n. Revising paragraph (i)(1) and (i)(1)(i).

The revisions, addition, and deletions read as follows:

§ 60.63 Monitoring of operations.

* * * * *

(b) * * *

(1) * * *

(i) Install, calibrate, maintain, and operate a permanent weigh scale system to measure and record weight rates of the amount of clinker produced in tons of mass per hour. The system of measuring hourly clinker production must be maintained within ±5 percent accuracy or

(ii) Install, calibrate, maintain, and operate a permanent weigh scale system to measure and record weight rates of the amount of feed to the kiln in tons of mass per hour. The system of measuring feed must be maintained within ±5 percent accuracy. Calculate your hourly clinker production rate

using a kiln specific feed-to-clinker ratio based on reconciled clinker production rates determined for accounting purposes and recorded feed rates. This ratio should be updated monthly. Note that if this ratio changes at clinker reconciliation, you must use the new ratio going forward, but you do not have to retroactively change clinker production rates previously estimated.

(iii) For each kiln operating hour for which you do not have data on clinker production or the amount of feed to the kiln, use the value from the most recent previous hour for which valid data are available.

(2) Determine, record, and maintain a record of the accuracy of the system of measuring hourly clinker production rates or feed rates before initial use (for new sources) or by the effective compliance date of this rule (for existing sources). During each quarter of source operation, you must determine, record, and maintain a record of the ongoing accuracy of the system of measuring hourly clinker production rates or feed rates.

(3) If you measure clinker production directly, record the daily clinker production rates; if you measure the kiln feed rates and calculate clinker production, record the daily kiln feed and clinker production rates.

(c) *PM Emissions Monitoring Requirements.* (1) For each kiln or clinker cooler subject to a PM emissions limit in § 60.62, you must demonstrate compliance through an initial performance test and you must monitor continuous performance through use of a PM continuous parametric monitoring system (PM CPMS).

(2) For your PM CPMS, you will establish a site-specific operating limit corresponding to the highest 1-hour average PM CPMS output value recorded during the performance test demonstrating compliance with the PM limit. You will conduct your performance test using Method 5 at appendix A-3 to part 60 of this chapter. You will use the PM CPMS to demonstrate continuous compliance with your operating limit. You must repeat the performance test annually and reassess and adjust the site-specific operating limit in accordance with the results of the performance test.

(d) You must install, operate, calibrate, and maintain a CEMS continuously monitoring and recording the concentration by volume of NO_x emissions into the atmosphere for any kiln subject to the NO_x emissions limit in § 60.62(a)(3). If the kiln has an alkali bypass, NO_x emissions from the alkali bypass do not need to be monitored, and NO_x emission monitoring of the kiln

exhaust may be done upstream of any commingled alkali bypass gases.

(e) You must install, operate, calibrate, and maintain a CEMS for continuously monitoring and recording the concentration by volume of SO₂ emissions into the atmosphere for any kiln subject to the SO₂ emissions limit in § 60.62(a)(4). If you are complying with the alternative 90 percent SO₂ emissions reduction emissions limit, you must also continuously monitor and record the concentration by volume of SO₂ present at the wet scrubber inlet.

(f) The NO_x and SO₂ CEMS required under paragraphs (d) and (e) of this section must be installed, operated and maintained according to Performance Specification 2 of appendix B of this part and the requirements in paragraphs (f)(1) through (5) of this section.

(1) The span value of each NO_x CEMS monitor must be set at 125 percent of the maximum estimated hourly potential NO_x emission concentration that translates to the applicable emissions limit at full clinker production capacity.

(2) You must conduct performance evaluations of each NO_x CEMS monitor according to the requirements in § 60.13(c) and Performance Specification 2 of appendix B to this part. You must use Methods 7, 7A, 7C, 7D, or 7E of appendix A-4 to this part for conducting the relative accuracy evaluations. The method ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses," (incorporated by reference—see § 60.17) is an acceptable alternative to Method 7 or 7C of appendix A-4 to this part.

(3) The span value for the SO₂ CEMS monitor is the SO₂ emission concentration that corresponds to 125 percent of the applicable emissions limit at full clinker production capacity and the expected maximum fuel sulfur content.

(4) You must conduct performance evaluations of each SO₂ CEMS monitor according to the requirements in § 60.13(c) and Performance Specification 2 of appendix B to this part. You must use Methods 6, 6A, or 6C of appendix A-4 to this part for conducting the relative accuracy evaluations. The method ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses," (incorporated by reference—see § 60.17) is an acceptable alternative to Method 6 or 6A of appendix A-4 to this part.

(5) You must comply with the quality assurance requirements in Procedure 1 of appendix F to this part for each NO_x and SO₂ CEMS, including quarterly accuracy determinations for monitors, and daily calibration drift tests.

(g) For each CPMS or CEMS required under paragraphs (c) through (e) of this section:

* * * * *

(2) You may not use data recorded during the monitoring system malfunctions, repairs associated with monitoring system malfunctions, or required monitoring system quality assurance or control activities in calculations used to report emissions or operating levels. A monitoring system malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring system failures that are caused in part by poor maintenance or careless operation are not malfunctions. An owner or operator must use all the data collected during all other periods in reporting emissions or operating levels.

* * * * *

(h) You must install, operate, calibrate, and maintain instruments for continuously measuring and recording the stack gas flow rate to allow determination of the pollutant mass emissions rate to the atmosphere for each kiln subject to the PM emissions limits in § 60.62(a)(1) (ii) and (b)(1)(ii), the NO_x emissions limit in § 60.62(a)(3), or the SO₂ emissions limit in § 60.62(a)(4) according to the requirements in paragraphs (h)(1) through (10), where appropriate, of this section.

(1) The owner or operator must install each sensor of the flow rate monitoring system in a location that provides representative measurement of the exhaust gas flow rate at the sampling location of the NO_x and/or SO₂ CEMS, taking into account the manufacturer's recommendations. The flow rate sensor is that portion of the system that senses the volumetric flow rate and generates an output proportional to that flow rate.

* * * * *

(6) The flow rate monitoring system must be designed to measure a minimum of one cycle of operational flow for each successive 15-minute period.

(7) The flow rate sensor must be able to determine the daily zero and upscale calibration drift (CD) (see sections 3.1

and 8.3 of Performance Specification 2 in appendix B to this part for a discussion of CD).

* * * * *

(8) You must perform an initial relative accuracy test of the flow rate monitoring system according to section 8.2 of Performance Specification 6 of appendix B to this part, with the exceptions noted in paragraphs (h)(8)(i) and (ii) of this section.

* * * * *

(9) You must verify the accuracy of the flow rate monitoring system at least once per year by repeating the relative accuracy test specified in paragraph (h)(8) of this section.

* * * * *

(i) *Development and Submittal (Upon Request) of Monitoring Plans.* If you demonstrate compliance with any applicable emissions limit through performance stack testing or other emissions monitoring (including PM CPMS), you must develop a site-specific monitoring plan according to the requirements in paragraphs (i)(1) through (4) of this section. This requirement also applies to you if you petition the EPA Administrator for alternative monitoring parameters under paragraph (h) of this section and § 63.8(f). If you use a bag leak detector system (BLDS), you must also meet the requirements specified in paragraph § 63.1350(m)(10) of this chapter.

(1) For each continuous monitoring system (CMS) required in this section, you must develop, and submit to the permitting authority for approval upon request, a site-specific monitoring plan that addresses paragraphs (i)(1)(i) through (iii) of this section. You must submit this site-specific monitoring plan, if requested, at least 30 days before the initial performance evaluation of your CMS.

(i) Installation of the CMS sampling probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of control of the exhaust emissions (e.g., on or downstream of the last control device);

* * * * *

6. Section 60.64 is amended to read as follows:

§ 60.64 Test methods and procedures

(a) In conducting the performance tests and relative accuracy tests required in § 60.8, you must use reference methods and procedures and the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided in § 60.8(b).

(b) You must demonstrate compliance with the PM standards in § 60.62 according to paragraphs (b)(1)(i) through (iv) of this section.

(1)(i) In using a PM CPMS to demonstrate compliance, you must establish your PM CPMS operating limit and determine compliance with it according to paragraphs (b)(1)(i) through (iv) of this section.

(ii) During the initial performance test or any such subsequent performance test that demonstrates compliance with the PM limit, record all hourly average output values (e.g., milliamps, stack concentration, or other raw data signal) from the PM CPMS for the periods corresponding to the test runs (e.g., three 1-hour average PM CPMS output values for three 1-hour test runs).

(iii) Determine your operating limit as the highest 1-hour average PM CPMS output value recorded during the performance test. You must verify an existing or establish a new operating limit after each repeated performance test.

(iv) To determine continuous compliance, you must record the PM CPMS output data for all periods when the process is operating and the PM CPMS is not out-of-control. You must demonstrate continuous compliance by using all quality-assured hourly average data collected by the PM CPMS for all operating hours to calculate the arithmetic average operating parameter in units of the operating limit (e.g., milliamps, PM concentration, raw data signal) on a 30 operating day rolling average basis, updated at the end of each new kiln operating day. Use Equation 2 to determine the 30 kiln operating day average.

$$30\text{kiln operating day} = \frac{\sum_{i=1}^n Hpvi}{n} \quad \text{Eq. 2}$$

Where:

Hpvi = The hourly parameter value for hour i and

n = The number of valid hourly parameter values collected over 30 kiln operating days.

(2) Use Method 9 and the procedures in § 60.11 to determine opacity.
 (3) Any sources other than kilns (including associated alkali bypass and clinker cooler) that are major sources as defined in § 63.2 of this chapter and that are subject to the 10 percent opacity

limit must follow the appropriate monitoring procedures in § 63.1350(f), (m)(1) through (m)(4), (m)(10) through (11), (o), and (p) of this chapter.
 (c) Calculate and record the rolling 30 kiln operating day average emission rate daily of NO_x and SO₂ according to the

procedures in paragraphs (i) through (ii) of this section.
 (i) Calculate the rolling 30 kiln operating day average emissions according to equation 3:

$$E = (C_s Q_s) / (P K)$$

Eq. 3

Where:

- E_{30D} = 30 kiln operating day average emission rate of NO_x or SO₂, lb/ton of clinker;
- C_i = Concentration of NO_x or SO₂ for hour i, ppm;
- Q_i = volumetric flow rate of effluent gas for hour i, where
- C_i and Q_i are on the same basis (either wet or dry), scf/hr;
- P_i = total kiln clinker produced during production hour i, ton/hr; and
- k = conversion factor, 1.194 × 10⁻⁷ for NO_x and 1.660 × 10⁻⁷ for SO₂.
- n = number of kiln operating hours over 30 kiln operating days, n = 1 to 720.

(ii) For each kiln operating hour for which you do not have at least one valid 15-minute CEMS data value, use the average emissions rate (lb/hr) from the most recent previous hour for which valid data are available.

(d)(1) Within 60 days after the date of completing each performance test (see § 60.8) as required by this subpart you must submit the results of the performance tests conducted to demonstrate compliance under this subpart to the EPA's WebFIRE database by using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through the EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). Performance test data must be submitted in the file format generated through use of the EPA's Electronic Reporting Tool (ERT) (see <http://www.epa.gov/ttn/chief/ert/index.html>). Only data collected using test methods on the ERT Web site are subject to this requirement for submitting reports electronically to WebFIRE. Owners or operators who claim that some of the information being submitted for performance tests is confidential business information (CBI) must submit a complete ERT file including information claimed to be CBI on a compact disk or other commonly used electronic storage media (including, but not limited to, flash drives) to the EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAPQS/CORE CBI Office, Attention: WebFIRE Administrator, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same ERT file with the CBI omitted must be submitted to the EPA via CDX as

described earlier in this paragraph. At the discretion of the delegated authority, you must also submit these reports, including the confidential business information, to the delegated authority in the format specified by the delegated authority.

(2) Within 60 days after the date of completing each CEMS performance evaluation test (see § 60.13), you must submit the relative accuracy test audit data electronically into the EPA's Central Data Exchange by using the Electronic Reporting Tool as mentioned in paragraph (d)(1) of this section. Only data collected using test methods compatible with ERT are subject to this requirement to be submitted electronically to the EPA's CDX.

(3) All reports required by this subpart not subject to the requirements in paragraphs (d)(1) and (2) 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 (d)(1) and (2) of this section in paper format.

7. Section 60.65 is revised to read as follows:

§ 60.65 Recordkeeping and reporting requirements.

(a) Each owner or operator required to install a CPMS or CEMS under sections § 60.63(c)–(e) shall submit reports of excess emissions. The content of these reports must comply with the requirements in § 60.7(c). Notwithstanding the provisions of § 60.7(c), such reports shall be submitted semiannually.

(b) Each owner or operator of facilities subject to the provisions of § 60.63(c)–(e) shall submit semiannual reports of the malfunction information required to be recorded by § 60.7(b). These reports shall include the frequency, duration, and cause of any incident resulting in deenergization of any device controlling

kiln emissions or in the venting of emissions directly to the atmosphere.

(c) The requirements of this section remain in force until and unless the Agency, in delegating enforcement authority to a State under section 111(c) of the Clean Air Act, 42 U.S.C. 7411, approves reporting requirements or an alternative means of compliance surveillance adopted by such States. In that event, affected sources within the State will be relieved of the obligation to comply with this section, provided that they comply with the requirements established by the State.

8. Section 60.66 is amended by revising paragraph (b) introductory text to read as follows:

§ 60.66 Delegation of authority.

* * * * *

(b) In delegating implementation and enforcement authority to a State, local, or tribal agency, the approval authorities contained in paragraphs (b)(1) through (4) of this section are retained by the Administrator of the U.S EPA and are not transferred to the State, local, or tribal agency.

* * * * *

PART 63—[AMENDED]

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

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

10. Section 63.14 is amended by revising paragraph (b)(54) to read as follows:

§ 63.14 Incorporations by reference.

* * * * *

(b) * * *
 (54) ASTM D6348–03, Standard Test Method for Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform Infrared (FTIR) Spectroscopy, approved 2003, IBR approved for § 63.1349(b) of subpart LLL, table 4 to subpart DDDD, and table 8 of subpart HHHHHH of this part.

* * * * *

Subpart LLL—[Amended]

11. Section 63.1340 is amended by a. Revising paragraphs (b)(6) through (b)(9); and

b. Revising paragraph (c).
The revisions read as follows:

§ 63.1340 What parts of my plant does this subpart cover?

* * * * *

(b) * * *

(6) Each raw material, clinker, or finished product storage bin at any portland cement plant that is a major source;

(7) Each conveying system transfer point including those associated with coal preparation used to convey coal from the mill to the kiln at any portland cement plant that is a major source;

(8) Each bagging and bulk loading and unloading system at any portland cement plant that is a major source; and

(9) Each open clinker storage pile at any portland cement plant.

(c) Onsite sources that are subject to standards for nonmetallic mineral processing plants in subpart OOO, part 60 of this chapter are not subject to this subpart. Crushers are not covered by this subpart regardless of their location.

* * * * *

12. Section 63.1341 is amended by:

a. Deleting definitions of "Enclosed storage pile," and "Inactive clinker pile;"

b. Adding a definition for "Deviation," "In-line coal mill," "Open clinker storage pile," and "Startup and shutdown;" in alphabetical order and

c. Revising definitions for "Kiln," "New source," "Operating day," "Raw material dryer," and "Total organic HAP," in alphabetical order.

The deletions, additions and revisions read as follows:

§ 63.1341 Definitions.

* * * * *

Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source: (i) Fails to meet any

requirement or obligation established by this subpart including, but not limited to, any emission limit, operating limit, work practice standard, or monitoring requirement; or (ii) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit. A deviation is not always a violation.

* * * * *

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

* * * * *

Kiln means a device, including any associated preheater or precalciner devices, inline raw mills, inline coal mills or alkali bypasses that produces clinker by heating limestone and other materials for subsequent production of portland cement. Because the inline raw mill and inline coal mill are considered an integral part of the kiln, for purposes of determining the appropriate emissions limit, the term kiln also applies to the exhaust of the inline raw mill and the inline coal mill.

* * * * *

New source means any source that commenced construction after May 6, 2009, for purposes of determining the applicability of the kiln, clinker cooler and raw material dryer emissions limits for mercury, PM, THC, and HCl.

* * * * *

Open clinker storage pile means any clinker storage pile that is not completely enclosed in a building or structure.

Operating day means any 24-hour period beginning at 12:00 midnight during which the kiln operates for any time. For calculating the rolling 30-day

average emissions, kiln *operating days* do not include the hours of operation during startup or shutdown.

* * * * *

Raw material dryer means an impact dryer, drum dryer, paddle-equipped rapid dryer, air separator, or other equipment used to reduce the moisture content of feed or other materials.

* * * * *

Startup and shutdown means the periods of kiln operation that do not include normal operations. Startup begins when the kiln's induced fan is turned on and continues until continuous feed is introduced into the kiln. Shutdown begins when feed to the kiln is halted.

* * * * *

Total organic HAP means, for the purposes of this subpart, the sum of the concentrations of compounds of formaldehyde, benzene, toluene, styrene, m-xylene, p-xylene, o-xylene, acetaldehyde, and naphthalene as measured by EPA Test Method 320 or Method 18 of appendix A to this part or ASTM D6348-03 or a combination of these methods, as appropriate. When using ASTM D6348-03, the following conditions must be met: (1) The test plan preparation and implementation in the Annexes to ASTM D6348-03, Sections A1 through A8 are mandatory; (2) For ASTM D6348-03 Annex A5 (Analyte Spiking Technique), the percent (%) R must be determined for each target analyte (see Equation A5.5); (3) For the ASTM D6348-03 test data to be acceptable for a target analyte, %R must be 70% ≥ R ≤ 130%; and (4) The %R value for each compound must be reported in the test report and all field measurements corrected with the calculated %R value for that compound using the following equation:

$$Reported\ Result = \frac{(Measured\ Concentration\ in\ Stack)}{\%R} \times 100$$

If measurement results for any pollutant are reported as below the method detection level (e.g., laboratory analytical results for one or more sample components are below the method defined analytical detection level), you must use the method detection level as the measured emissions level for that pollutant in calculating the total organic HAP value. The measured result for a multiple component analysis (e.g., analytical values for multiple Method 18 fractions)

may include a combination of method detection level data and analytical data reported above the method detection level. The owner or operator of an affected source may request the use of other test methods to make this determination under paragraphs 63.7(e)(2)(ii) and (f) of this part.

* * * * *

13. Section 63.1343 is revised to read as follows:

§ 63.1343 What standards apply to my kilns, clinker coolers, raw material dryers, and open clinker piles?

(a) *General*. The provisions in this section apply to each kiln and any alkali bypass associated with that kiln, clinker cooler, and raw material dryer. All D/F, HCl, and total hydrocarbon (THC) emissions limit are on a dry basis. The D/F, HCl, and THC limits for kilns are corrected to 7 percent oxygen. All THC emissions limits are measured as propane. Standards for mercury and THC are based on a rolling 30-day

average. If using a CEMS to determine compliance with the HCl standard, this standard is based on a rolling 30-day average. You must ensure appropriate corrections for moisture are made when measuring flow rates used to calculate mercury emissions. The 30-day period means 30 consecutive kiln operating days excluding periods of startup and

shutdown. All emissions limits for kilns, clinker coolers, and raw material dryers currently in effect that are superseded by the limits below continue to apply until the compliance date of the limits below, or until the source certifies compliance with the limits below, whichever is earlier.

(b) *Kilns, clinker coolers, raw material dryers, raw mills, and finish mills.*

(1) The emissions limits for these sources are shown in Table 1 below. PM limits for existing kilns also apply to kilns that have undergone a modification as defined in subpart A of part 60 of title 40.

TABLE 1—EMISSIONS LIMITS FOR KILNS, CLINKER COOLERS, RAW MATERIAL DRYERS, RAW AND FINISH MILLS

If your source is a (an):	And the operating mode is:	And if is located at a:	Your emissions limits are:	And the units of the emissions limit are:	The oxygen correction factor percent is:
1. Existing kiln	Normal operation	Major or area source	PM ¹ 0.07	lb/ton clinker	NA
			D/F ² 0.2	ng/dscm	7
			Mercury 55	lb/MMtons clinker	NA
			THC ^{3 4} 24	ppmvd	7
2. Existing kiln	Normal operation	Major source	HCl 3	ppmvd	7
3. Existing kiln	Startup and shutdown	Major or area source	PM 0.04	gr/dscf	NA
			D/F 0.2	ng/dscm (TEQ) ...	NA
			Mercury 10	ug/dscm	NA
			THC 24	ppmvd	NA
4. Existing kiln	Startup and shutdown	Major source	HCl 3	ppmvd	NA
5. New kiln	Normal operation	Major or area source	PM 0.02	lb/ton clinker	NA
			D/F ¹ 0.2	ng/dscm	7
			Mercury 21	lb/MM tons clinker	NA
			THC ^{3 4} 24	ppmvd	7
6. New kiln	Normal operation	Major source	HCl 3	ppmvd	7
7. New kiln	Startup and shutdown	Major or area source	PM 0.0008	gr/dscf	NA
			D/F 0.2	ng/dscm (TEQ) ...	NA
			Mercury 4	ug/dscm	NA
			THC 24	ppmvd	NA
8. New kiln	Startup and shutdown	Major source	HCl 3	ppmvd	NA
9. Existing clinker cooler	Normal operation	Major or area source	PM 0.07	lb/ton clinker	NA
10. Existing clinker cooler ..	Startup and shutdown	Major or area source	PM 0.004	gr/dscf	NA
11. New clinker cooler	Normal operation	Major or area source	PM 0.02	lb/ton clinker	NA
12. New clinker cooler	Startup and shutdown	Major or area source	PM 0.0008	gr/dscf	NA
13. Existing or new raw material dryer.	Normal operation	Major or area source	THC ^{3 4} 24	ppmvd	NA
14. Existing or new raw material dryer.	Startup and shutdown	Major or area source	THC 24	ppmvd	NA
15. Existing or new raw or finish mill.	All operating modes	Major source	Opacity 10	percent	NA
16. Open clinker storage piles.	All operating modes	Major or area source	Work practices (63.1343(c)).	NA	NA

¹ The initial and subsequent PM performance tests are performed using Method 5 and consists of three 1-hr tests.

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 °F or less this limit is changed to 0.040 ng/dscm.

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.

(2) When there is an alkali bypass associated with a kiln, the combined PM emissions from the kiln and the alkali bypass stack are subject to the PM emissions limit. Existing kilns that

combine the clinker cooler exhaust and/or coal mill with the kiln exhaust for energy efficiency purposes and send the combined exhaust to the PM control device as a single stream may meet an

alternative PM emissions limit. This limit is calculated using equation 1 of this section:

$$PM_{alt} = (0.0060 \times 1.65) (Q_k + Q_c + Q_{ab} + Q_{cm}) / (7000) \quad (\text{Eq. 1})$$

Where:

PM_{alt} = Alternative PM emission limit for commingled sources.

0.006 = The PM exhaust concentration (gr/dscf) equivalent to 0.070 lb per ton clinker where clinker cooler and kiln exhaust gas are not combined.

1.65 = The conversion factor of lb feed per lb clinker.

Q_k = The exhaust flow of the kiln (dscf/ton raw feed).

Q_c = The exhaust flow of the clinker cooler (dscf/ton feed).

Q_{ab} = The exhaust flow of the alkali bypass (dscf/ton feed).

Q_{cm} = The exhaust flow of the coal mill (dscf/ton feed).

7000 = The conversion factor for grains (gr) per lb.

For new kilns that combine kiln exhaust and clinker cooler gas the limit is calculated using the equation 2 of this section:

$$PM_{alt} = (0.0020 \times 1.65) (Q_k + Q_c + Q_{ab} + Q_{cm}) / (7000) \quad (\text{Eq. } 2)$$

Where:

PM_{alt} = Alternative PM emission limit for commingled sources.

0.002 = The PM exhaust concentration (gr/dscf) equivalent to 0.020 lb per ton clinker where clinker cooler and kiln exhaust gas are not combined.

1.65 = The conversion factor of lb feed per lb clinker.

Q_k = The exhaust flow of the kiln (dscf/ton feed).

Q_c = The exhaust flow of the clinker cooler (dscf/ton feed).

Q_{ab} = The exhaust flow of the alkali bypass (dscf/ton feed).

Q_{cm} = The exhaust flow of the coal mill (dscf/ton feed).

7000 = The conversion factor for gr per lb.

(c) *Open Clinker Piles.* The owner or operator of an open clinker pile must prepare and operate in accordance with the fugitive dust emissions control measures, described in their operation and maintenance plan (see § 63.1347 of this subpart), that is appropriate for the site conditions as specified in paragraphs (c)(1) and (2) of this paragraph.

(1) The operations and maintenance plan must identify and describe the fugitive dust emissions control measures the owner or operator will use to minimize fugitive dust emissions from each open clinker storage pile.

(2) For open clinker storage piles, the operations and maintenance plan must specify that one or more of the following control measures will be used to minimize to the greatest extent practicable fugitive dust from open clinker storage piles: Locating the source inside a partial enclosure, installing and operating a water spray or fogging system, applying appropriate chemical dust suppression agents on the source, use of a wind barrier, compaction, or use of a vegetative cover. The owner or operator must select, for inclusion in the operations and maintenance plan, the fugitive dust control measure or measures listed in this paragraph that are most appropriate for site conditions. The plan must also explain how the measure or measures selected are applicable and appropriate for site conditions. In addition, the plan must be revised as needed to reflect any changing conditions at the source.

(d) Emission limits in effect prior to September 9, 2010. Any source defined as an existing source in § 63.1351, and that was subject to a PM, mercury, THC, D/F, or opacity emissions limit prior to September 9, 2010, must continue to meet the limits shown in Table 2 to this section until September 9, 2015.

* * * * *

14. Section 63.1344 is amended by revising the section heading and revising the section to read as follows:

§ 63.1344 Affirmative defense for violation of emissions limit during malfunction.

In response to an action to enforce the standards set forth in paragraph § 63.1343(b) you may assert an affirmative defense to a claim for civil penalties for violations of such standards that are caused by malfunction, as defined at 40 CFR 63.2. Appropriate penalties may be assessed, however, if the respondent fails to meet its burden of proving all of the requirements in the affirmative defense. The affirmative defense shall not be available for claims for injunctive relief.

(a) To establish the affirmative defense in any action to enforce such a standard, you must timely meet the notification requirements in paragraph (b) of this section, and must prove by a preponderance of evidence that:

(1) The violation:

(i) Was caused by a sudden, infrequent, and unavoidable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner, and

(ii) Could not have been prevented through careful planning, proper design or better operation and maintenance practices; and

(iii) Did not stem from any activity or event that could have been foreseen and avoided, or planned for; and

(iv) Was not part of a recurring pattern indicative of inadequate design, operation, or maintenance; and

(2) Repairs were made as expeditiously as possible when a violation occurred. Off-shift and overtime labor were used, to the extent practicable to make these repairs; and

(3) The frequency, amount and duration of the violation (including any bypass) were minimized to the maximum extent practicable; and

(4) If the violation resulted from a bypass of control equipment or a process, then the bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; and

(5) All possible steps were taken to minimize the impact of the violation on ambient air quality, the environment and human health; and

(6) All emissions monitoring and control systems were kept in operation if at all possible consistent with safety and good air pollution control practices; and

(7) Your actions in response to the violation were documented by properly signed, contemporaneous operating logs; and

(8) At all times, the affected source was operated in a manner consistent with good air pollution control practice for minimizing emissions; and

(9) A written root cause analysis has been prepared, the purpose of which is to determine, correct, and eliminate the primary causes of the malfunction and the violation resulting from the malfunction event at issue. The analysis shall also specify, using best monitoring methods and engineering judgment, the amount of any emissions that were the result of the malfunction.

(b) Report. The owner or operator seeking to assert an affirmative defense shall submit a written report to the Administrator with all necessary supporting documentation, that it has met the requirements set forth in paragraph (a) of this section. This affirmative defense report shall be included in the semiannual report required by section 63.1354(b)(9). The affirmative defense report shall be included in the first semiannual, deviation report or excess emission report otherwise required after the initial occurrence of the violation of the relevant standard (which may be the end of any applicable averaging period). If such compliance, deviation report or excess the semiannual report is due less than 45 days after the initial occurrence of the violation, the affirmative defense report may be included in the second semiannual compliance, deviation report or excess emission report due after the initial occurrence of the violation of the relevant standard.

15. Section 63.1345 is amended by revising the section heading and revising the section to read as follows:

§ 63.1345 Emissions limits for affected sources other than kilns; clinker coolers; new and reconstructed raw material dryers; and open clinker piles.

The owner or operator of each new or existing raw material, clinker, or finished product storage bin; conveying system transfer point; bagging system; bulk loading or unloading system; raw and finish mills; and each existing raw material dryer, at a facility which is a major source subject to the provisions of this subpart must not cause to be discharged any gases from these affected sources which exhibit opacity in excess of 10 percent.

16. Section 63.1346 is amended by:

- a. Revising paragraph (a) introductory text;
- b. Revising paragraph (a)(1); and
- c. Revising paragraphs (c) through (f). The revisions read as follows:

§ 63.1346 Operating limits for kilns.

(a) The owner or operator of a kiln subject to a D/F emissions limitation under § 63.1343 must operate the kiln such that the temperature of the gas at the inlet to the kiln PM control device (PMCD) and alkali bypass PMCD, if applicable, does not exceed the applicable temperature limit specified in paragraph (b) of this section. The owner or operator of an in-line kiln/raw mill subject to a D/F emissions limitation under § 63.1343 must operate the in-line kiln/raw mill, such that:

(1) When the raw mill of the in-line kiln/raw mill is operating, the applicable temperature limit for the main in-line kiln/raw mill exhaust, specified in paragraph (b) of this section and established during the performance test when the raw mill was operating, is not exceeded, except during periods of startup/shutdown when the temperature limit may be exceeded by no more than 10 percent.

* * * * *

(c) For an affected source subject to a D/F emissions limitation under § 63.1343 that employs sorbent injection as an emission control technique you must operate the sorbent injection system in accordance with paragraphs (c)(1) and (c)(2) of this section.

(1) The rolling three-hour average activated sorbent injection rate must be equal to or greater than the sorbent injection rate determined in accordance with § 63.1349(b)(3)(vi).

(2) You must either:

(i) Maintain the minimum activated carbon injection carrier gas flow rate, as a rolling three-hour average, based on the manufacturer's specifications. These specifications must be documented in the test plan developed in accordance with § 63.7(c), or

(ii) Maintain the minimum activated carbon injection carrier gas pressure drop, as a rolling three-hour average, based on the manufacturer's specifications. These specifications must be documented in the test plan developed in accordance with § 63.7(c).

(d) Except as provided in paragraph (e) of this section, for an affected source subject to a D/F emissions limitation under § 63.1343 that employs carbon injection as an emission control technique you must specify and use the brand and type of sorbent used during the performance test until a subsequent performance test is conducted, unless the site-specific performance test plan

contains documentation of key parameters that affect adsorption and the owner or operator establishes limits based on those parameters, and the limits on these parameters are maintained.

(e) For an affected source subject to a D/F emissions limitation under § 63.1343 that employs carbon injection as an emission control technique you may substitute, at any time, a different brand or type of sorbent provided that the replacement has equivalent or improved properties compared to the sorbent specified in the site-specific performance test plan and used in the performance test. The owner or operator must maintain documentation that the substitute sorbent will provide the same or better level of control as the original sorbent.

(f) No kiln may use as a raw material or fuel any fly ash where the mercury content of the fly ash has been increased through the use of activated carbon, or any other sorbent, unless the facility can demonstrate that the use of that fly ash will not result in an increase in mercury emissions over baseline emissions (i.e., emissions not using the fly ash). The facility has the burden of proving there has been no emissions increase over baseline. Once the kiln must comply with a mercury emissions limit specified in § 63.1343, this paragraph no longer applies.

17. Section 63.1347 is amended by revising paragraph (a)(1) to read as follows:

§ 63.1347 Operation and maintenance plan requirements.

(a) * * *

(1) Procedures for proper operation and maintenance of the affected source and air pollution control devices in order to meet the emissions limits and operating limits, including fugitive dust control measures for open clinker piles, of § 63.1343 through 63.1348. Your operation and maintenance plan must address periods of startup and shutdown;

* * * * *

18. Section 63.1348 is amended by:

- a. Revising paragraph (a) introductory text;
- b. Removing paragraphs (a)(1)(i) and (ii);
- c. Revising paragraphs (a)(1) through (a)(6);
- d. Revising paragraph (b); and
- e. Revising paragraph (c)(2)(iv). The revisions 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.

Note: The first day of the 30 operating day performance test is the first day following completion of the field testing and data collection that demonstrates that the CPMS or CEMS has satisfied the relevant CPMS performance evaluation or CEMS performance specification (e.g., PS 2, 12A, or 12B) acceptance criteria. The performance test period is complete at the end of the 30th consecutive operating day. See § 63.1341 for definition of operating day and § 63.1348(b)(1) for the CEMS operating requirements.

(1) *PM Compliance.* If you are subject to limitations on PM emissions under § 63.1343(b), you must demonstrate compliance with the PM emissions standards by using the test methods and procedures in § 63.1349(b)(1).

(2) *Opacity Compliance.* If you are subject to the limitations on opacity under § 63.1345, you must demonstrate compliance with the opacity emissions standards by using the performance test methods and procedures in § 63.1349(b)(2). Use the maximum 6-minute average opacity exhibited during the performance test period to determine whether the affected source is in compliance with the standard.

(3) *D/F Compliance.*

(i) If you are subject to limitations on D/F emissions under § 63.1343(b), you must demonstrate 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 compliance by conducting separate performance tests while the raw mill is operating and while the raw mill is not operating. Determine the D/F concentration for each run and calculate the arithmetic average of the concentrations measured for the three runs to determine continuous compliance.

(ii) If you are subject to a D/F emissions limitation under § 63.1343(b), you must demonstrate compliance with the temperature operating limits specified in § 63.1346 by using the performance test methods and procedures in § 63.1349(b)(3)(ii) through (b)(3)(iv). Use the arithmetic average of the temperatures measured during the three runs to determine the applicable temperature limit.

(iii) If activated carbon injection is used and you are subject to a D/F emissions limitation under § 63.1343(b), you must demonstrate compliance with the activated carbon injection rate operating limits specified in § 63.1346

by using the performance test methods and procedures in § 63.1349(b)(3)(v). The average of the run injection rates will determine the applicable injection rate limit.

(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 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 \pm 5 percent accuracy during the performance test determined in accordance with the procedures and criteria submitted for review in your monitoring plan required in section 63.1350(p).

(4)(i) *THC Compliance.*

(A) If you are subject to limitations on THC emissions under § 63.1343(b), you must demonstrate compliance with the THC emissions standards by using the performance test methods and procedures in § 63.1349(b)(4)(i). You must use the average THC concentration obtained during the first 30 kiln operating days after the compliance date of this rule to determine initial compliance.

(B) For sources equipped with an alkali bypass stack or that exhaust kiln gases to a coal mill that exhausts through a separate stack, instead of installing a CEMS, you may use the results of the initial and subsequent performance test to demonstrate compliance with the THC emissions limit.

(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)(4)(iii) and (b)(4)(iv).

(iii) If you are demonstrating initial compliance, you must conduct the separate performance tests as specified in § 63.1349(b)(4)(iii) while the raw mill kiln is operating and while the raw mill of the kiln is not operating.

(iv) The average total organic HAP concentration measured during the separate initial performance test specified by § 63.1349(b)(4)(iii) must be used to determine initial compliance.

(v) The average THC concentration measured during the initial performance test specified by § 63.1349(b)(4)(iv) must be used to determine the site-specific THC limit. 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 THC levels measured during raw mill on and raw mill off testing.

(5) *Mercury Compliance.* If you are subject to limitations on mercury emissions in § 63.1343(b), you must demonstrate compliance with the mercury standards by using the performance test methods and procedures in § 63.1349(b)(5). You must demonstrate compliance by operating a mercury CEMS or a sorbent trap based CEMS. Compliance with the mercury emissions standard must be determined based on the first 30 operating days you operate a mercury CEMS after the compliance date of this rule.

In calculating a 30 operating day emissions value using an integrating sorbent trap CEMS, assign the average Hg emissions concentration determined for an integrating period (e.g., 7 day sorbent trap sample) to each relevant hour of the kiln operating days spanned by each integrated sample. Calculate the 30 kiln operating day emissions rate value using the assigned hourly Hg emissions concentrations and the respective flow and production rate values collected during the 30 kiln operating day performance test period. Depending on the duration of each integrated sampling period, you may not be able to calculate the 30 kiln operating day emissions value until several days after the end of the 30 kiln operating day performance test period.

For example, a sorbent trap CEMS producing an integrated 7-day sample will provide Hg concentration data for each hour of the first 28 kiln operating days (i.e., four values spanning 7 days each) of a 30 operating day period. The Hg concentration values for the hours of the last 2 days of the 30 operating day period will not be available for calculating the emissions for the performance test period until at least five days after the end of the subject period.

(6) *HCl Compliance.* If you are subject to limitations on HCl emissions under § 63.1343(b), you must demonstrate initial compliance with the HCl standards by using the performance test methods and procedures in § 63.1349(b)(6).

(i) For an affected source that is equipped with a wet scrubber, tray tower or dry scrubber, you must demonstrate initial compliance by conducting a performance test as specified in § 63.1349(b)(6)(i). You must determine the HCl concentration for each run and calculate the arithmetic average of the concentrations measured for the three runs to determine compliance. You must also have

established appropriate site-specific operational parameter limits.

(ii) For an affected source that is not equipped with a wet scrubber, tray tower or dry scrubber, you must demonstrate initial compliance by operating a CEMS as specified in § 63.1349(b)(6)(ii). You must use the average of the hourly HCl concentration obtained during the first 30 kiln operating days that occur after the compliance date of this rule to determine initial compliance.

(iii) For sources equipped with an alkali bypass stack or that exhaust kiln gases to a coal mill that exhausts through a separate stack, instead of installing a CEMS, you may use the results of the initial and subsequent performance test to demonstrate compliance with the HCl emissions limit.

(iv) As an alternative to paragraph (i), you may use an SO₂ CEMS to establish an SO₂ operating level during your initial and repeat HCl performance tests as specified in § 63.1349(b)(6)(iii).

(b) *Continuous Monitoring Requirements.* You must demonstrate compliance with the emissions standards and operating limits by using the performance test methods and procedures in §§ 63.1350 and 63.8 for each affected source.

(1) *General Requirements.*

(i) You must monitor and collect data according to § 63.1350 and the site-specific monitoring plan required by § 63.1350(p).

(ii) Except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions, and required monitoring system quality assurance or quality control activities (including, as applicable, calibration checks and required zero and span adjustments), you must operate the monitoring system and collect data at all required intervals at all times the affected source is operating.

(iii) You may not use data recorded during monitoring system malfunctions, repairs associated with monitoring system malfunctions, or required monitoring system quality assurance or control activities in calculations used to report emissions or operating levels. A monitoring system malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring system failures that are caused in part by poor maintenance or careless operation are not malfunctions. You must use all the data collected during all other periods in assessing the operation of the control device and associated control system.

(iv) *Clinker Production*. If you are subject to limitations on PM emissions (lb/ton of clinker) or mercury (lb/MM tons of clinker) under § 63.1343(b), you must determine the hourly production rate of clinker according to the requirements of § 63.1350(d).

(2) *PM Compliance*. If you are subject to limitations on PM emissions under § 63.1343(b), you must use the monitoring methods and procedures in § 63.1350(b) and (d).

(3) *Opacity Compliance*. If you are subject to the limitations on opacity under § 63.1345, you must demonstrate compliance using the monitoring methods and procedures in § 63.1350(f) based on the maximum 6-minute average opacity exhibited during the performance test period. You must initiate corrective actions within one hour of detecting visible emissions above the applicable limit.

(i) *COMS*. If you install a COMS in lieu of conducting the daily visible emissions testing, you must demonstrate compliance using a COMS such that it is installed, operated, and maintained in accordance with the requirements of § 63.1350(f)(4)(i).

(ii) Bag leak determination 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 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)(i) *Activated Carbon Injection Compliance*. 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).

(ii) 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 activated carbon injection system gas parameter in accordance with the requirements § 63.1350(h)(2).

(6) *THC Compliance*. (i) If you are subject to limitations on THC emissions under § 63.1343(b), you must demonstrate compliance using the

monitoring methods and procedures in § 63.1350(i) and (j).

(ii) For sources equipped with an alkali bypass stack or that exhaust kiln gases to a coal mill that exhausts through a separate stack, instead of installing a CEMS, you may use the results of the initial and subsequent performance test to demonstrate compliance with the THC emissions limit. THC must be measured upstream of the coal mill.

(7) *Mercury Compliance*. If you are subject to limitations on mercury emissions in § 63.1343(b), you must demonstrate compliance using the monitoring methods and procedures in § 63.1350(k).

If you use an integrated sorbent trap Hg CEMS to determine ongoing compliance, use the procedures described in § 63.1348(a)(5) to assign hourly mercury concentration values and to calculate rolling 30 operating data emissions rates. Since you assign the mercury concentration measured with the sorbent trap to each relevant hour respectively for each operating day of the integrated period, you may schedule the sorbent change periods to any time of the day (i.e., the sorbent trap replacement need not be scheduled at 12:00 midnight nor must the sorbent trap replacements occur only at integral 24-hour intervals).

(8) *HCl Compliance*. If you are subject to limitations on HCl emissions under § 63.1343(b), you must demonstrate compliance using the performance test methods and procedures in § 63.1349(b)(6).

(i) For an affected source that is not equipped with a wet scrubber, tray tower or a dry sorbent injection system, you must demonstrate compliance using the monitoring methods and procedures in § 63.1350(l)(1).

(ii) For an affected source that is equipped with a wet scrubber, tray tower or a dry sorbent injection system, you must demonstrate compliance using the monitoring methods and procedures in § 63.1350(l)(2).

(iii) For sources equipped with an alkali bypass stack or that exhaust kiln gases to a coal mill that exhausts through a separate stack, instead of installing a CEMS, you may use the results of the initial and subsequent performance test to demonstrate compliance with the HCl emissions limit.

(iv) As an alternative to paragraph (ii), you may use an SO₂ CEMS to establish an SO₂ operating level during your initial and repeat HCl performance tests and monitor the SO₂ level using the procedures in § 63.1350(l)(3).

(c) * * *

(2) * * *

(iv) The performance test must be completed within 360 hours after the planned operational change period begins.

* * * * *

19. Section 63.1349 is amended by:
- Revising paragraph (a) introductory text;
 - Revising paragraph (b)(1);
 - Revising paragraph (b)(3) introductory text;
 - Revising paragraphs (b)(3)(v) and (b)(3)(vi);
 - Revising paragraphs (b)(4), (b)(5), and (b)(6); and
 - Revising paragraphs (c), (d) and (e).
- The revisions read as follows:

§ 63.1349 Performance testing requirements.

(a) You must document performance test results in complete test reports that contain the information required by paragraphs (a)(1) through (a)(10) of this section, as well as all other relevant information. As described in § 63.7(c)(2)(i), you must make available to the Administrator prior to testing, if requested, the site-specific test plan to be followed during performance testing.

* * * * *

(b)(1) *PM Emissions Tests*.

(i) The owner or operator of a kiln subject to limitations on PM emissions shall demonstrate initial compliance by conducting a performance test as specified in paragraphs (b)(1)(ii) of this section.

(A) In using a PM CPMS to demonstrate compliance, you must establish your PM CPMS operating limit and determine compliance with it according to paragraphs (b)(1)(i)(B) through (D) and (b)(1)(ii) and (iii) of this section.

(B) During the initial performance test or any such subsequent performance test that demonstrates compliance with the PM limit, record all hourly average output values (e.g., milliamps, stack concentration, or other raw data signal) from the PM CPMS for the periods corresponding to the test runs (e.g., three 1-hour average PM OK CPMS output values for three 1-hour test runs).

(C) Determine your operating limit as the highest 1-hour average PM CPMS output value recorded during the performance test. You must verify an existing or establish a new operating limit after each repeated performance test. You must repeat the performance test annually and reassess and adjust the site-specific operating limit in accordance with the results of the performance test.

(D) To determine continuous compliance, you must record the PM

CPMS output data for all periods when the process is operating and the PM CPMS is not out-of-control. You must demonstrate continuous compliance by using all quality-assured hourly average

data collected by the PM CPMS for all operating hours to calculate the arithmetic average operating parameter in units of the operating limit (e.g., milliamps, PM concentration, raw data

signal) on a 30 operating day rolling average basis, updated at the end of each new kiln operating day. Use Equation 3 to determine the 30 kiln operating day average.

$$30\text{kiln operating day} = \frac{\sum_{i=1}^n Hpvi}{n} \quad (\text{Eq. } 3)$$

Where:

Hpvi = The hourly parameter value for hour i and n is the number of valid hourly parameter values collected over 30 kiln operating days.

(ii) Use EPA Method 5 of appendix A to part 60 of this chapter to determine PM emissions. For each performance test, conduct three separate runs under the conditions that exist when the affected source is operating at the highest load or capacity 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 average of the results from three runs to determine compliance. You need not determine the PM collected in the impingers (“back half”) of the Method 5 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.

(iii) When there is an alkali bypass associated with a kiln, the main exhaust

and alkali bypass of the kiln must be tested simultaneously and the combined emission rate of PM from the kiln and alkali bypass must be computed for each run using equation 4 of this section. For purposes of calculating the combined kiln and alkali bypass emissions, you may use the results of the initial and subsequent Method 5 performance test for the alkali bypass, instead of installing a CEMS, to demonstrate compliance with the PM emissions limit.

$$E_c = \frac{E_K + E_B}{P} \quad (\text{Eq. } 4)$$

Where:

E_C = Combined hourly emission rate of PM from the kiln and bypass stack, lb/ton of kiln clinker production;

E_K = Hourly emissions of PM emissions from the kiln, lb;

E_B = Hourly PM emissions from the alkali bypass stack, lb;

P = Hourly clinker production, tons.

(iv) The owner or operator of a kiln with an in-line raw mill and subject to limitations on PM emissions shall demonstrate initial compliance by conducting separate performance tests while the raw mill is under normal operating conditions and while the raw mill is not operating.

* * * * *

(3) *D/F Emissions Tests.* If you are subject to limitations on D/F emissions under this subpart, you must conduct a performance test using Method 23 of appendix A–7 to part 60 of this chapter. If your kiln or in-line kiln/raw mill is equipped with an alkali bypass, you must conduct simultaneous performance tests of the kiln or in-line kiln/raw mill exhaust and the alkali bypass. You may conduct a performance test of the alkali bypass exhaust when

the raw mill of the in-line kiln/raw mill is operating or not operating.

* * * * *

(v)(A) If sorbent injection is used for D/F control, you must record the rate of sorbent injection to the kiln exhaust, and where applicable, the rate of sorbent injection to the alkali bypass exhaust, continuously during the period of the Method 23 test in accordance with the conditions in § 63.1350(m)(9), and include the continuous injection rate record(s) in the performance test report. Determine the sorbent injection rate parameters in accordance with paragraphs (b)(3)(vi) of this section.

(B) Include the brand and type of sorbent used during the performance test in the performance test report.

(C) Maintain a continuous record of either the carrier gas flow rate or the carrier gas pressure drop for the duration of the performance test. If the carrier gas flow rate is used, determine, record, and maintain a record of the accuracy of the carrier gas flow rate monitoring system according to the procedures in appendix A to part 75 of this chapter. If the carrier gas pressure drop is used, determine, record, and maintain a record of the accuracy of the carrier gas pressure drop monitoring

system according to the procedures in § 63.1350(m)(6).

(vi) Calculate the run average sorbent injection rate for each run and determine and include the average of the run average injection rates in the performance test report and determine the applicable injection rate limit in accordance with § 63.1346(c)(1).

(4)(i) *THC Emissions Test.*

(A) If you are subject to limitations on THC emissions, you must operate a continuous emissions monitoring system (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 ppmvd and the reference method (RM) is Method 25A of appendix A to part 60 of this chapter.

(B) Use the THC CEMS to conduct the initial compliance test for the first 30 kiln operating days of kiln operation after the compliance date of the rule. See 63.1348(a).

(C) If kiln gases are diverted through an alkali bypass or to a coal mill and exhausted through a separate stack, you must calculate a kiln-specific THC limit using equation 5:

$$C_{ks} = \frac{(MACT \text{ Limit} \times (Q_{ab} + Q_{cm} + Q_{ks})) - (Q_{ab} \times C_{ab}) - (Q_{cm} \times C_{cm})}{Q_{ks}} \quad (\text{Eq. 5})$$

Where:

C_{ks} = Kiln stack concentration (ppmvd)
 Q_{ab} = Alkali bypass flow rate (volume/hr)
 C_{ab} = Alkali bypass concentration (ppmvd)
 Q_{cm} = Coal mill flow rate (volume/hr)
 C_{cm} = Coal mill concentration (ppmvd)
 Q_{ks} = Kiln stack flow rate (volume/hr)

(D) For sources equipped with an alkali bypass stack or that exhaust kiln gases to a coal mill that exhausts through a separate stack, instead of installing a CEMS, you may use the results of the initial and subsequent performance test to demonstrate compliance with the THC emissions limit. THC must be measured upstream of the coal mill.

(ii) *Total Organic HAP Emissions Tests.* Instead of conducting the performance test specified in paragraph (b)(4)(i) of this section, you may conduct a performance test to determine emissions of total organic HAP by following the procedures in paragraphs (b)(4)(iii) through (b)(4)(iv) of this section.

(iii) Use Method 320 of appendix A to this part, Method 18 of Appendix A of part 60, ASTM D6348-03 or a combination to determine emissions of total organic HAP. Each performance test must consist of three separate runs under the conditions that exist when the affected source is operating at the representative performance conditions

in accordance with § 63.7(e). Each run must be conducted for at least 1 hour. You must conduct the performance test while the raw mill of the kiln is operating and while the raw mill of the kiln is not operating.

(iv) At the same time that you are conducting the performance test for total organic HAP, you must also determine a site-specific THC emissions limit by operating a CEMS in accordance with the requirements of § 63.1350(j). The duration of the performance test must be 3 hours and the highest 1-hour average THC concentration (as calculated from the 1-minute averages) during the 3-hour test must be calculated. 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 THC levels measured during raw mill on and raw mill off testing.

(v) You must repeat the performance test for organic HAP according to paragraph (b)(4)(iii) and (iv) of this section no later than 12 months after your last test to confirm compliance with the organic HAP emissions limit and to re-establish your site-specific THC emissions limit.

(vi) If the THC level exceeds by 10 percent or more your site-specific THC emissions limit, you must

(A) As soon as possible but no later than 30 days after the exceedance, conduct an inspection and take corrective action to return the THC CEMS measurements to within the established value; and

(B) Within 90 days of the exceedance or at the time of the annual compliance test, whichever comes first, conduct another performance test to determine compliance with the organic HAP limit and to verify or re-establish your site-specific THC emissions limit.

(5) *Mercury Emissions Tests.* If you are subject to limitations on mercury emissions, you must operate a mercury CEMS in accordance with the requirements of § 63.1350(k). The initial compliance test must be based on the first 30 kiln operating days in which the affected source operates using a mercury CEMS after the compliance date of the rule. See § 63.1348(a).

(i) If you are using a mercury CEMS or a sorbent trap monitoring system, you must install, operate, calibrate, and maintain an instrument for continuously measuring and recording the exhaust gas flow rate to the atmosphere according to the requirements in § 63.1350(k)(5).

(ii) Calculate the emission rate using the equations 6 of this section:

$$E_{30D} = \frac{1}{n} \sum_{i=1}^n C_i Q_i / K \quad (\text{Eq. 6})$$

Where:

E_{30D} = 30-day rolling emission rate of mercury, lb/MM tons clinker;
 C_i = Concentration of mercury for operating hour i , $\mu\text{g}/\text{scm}$;
 Q_i = Volumetric flow rate of effluent gas for operating hour i , where C_s and Q_s are on the same basis (either wet or dry), scm/hr ;
 K = Conversion factor, 1 lb/454,000,000 μg ;
 n = Number of kiln operating hours in a 30 kiln operating day period, $n = 1$ to 720.

(6) *HCl Emissions Tests.* For a source subject to limitations on HCl emissions you must conduct performance testing by one of the following methods:

(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).

(B) You must establish site specific parameter limits by using the CPMS required in § 63.1350(l)(1). For a wet scrubber or tray tower, measure and record the pressure drop across the scrubber and/or liquid flow rate and pH in intervals of no more than 15 minutes during the HCl test. Compute and record the 24-hour average pressure drop, pH, and average scrubber water flow rate for each sampling run in which the applicable emissions limit is met. For a dry scrubber, measure and record the sorbent injection rate in intervals of no more than 15 minutes during the HCl test. Compute and record the 24-hour average sorbent injection rate and average sorbent injection rate for each sampling run in which the applicable emissions limit is met.

(ii)(A) If the source is not controlled by a wet scrubber, tray tower or dry

sorbent injection system, you must operate a CEMS in accordance with the requirements of § 63.1350(l)(1). See § 63.1348(a).

(B) The initial compliance test must be based on the 30 kiln operating days that occur after the compliance date of this rule in which the affected source operates using a HCl CEMS. Hourly HCl concentration data must be obtained according to § 63.1350(l).

(iii) As an alternative to paragraph (i), you may choose to monitor SO_2 emissions using a CEMS in accordance with the requirements of § 63.1350(l)(3). You must establish an SO_2 operating limit equal to the highest 1 hour average recorded during the HCl stack test. This operating limit will apply only for demonstrating HCl compliance.

(iv) If kiln gases are diverted through an alkali bypass or to a coal mill and

exhausted through a separate stack, you must calculate a kiln-specific HCl limit using equation 7:

$$C_{ks} = \frac{(MACT \text{ Limit} \times (Q_{ab} + Q_{cm} + Q_{ks})) - (Q_{ab} \times C_{ab}) - (Q_{cm} \times C_{cm})}{Q_{ks}} \quad (\text{Eq. 7})$$

Where:

C_{ks} = Kiln stack concentration (ppmvd)
 Q_{ab} = Alkali bypass flow rate (volume/hr)
 C_{ab} = Alkali bypass concentration (ppmvd)
 Q_{cm} = Coal mill flow rate (volume/hr)
 C_{cm} = Coal mill concentration (ppmvd)
 Q_{ks} = Kiln stack flow rate (volume/hr)

(c) *Performance Test Frequency.* Except as provided in § 63.1348(b), performance tests are required at regular intervals for affected sources that are subject to a dioxin or HCl emissions limit and must be repeated every 30 months except for pollutants where that specific pollutant is monitored using CEMS. Tests for PM and total organic HAP are repeated every 12 months.

(d) *Performance Test Reporting Requirements.*

(1) You must submit the information specified in paragraphs (d)(1) and (d)(2) of this section no later than 60 days following the initial performance test. All reports must be signed by a responsible official.

(i) The initial performance test data as recorded under paragraph (b) of this section.

(ii) The values for the site-specific operating limits or parameters established pursuant to paragraphs (b)(3), (b)(4)(iii), (b)(5)(ii), and (b)(6)(i) of this section, as applicable, and a description, including sample calculations, of how the operating parameters were established during the initial performance test.

(2) 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 to the EPA's Central Data Exchange (CDX) by using the Electronic Reporting Tool(ERT) (see http://www.epa.gov/ttn/chief/ert/ert_tool.html/).

(e) *Conditions of performance tests.* Conduct performance tests under such conditions as the Administrator specifies to the owner or operator based on representative performance of the affected source for the period being tested. Upon request, you must make available to the Administrator such

records as may be necessary to determine the conditions of performance tests.

20. Section 63.1350 is amended by:
- Revising paragraphs (a) through (d);
 - Revising paragraph (f) introductory text;
 - Revising paragraphs (f)(1)(iv) through (f)(1)(vi);
 - Revising paragraphs (f)(2)(i) and (f)(2)(iii);
 - Revising paragraphs (f)(3) and (f)(4);
 - Revising paragraph (g)(1) introductory text;
 - Revising paragraphs (g)(2) and (g)(4);
 - Revising paragraph (h)(1)(ii);
 - Revising paragraphs (i)(1) and (i)(2);
 - Adding paragraph (i)(3);
 - Revising paragraph (k);
 - Revising paragraph (l);
 - Revising paragraph (m) introductory text;
 - Revising paragraph (m)(7)(i);
 - Revising introductory text for paragraphs (m)(9);
 - Revising paragraph (m)(10), and paragraph (m)(11)(v);
 - Revising introductory text for paragraphs (n), (o), and (p);
 - Removing and reserving paragraph (n)(3); and
 - Revising introductory text for paragraphs (p)(1), (p)(2), and (p)(5).
- The revisions read as follows:

§ 63.1350 Monitoring requirements.

(a)(1) Following the compliance date, the owner or operator must demonstrate compliance with this subpart on a continuous basis by meeting the requirements of this section.

(2) All continuous monitoring data for periods of startup and shutdown must be compiled and averaged separately from data gathered during other operating periods.

(3) For each existing unit that is equipped with a CMS, maintain the average emissions or the operating parameter values within the operating parameter limits established through performance tests.

(4) Any instance where the owner or operator fails to comply with the continuous monitoring requirements of this section is a deviation.

(b) *PM Monitoring Requirements.*

(1)(i) *PM CPMS.* You will use a PM CPMS to establish a site-specific

operating limit corresponding to the results of the performance test demonstrating compliance with the PM limit. You will conduct your performance test using Method 5 at appendix A-3 to part 60 of this chapter. You will use the PM CPMS to demonstrate continuous compliance with this operating limit. You must repeat the performance test annually and reassess and adjust the site-specific operating limit in accordance with the results of the performance test.

(ii) To determine continuous compliance, you must record the PM CPMS output data for all periods when the process is operating and the PM CPMS is not out-of-control. You must demonstrate continuous compliance by using all quality-assured hourly average data collected by the PM CPMS for all operating hours to calculate the arithmetic average operating parameter in units of the operating limit (e.g., milliamps, PM concentration, raw data signal) on a 30 operating day rolling average basis, updated at the end of each new kiln operating day.

(iii) For any deviation of the 30 process operating day PM CPMS average value from the established operating parameter limit, you must

(A) Within 48 hours of the deviation, visually inspect the APCD;

(B) If inspection of the APCD identifies the cause of the deviation, take corrective action as soon as possible, and return the PM CPMS measurement to within the established value; and

(C) Within 45 days of the deviation or at the time of the annual compliance test, whichever comes first, conduct a PM emissions compliance test to determine compliance with the PM emissions limit and to verify or re-establish the CPMS operating limit. You are not required to conduct additional testing for any deviations that occur between the time of the original deviation and the PM emissions compliance test required under this paragraph.

(iv) PM CPMS deviations from the operating limit leading to more than four required performance tests in a 12-month process operating period (rolling monthly) constitute a separate violation of this subpart.

(2) *Kilns equipped with an alkali bypass.* If kiln gases are diverted through an alkali bypass, you must account for the PM emitted from the alkali bypass stack by following the procedures in (b)(2)(i) through (v) of this section:

(i) You must install, operate, calibrate, and maintain an instrument for continuously measuring and recording the exhaust gas flow rate to the atmosphere from the alkali bypass stack according to the requirements in paragraphs (n)(1) through (n)(10) of this section.

(ii) Develop a PM emissions factor by conducting annual performance tests using Method 5 to measure the concentration of PM in the gases exhausted from the alkali bypass stack.

(iii) On a continuous basis, determine the mass emissions of PM in pounds per hour from the alkali bypass exhaust by using the PM emissions factor and the continuously measured exhaust gas flow rates.

(iv) Sum the hourly PM emissions from the kiln and alkali bypass to determine total hourly PM emissions. Using hourly clinker production, calculate the hourly emissions rate in pounds per ton of clinker to determine your 30 day rolling average.

(v) If you monitor compliance using a PM CPMS, you must determine compliance according to paragraphs (b)(3)(v)(A) through (C) of this section:

(A) Conduct an annual performance test using Method 5 to determine total PM emissions from the alkali bypass and kiln.

(B) To determine continuous compliance, you must establish your PM CPMS operating limit according to paragraph (b)(1) of this section.

(C) You must establish the maximum exhaust gas flow rate for the alkali bypass during your annual performance test. You must continuously monitor the flow rate until the next performance test. If there is a deviation of the monitored flow rate from the maximum established during your last performance test by more than 10 percent, you must retest the kiln and alkali bypass to determine compliance.

(c) [Reserved]

(d) *Clinker Production Monitoring Requirements.* If you are subject to an emissions limitation on PM or mercury emissions (lb/ton of clinker), you must:

(1) Determine hourly clinker production by one of two methods:

(i) Install, calibrate, maintain, and operate a permanent weigh scale system to measure and record weight rates in tons-mass per hour of the amount of clinker produced. The system of measuring hourly clinker production

must be maintained within ± 5 percent accuracy, or

(ii) Install, calibrate, maintain, and operate a permanent weigh scale system to measure and record weight rates in tons-mass per hour of the amount of feed to the kiln. The system of measuring feed must be maintained within ± 5 percent accuracy. Calculate your hourly clinker production rate using a kiln specific feed to clinker ratio based on reconciled clinker production determined for accounting purposes and recorded feed rates. Update this ratio monthly. Note that if this ratio changes at clinker reconciliation, you must use the new ratio going forward, but you do not have to retroactively change clinker production rates previously estimated.

(iii) [Reserved]

(2) Determine, record, and maintain a record of the accuracy of the system of measuring hourly clinker production (or feed mass flow if applicable) before initial use (for new sources) or by the effective compliance date of this rule (for existing sources). During each quarter of source operation, you must determine, record, and maintain a record of the ongoing accuracy of the system of measuring hourly clinker production (or feed mass flow).

(3) If you measure clinker production directly, record the daily clinker production rates; if you measure the kiln feed rates and calculate clinker production, record the daily kiln feed and clinker production rates.

(4) Develop an emissions monitoring plan in accordance with paragraphs (p)(1) through (p)(4) of this section.

(e) [Reserved]

(f) *Opacity Monitoring Requirements.* If you are subject to a limitation on opacity under § 63.1345, you must conduct required opacity monitoring in accordance with the provisions of paragraphs (f)(1)(i) through (f)(1)(vii) of this section and in accordance with your monitoring plan developed under § 63.1350(p). You must also develop an opacity monitoring plan in accordance with paragraphs (p)(1) through (p)(4) and paragraph (o)(5), if applicable, of this section.

(1) * * *

(iv) If visible emissions are observed during any Method 22 performance test, of appendix A-7 to part 60 of this chapter, you must conduct 30 opacity observations in accordance with Method 9 of appendix A-4 to part 60 of this chapter. The Method 9 performance test, of appendix A-4 to part 60 of this chapter, must begin within 1 hour of any observation of visible emissions.

(v) The requirement to conduct Method 22 visible emissions monitoring under this paragraph do not apply to

any totally enclosed conveying system transfer point, regardless of the location of the transfer point. The enclosures for these transfer points must be operated and maintained as total enclosures on a continuing basis in accordance with the facility operations and maintenance plan.

(vi) If any partially enclosed or unenclosed conveying system transfer point is located in a building, you must conduct a Method 22 performance test, of appendix A-7 to part 60 of this chapter, according to the requirements of paragraphs (f)(1)(i) through (f)(1)(iv) of this section for each such conveying system transfer point located within the building, or for the building itself, according to paragraph (f)(1)(vii) of this section.

* * * * *

(2)(i) For a raw mill or finish mill, you must monitor opacity by conducting daily visible emissions observations of the mill sweep and air separator PM control devices (PMCD) of these affected sources in accordance with the procedures of Method 22 of appendix A-7 to part 60 of this chapter. The duration of the Method 22 performance test must be 6 minutes.

* * * * *

(iii) If visible emissions are observed during the follow-up Method 22 performance test required by paragraph (f)(2)(ii) of this section from any stack from which visible emissions were observed during the previous Method 22 performance test required by paragraph (f)(2)(i) of the section, you must then conduct an opacity test of each stack from which emissions were observed during the follow up Method 22 performance test in accordance with Method 9 of appendix A-4 to part 60 of this chapter. The duration of the Method 9 test must be 30 minutes.

(3) If visible emissions are observed during any Method 22 visible emissions test conducted under paragraphs (f)(1) or (f)(2) of this section, you must initiate, within one hour, the corrective actions specified in your operation and maintenance plan as required in § 63.1347.

(4) The requirements under paragraph (f)(2) of this section to conduct daily Method 22 testing do not apply to any specific raw mill or finish mill equipped with a COMS or BLDS.

(i) If the owner or operator chooses to install a COMS in lieu of conducting the daily visible emissions testing required under paragraph (f)(2) of this section, then the COMS must be installed at the outlet of the PM control device of the raw mill or finish mill and the COMS must be installed, maintained,

calibrated, and operated as required by the general provisions in subpart A of this part and according to PS-1 of appendix B to part 60 of this chapter.

(ii) If you choose to install a BLDS in lieu of conducting the daily visible emissions testing required under paragraph (f)(2) of this section, the requirements in paragraphs (m)(1) through (m)(4), (m)(10) and (m)(11) of this section apply.

(g) * * *
 (1) You must install, calibrate, maintain, and continuously operate a CMS to record the temperature of the exhaust gases from the kiln and alkali bypass, if applicable, at the inlet to, or upstream of, the kiln and/or alkali bypass PMCDs.

* * * * *
 (2) You must monitor and continuously record the temperature of the exhaust gases from the kiln and alkali bypass, if applicable, at the inlet to the kiln and/or alkali bypass PMCD.

* * * * *
 (4) Calculate the rolling three-hour average temperature using the average of 180 successive one-minute average temperatures. See § 63.1349(b)(3).

* * * * *
 (h) * * *
 (1) * * *
 (ii) Each hour, calculate the three-hour rolling average activated carbon injection rate for the previous 3 hours of process operation. See § 63.1349(b)(3).

* * * * *
 (j) * * *
 (1) You must install, operate, and maintain a THC continuous emission monitoring system in accordance with 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. The owner or operator must operate and maintain each CEMS according to the quality assurance requirements in Procedure 1 of appendix F in part 60 of this chapter.

(2) For sources equipped with an alkali bypass stack or that exhaust kiln

gases to a coal mill that exhausts through a separate stack, instead of installing a CEMS, you may use the results of the initial and subsequent performance test to demonstrate compliance with the THC emissions limit.

(3) Performance tests on alkali bypass and coal mill stacks must be conducted using Method 25A in appendix A to 40 CFR part 60 and repeated annually.

* * * * *
 (k) *Mercury Monitoring Requirements.* If you have a kiln subject to an emissions limitation on mercury emissions, you must install and operate a mercury continuous emissions monitoring system (Hg CEMS) in accordance with Performance Specification 12A (PS 12A) of appendix B to part 60 of this chapter or a sorbent trap-based integrated monitoring system in accordance with Performance Specification 12B (PS 12B) of appendix B to part 60 of this chapter. You must monitor mercury continuously according to paragraphs (k)(1) through (k)(5) of this section. You must also develop an emissions monitoring plan in accordance with paragraphs (p)(1) through (p)(4) of this section.

(1) You must use a span value for any Hg CEMS that represents the mercury concentration corresponding to approximately two times the emissions standard rounded up to the nearest multiple of 5 µg/m³ of total mercury. As specified in PS 12A, Section 6.1.1, the data recorder output range must include the full range of expected Hg concentration values which would include those expected during “mill off” conditions.

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

(i) Include a second span that encompasses the Hg emission concentrations expected to be encountered during “mill off” conditions. This second span may be rounded to a multiple of 5 µg/m³ of total

mercury. The requirements of PS-12A, shall be followed for this second span with the exception that a RATA with the mill off is not required.

(ii) Conduct an additional ‘above span’ daily calibration using a Hg reference gas standard at a concentration level between 50 and 85 percent of the highest hourly Hg concentration expected during “mill off” conditions. The ‘above span’ reference gas must meet the requirements of PS 12A, Section 7.1 and be introduced at the probe. 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. Record and report the results of this procedure as you would for a daily calibration.

(iii) If you choose not to conduct an additional daily calibration, then quality assure any data above the span value established in paragraph (k)(1) of this section using the following procedure. Any time the one hour average measured concentration of Hg exceeds the span value you must, within 24 hours, 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 be of a concentration level greater than 80 percent of the highest hourly concentration measured during the period of measurements above span, and must be introduced at the probe. 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 the ‘above span’ calibration for reporting based on the Hg CEMS response to the reference gas as follows:

$$\frac{\text{Certified reference gas value}}{\text{Measured value of reference gas}} \times \text{Measured stack gas result} = \text{Normalized stack gas result}$$

(3) You must operate and maintain each Hg CEMS or sorbent trap-based integrated monitoring system according to the quality assurance requirements in Procedure 5 of appendix F to part 60 of this chapter.

(4) Relative accuracy testing of mercury monitoring systems under PS

12A, PS 12B, or Procedure 5 must be conducted at normal operating conditions with the raw mill on.

(5) If you use a Hg CEMS or a sorbent trap-based integrated monitoring system, you must install, operate, calibrate, and maintain an instrument for continuously measuring and

recording the exhaust gas flow rate to the atmosphere according to the requirements in paragraphs (n)(1) through (n)(10) of this section. If kiln gases are diverted through an alkali bypass or to a coal mill and exhausted through separate stacks, you must account for the mercury emitted from

those stacks by following the procedures in (k)(5)(i) through (v) of this section:

(i) You must install, operate, calibrate, and maintain an instrument for continuously measuring and recording the exhaust gas flow rate to the atmosphere according to the requirements in paragraphs (n)(1) through (n)(10) of this section.

(ii) Develop a mercury hourly mass emissions rate by conducting annual performance tests using Method 29 to measure the concentration of mercury in the gases exhausted from the alkali bypass and coal mill.

(iii) On a continuous basis, determine the mass emissions of mercury in pounds per hour from the alkali bypass and coal mill exhausts by using the mercury hourly emissions rate and the continuously measured exhaust gas flow rates.

(iv) Sum the hourly mercury emissions from the kiln, alkali bypass and coal mill to determine total mercury emissions. Using hourly clinker production, calculate the hourly emissions rate in pounds per ton of clinker to determine your 30 day rolling average.

(v) If mercury emissions from the coal mill are below the method detection limit for two consecutive annual performance tests, you may reduce the frequency of the performance tests of coal mills to once every 30 months. If the measured mercury concentration exceeds the method detection limit, you must revert to testing annually until two consecutive annual tests are below the method detection limit.

(6) If you operate an integrated sampling Hg CEMS conforming to PS 12B, you may use a monitoring period from 24 hours to 168 hours in length. You should use a monitoring period that is a multiple of 24 hours (except during relative accuracy testing as allowed in PS 12B).

(l) *HCl Monitoring Requirements.* If you are subject to an emissions limitation on HCl emissions in § 63.1343, you must monitor HCl emissions continuously according to paragraph (l)(1) or (2) and paragraphs (m)(1) through (m)(4) of this section or, if your kiln is controlled using a wet or dry scrubber or tray tower, you alternatively may monitor SO₂ emissions continuously according to paragraph (l)(3) of this section. You must also develop an emissions monitoring plan in accordance with paragraphs (p)(1) through (p)(4) of this section.

(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) 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 an 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 install and operate an HCl CEMS 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 the HCl CEMS using the procedure of appendix F to part 60 of this chapter applicable to the performance specification. 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 (l)(1)(ii) below apply to HCl CEMS other than those installed and certified under PS 15.

(i) You must use a span value for any HCl CEMS that represents the intended upper limit of the HCl concentration measurement range during normal “mill on” operation. The span value should be equivalent to approximately two times the emissions standard and it may be rounded to the nearest multiple of 5 ppm of HCl. The HCl CEMS data recorder output range must include the full range of expected HCl concentration values which would include those expected during “mill off” conditions.

(ii) In order to quality assure data measured above the span value, you must use one of the two options in paragraphs (l)(1)(ii)(A) and (l)(1)(ii)(B) below.

(A) Conduct an additional ‘above span’ daily calibration using a HCl reference gas standard at a concentration level between 50 and 85 percent of the highest hourly HCl concentration expected during “mill off” conditions. The ‘above span’ reference gas must meet the requirements of the applicable performance specification and be introduced at the probe. The ‘above span’ calibration is successful if the value measured by the HCl CEMS is

within 20 percent of the certified value of the reference gas. If the value measured by the HCl CEMS is not within 20 percent of the certified value of the reference gas, then you must normalize the stack gas values measured above span as described in paragraph (l)(1)(ii)(C) below. Record and report the results of this procedure as you would for a daily calibration.

(B) If you choose not to conduct an additional calibration on a daily basis, then quality assure any data above the span value established in paragraph (l)(1)(i) of this section using the following procedure. Any time the average measured concentration of HCl exceeds or is expected to exceed the span value for greater than two hours you must, within a period 24 hours before or after the ‘above span’ period, introduce a higher, ‘above span’ HCl reference gas standard to the HCl CEMS. The ‘above span’ reference gas must meet the requirements of the applicable performance specification and be of a concentration level greater than or equal to 80 percent of the highest hourly concentration measured during the period of measurements above span, and must be introduced at the probe. 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 HCl CEMS is within 20 percent of the certified value of the reference gas. If the value measured by the HCl CEMS is not within 20 percent of the certified value of the reference gas, then you must normalize the stack gas values measured above span as described in paragraph (l)(1)(ii)(C) below. If the ‘above span’ calibration is conducted during the period when measured emissions are above span and there is a failure to collect the required minimum number of data points in an hour due to the calibration duration, then you must determine the emissions average for that missed hour as the average of hourly averages for the hour preceding the missed hour and the hour following the missed hour.

(C) In the event that the ‘above span’ calibration is not successful (i.e., the HCl CEMS measured value is not within 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 HCl CEMS response to the reference gas as follows:

$$\frac{\text{Certified reference gas value}}{\text{Measured value of reference gas}} \times \text{Measured stack gas result} = \text{Normalized stack gas result}$$

(2) Install, operate, and maintain a CMS to monitor wet scrubber or tray tower parameters, as specified in paragraphs (m)(5) and (m)(7) of this section, and dry scrubber, as specified in paragraph (m)(8) of this section.

(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) through (f) of part 60 subpart F of this chapter. If SO₂ levels increase above the 1 hour average SO₂ operating limit established during your performance test, you must

(i) As soon as possible but no later than 48 hours after you deviate from the established SO₂ value conduct an inspection and take corrective action to return the SO₂ emissions to within the operating limit; and

(ii) Within 60 days of the deviation 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.

(m) *Parameter Monitoring Requirements.* If you have an operating limit that requires the use of a CMS, you must install, operate, and maintain each continuous parameter monitoring system (CMS) according to the procedures in paragraphs (m)(1) through (4) of this section by the compliance date specified in § 63.1351. You must also meet the applicable specific parameter monitoring requirements in paragraphs (m)(5) through (m)(11) that are applicable to you.

* * * * *

(7) * * *

(i) Locate the pH sensor in a position that provides a representative measurement of wet scrubber or tray tower effluent pH.

* * * * *

(9) *Mass Flow Rate (for Sorbent Injection) Monitoring Requirements.* If you have an operating limit that requires the use of equipment to monitor sorbent injection rate (e.g., weigh belt, weigh hopper, or hopper flow measurement device), you must meet the requirements in paragraphs (m)(9)(i) through (iii) of this section. These requirements also apply to the sorbent injection equipment of a dry scrubber.

* * * * *

(10) *Bag leak detection monitoring requirements.* If you elect to use a fabric

filter bag leak detection system to comply with the requirements of this subpart, you must install, calibrate, maintain, and continuously operate a BLDS as specified in paragraphs (m)(10)(i) through (viii) of this section.

(i) You must install and operate a BLDS for each exhaust stack of the fabric filter.

(ii) Each BLDS must be installed, operated, calibrated, and maintained in a manner consistent with the manufacturer's written specifications and recommendations and in accordance with the guidance provided in EPA-454/R-98-015, September 1997.

(iii) The BLDS must be certified by the manufacturer to be capable of detecting PM emissions at concentrations of 10 or fewer milligrams per actual cubic meter.

(iv) The BLDS sensor must provide output of relative or absolute PM loadings.

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

(vi) The BLDS must be equipped with an alarm system that will alert an operator automatically when an increase in relative PM emissions over a preset level is detected. The alarm must be located such that the alert is detected and recognized easily by an operator.

(vii) For positive pressure fabric filter systems that do not duct all compartments of cells to a common stack, a BLDS must be installed in each baghouse compartment or cell.

* * * * *

(11) * * *

(v) Cleaning the BLDS probe or otherwise repairing the BLDS; or

(n) *Continuous Flow Rate Monitoring System.* You must install, operate, calibrate, and maintain instruments, according to the requirements in paragraphs (n)(1) through (10) of this section, for continuously measuring and recording the stack gas flow rate to allow determination of the pollutant mass emissions rate to the atmosphere from sources subject to an emissions limitation that has a pounds per ton of clinker unit.

* * * * *

(3) [Reserved]

* * * * *

(o) *Alternate Monitoring Requirements Approval.* You may submit an application to the Administrator for approval of alternate monitoring requirements to demonstrate

compliance with the emission standards of this subpart, except for emission standards for THC, subject to the provisions of paragraphs (o)(1) through (o)(6) of this section.

* * * * *

(p) *Development and Submittal (Upon Request) of Monitoring Plans.* If you demonstrate compliance with any applicable emissions limit through performance stack testing or other emissions monitoring, you must develop a site-specific monitoring plan according to the requirements in paragraphs (p)(1) through (4) of this section. This requirement also applies to you if you petition the EPA Administrator for alternative monitoring parameters under paragraph (o) of this section and § 63.8(f). If you use a BLDS, you must also meet the requirements specified in paragraph (p)(5) of this section.

(1) For each CMS required in this section, you must develop, and submit to the permitting authority for approval upon request, a site-specific monitoring plan that addresses paragraphs (p)(1)(i) through (iii) of this section. You must submit this site-specific monitoring plan, if requested, at least 30 days before your initial performance evaluation of your CMS.

* * * * *

(2) In your site-specific monitoring plan, you must also address paragraphs (p)(2)(i) through (iii) of this section.

* * * * *

(5) *BLDS Monitoring Plan.* Each monitoring plan must describe the items in paragraphs (p)(5)(i) through (v) of this section. At a minimum, you must retain records related to the site-specific monitoring plan and information discussed in paragraphs (m)(1) through (4), (m)(10) and (m)(11) of this section for a period of 5 years, with at least the first 2 years on-site;

* * * * *

- 21. Section 63.1351 is amended by:
 - a. Revising paragraphs (c) and (d); and
 - b. Adding paragraph (e).

The revisions and addition read as follows:

§ 63.1351 Compliance dates.

* * * * *

(c) The compliance date for existing sources for all the requirements that become effective on [DATE 60 DAYS AFTER PUBLICATION OF THE FINAL RULE IN THE **Federal Register**] will be September 9, 2015.].

(d) The compliance date for new sources is May 6, 2009 or startup, whichever is later.

(e) The compliance date for existing and new sources with the requirements for open clinker storage piles in § 63.1343(c) is [DATE 180 DAYS AFTER PUBLICATION OF THE FINAL RULE IN THE **Federal Register**] or startup, whichever is later.

22. Section 63.1352 is amended by revising paragraph (b) to read as follows:

§ 63.1352 Additional test methods.

* * * * *

(b) Owners or operators conducting tests to determine the rates of emission of specific organic HAP from raw material dryers, and kilns at Portland cement manufacturing facilities, solely for use in applicability determinations under § 63.1340 of this subpart are permitted to use Method 320 of appendix A to this part, or Method 18 of appendix A to part 60 of this chapter.

23. Section 63.1353 is amended by adding paragraph (b)(6) to read as follows:

§ 63.1353 Notification Requirements.

* * * * *

(b) * * *

(6) Within 48 hours of a deviation that triggers retesting to establish compliance and new operating limits, notify the appropriate permitting agency of the planned performance tests. The notification requirements of § 63.7(e) and 63.9(e) do not apply to retesting required for deviations under this subpart.

* * * * *

24. Section 63.1354 is amended by:
a. Removing and reserving paragraphs (b)(4) and (5);

b. Revising paragraph (b)(9)(vi);

c. Adding paragraph (b)(9)(vii); and

d. Revising paragraph (c).

The revisions, addition, and deletion read as follows:

§ 63.1354 Reporting requirements.

* * * * *

(b) * * *

(9) * * *

(vi) For each PM, HCl, Hg, and THC CEMS or Hg sorbent trap monitoring system, within 60 days after the reporting periods, you must submit reports to EPA's WebFIRE database by using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). You must use the appropriate electronic reporting form in CEDRI or provide an alternate electronic file consistent with EPA's reporting form output format. For

each reporting period, the reports must include all of the calculated 30-operating day rolling average values derived from the CEMS or Hg sorbent trap monitoring systems.

(vii) In response to each deviation from an emissions standard or established operating parameter limit, the date, duration and description of each deviation and the specific actions taken for each deviation including inspections, corrective actions and repeat performance tests and the results of those actions.

* * * * *

(c) Reporting deviations due to startup, shutdown or malfunctions. For each deviation from a standard or emission limit caused by a startup, shutdown, or malfunction at an affected source, you must report the deviation 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 volume 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.

* * * * *

25. Section 63.1355 is amended by:

a. Revising paragraphs (f) and (g)(1);

and

b. Adding paragraph (h).

The revisions read as follows:

§ 63.1355 Recordkeeping requirements.

* * * * *

(f) The date, time and duration of each startup or shutdown which causes the source to exceed any applicable emission limitation, and (f)(i) through (iii) of this section;

(i) The date, time, and duration of each startup or shutdown period, for any affected source that is subject to an emission standard during startup or shutdown that differs from the emission standard applicable at other times.

(ii) The quantity and type of raw feed and fuel used during the startup or shutdown period.

(iii) An estimate of the volume of each regulated pollutant emitted over the

emission limit during startup or shutdown, with a description of the method used to estimate emissions.

(g)(1) The date, time 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 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.

* * * * *

(h) For each deviation from an emissions standard or established operating parameter limit, you must keep records of the date, duration and description of each deviation and the specific actions taken for each deviation including inspections, corrective actions and repeat performance tests and the results of those actions.

* * * * *

26. Section 63.1356 is amended by revising the section heading and the section text to read as follows:

§ 63.1356 Sources with multiple emissions limit or monitoring requirements.

If an affected facility subject to this subpart has a different emissions limit or requirement for the same pollutant under another regulation in title 40 of this chapter, the owner or operator of the affected facility must comply with the most stringent emissions limit or requirement and is exempt from the less stringent requirement.

27. Section 63.1357 is amended by:

a. Revising paragraph (a)(1); and

b. Revising paragraph (a)(2).

The revisions read as follows:

§ 63.1357 Temporary, conditioned exemption from particulate matter and opacity standards.

(a) * * *

(1) Any PM and opacity standards of part 60 or part 63 of this chapter that are applicable to cement kilns and clinker coolers.

(2) Any permit or other emissions or operating parameter or other limitation on workplace practices that are applicable to cement kilns and clinker coolers to ensure compliance with any PM and opacity standards of this part or part 60 of this chapter.

* * * * *

28. Table 1 to Subpart LLL of Part 63 is revised by revising the entries for 63.6(e)(3), 63.7(b), and 63.9(e) to read as follows:

TABLE 1 TO SUBPART LLL OF PART 63—APPLICABILITY OF GENERAL PROVISIONS

Citation	Requirement	Applies to Subpart LLL	Explanation
63.6(e)(3)	Startup, Shutdown Malfunction Plan	No	Startup and shutdown plans addressed in §63.1347.
63.7(b)	Notification period	Yes	Except for repeat performance test caused by a deviation. See §63.1353(b)(6).
63.9(e)	Notification of performance test	Yes	Except for repeat performance test caused by a deviation. See §63.1353(b)(6).

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