ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 60 and 63

[EPA–HQ–OAR–2011–0817; FRL–9758–6]

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: Final rule.

SUMMARY: On July 18, 2012, the EPA proposed amendments to the National Emission Standards for Hazardous Air Pollutants for the Portland Cement Manufacturing Industry and the Standards of Performance for Portland Cement Plants. This final action amends the national emission standards for hazardous air pollutants for the Portland cement industry. The EPA is also promulgating amendments with respect to issues on which it granted reconsideration on May 17, 2011. In addition, the EPA is amending the new source performance standard for particulate matter. These amendments promote flexibility, reduce costs, ease compliance and preserve health benefits. The amendments also address the remand of the national emission standards for hazardous air pollutants for the Portland cement industry by the United States Court of Appeals for the District of Columbia Circuit on December 9, 2011. Finally, the EPA is setting the date for compliance with the existing source national emission standards for hazardous air pollutants to be September 9, 2015.

DATES: This final rule is effective on February 12, 2013. The EPA is setting the compliance date for existing open clinker storage piles to be February 12, 2014.

ADDRESSES: The EPA has established a docket for this action under Docket ID No. EPA–HQ–OAR–2011–0817. All documents in the docket are listed in the *http://www.regulations.gov* Web site. Although listed in the index, some information is not publicly available, for example, confidential business information 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 *www.regulations.gov* or in hard copy at the EPA Docket Center, EPA West Building, 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 Docket Center is (202) 566–1742.

FOR FURTHER INFORMATION CONTACT: For questions about this final action, 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.* For information about the applicability of the NESHAP or NSPS contact Mr. Patrick Yellin, Monitoring, Assistance and Media Programs Division (2227A), Office of Enforcement and Compliance Assurance, U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue, Washington, DC 20460; telephone number (202) 654–2970; email address *yellin.patrick@epa.gov.*

SUPPLEMENTARY INFORMATION:

Acronyms and Abbreviations. The following acronyms and abbreviations are used in this document.

APCD air pollution control devices
CAA Clean Air Act
CBI confidential business information
CDX Central Data Exchange
CEMS continuous emission monitoring systems
CEDRI Compliance and Emissions Data Reporting Interface
CFR Code of Federal Regulations
CISWI commercial and industrial solid waste incinerators
CMS continuous monitoring system
COMS continuous opacity monitoring system
CO_2 carbon dioxide
CPMS continuous parametric monitoring system
D/F dioxins and furans
EPA Environmental Protection Agency
ESP Electrostatic Precipitators
ERT Electronic Reporting Tool
FR Federal Register
gr/dscf grains per dry standard cubic foot
HAP hazardous air pollutants
Hg mercury
HCl hydrogen chloride
ICR information collection request
Lb/ton pound per ton
MACT maximum achievable control technology
meHg methylmercury
NAICS North American Industry Classification System
NAS National Academy of Science
NESHAP National Emissions Standards for Hazardous Air Pollutants
NHSM Nonhazardous Secondary Materials
NO_X Nitrogen Oxides
NRC National Research Council
NSPS new source performance standards
NTTAA National Technology Transfer and Advancement Act
oHAP Non-dioxin organic hazardous air pollutants
OMB Office of Management and Budget
PCA Portland Cement Association
PM particulate matter
ppm(v) (d,w) parts per million (by volume) (dry, wet)
RATA Relative Accuracy Test Audit
RfD reference dose
RIA regulatory impact analysis
RTC Response to Comment
RTO regenerative thermal oxidizers
SIP state implementation plan
SO_2 Sulphur Dioxide
THC total hydrocarbons
tpy tons per year
TTN Technology Transfer Network
$\mu g/m^3$ micrograms per cubic meter
UPL Upper Prediction Limit
UMRA Unfunded Mandates Reform Act
TEOM Tapered Element Oscillating Microbalance
VCS voluntary consensus standards
WWW worldwide web

Background Information Document. On July 18, 2012 (77 FR 42368), the EPA proposed to amend the Portland cement manufacturing industry NESHAP and the Portland cement plant new source performance standards (NSPS). In this action, we are taking final action on this proposal. A summary of the public comments on the proposal and the EPA's responses to those comments is available in Docket ID Number EPA–HQ–OAR–2011–0817.

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

I. General Information

A. Executive Summary

In this action the EPA is finalizing amendments to the NESHAP for Portland cement plants and to the NSPS for Portland cement plants. These 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). The EPA is retaining the stack emission standards for mercury, hydrogen chloride (HCl), and total hydrocarbons (THC) under the NESHAP, amending the stack emission standard for particulate matter (PM) under the NESHAP, and making a conforming amendment to the NSPS for PM. The amendments also include provisions which account for commingled HAP emissions from coal mills that are an integral part of the kiln, establish a continuous monitoring regime for parametric monitoring of PM, set work practice standards for startup and shutdown, and revise the compliance date for the PM, mercury, HCl, THC and clinker storage pile existing source standards under the NESHAP. The EPA is also retaining the affirmative defense for civil penalties for violations of emission limits occurring as a result of a malfunction.

These amendments are based on sound technical and legal justifications, and result in cost savings and compliance flexibility for the Portland cement industry. This result is consistent with Executive Order 13563.

1. Purpose of the Regulatory Action

a. Need for the Regulatory Action

The EPA is amending the NESHAP for the Portland cement source category and the NSPS for Portland cement plants issued under sections 112(d) and 111(b) of the Clean Air Act (CAA). The most significant amendment is to the NESHAP and NSPS for PM, to correct monitoring issues with the PM compliance regime as promulgated in the 2010 final rule. As a result of this amendment, the EPA is also setting a compliance date of September 9, 2015, for meeting the PM, mercury, HCl and THC existing source NESHAP.

This final action also addresses the remand by the DC Circuit in *Portland Cement Ass'n* v. *EPA,* 665 F. 3d 177 (DC 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 court also stayed the open storage clinker pile standards.

We are also amending various implementation requirements to provide more compliance flexibility for affected sources. In addition, the amendments address the issues on which the EPA previously granted reconsideration. See 76 FR 28318 (May 17, 2011).

b. Legal Authority for the Regulatory Action

These amendments implement sections 112(d) and 111(b) of the CAA. Section 112 of the CAA establishes a regulatory process to address emissions of hazardous air pollutants (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 112(i)(3)(A) requires that the compliance date for existing sources shall be ''as expeditiou[s] as practicable,'' but not more than 3 years after a standard's effective date. 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.

2. Summary of Major Provisions

a. PM Emission Standards

As proposed, the EPA is amending the existing and new source PM standards in the NESHAP to require manual stack testing in lieu of PM continuous emission monitoring systems (CEMS) for compliance determinations and requiring that a site-specific parametric operating level be established using a PM continuous parametric monitoring system (CPMS). We are changing the numeric emissions value of those standards for existing sources to 0.07 pounds per ton (lb/ton) clinker based on manual stack testing and 0.02 lb/ton clinker for new and reconstructed sources based on manual stack testing. The PM standards under the NSPS for modified sources are likewise amended to 0.07 lb/ton clinker based on manual stack testing and 0.02 lb/ton clinker for new and reconstructed sources based on manual stack testing.

b. Response to Remand

Consistent with the court's remand, the EPA has removed all of the CISWI kilns from the database used to set the 2010 existing source standards for PM,

mercury, HCl and THC. This analysis informed the level of the final standards discussed immediately below.

c. Other Emissions Standards

As proposed, the EPA is changing the alternative organic HAP (oHAP) standard from 9 parts per million (ppm) to 12 ppm. The EPA is not changing the existing or new source standards for mercury, THC or HCl.

d. Standards During Startup and Shutdown

The EPA is amending the emission standards applicable during periods of startup and shutdown from numerical standards to work practice standards.

e. Compliance Dates for NESHAP

As proposed, the EPA is establishing a compliance date of September 9, 2015, for existing source standards for PM, mercury, HCl and THC. The EPA is establishing February 12, 2014, as the compliance date for the standards for existing open clinker storage piles. New source standards continue to apply to all sources which commenced construction or reconstruction after May 6, 2009.

f. Final Action on Reconsideration

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

3. Cost Impacts of These Amendments

We estimate that revising the means of demonstrating compliance for the PM, alternative organic HAP standards and requiring work practices for open clinker storage piles will save industry $52 million annually.

4. Summary of Final Standards

Table 1 shows the final standards for the Portland Cement Manufacturing Industry NESHAP and the Portland Cement Plants NSPS.

TABLE 1—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.
PM	0.07 lb/ton [a] clinker (3-run test average)	0.02 lb/ton [b] clinker (3-run test average).
HCl	3 ppmvd	3 ppmvd.
Organic HAP (alternative to Total Hydrocarbons).	12 ppmvd	12 ppmvd.

[a] Also applies to NSPS modified sources.
[b] Also applies to NSPS new and reconstructed sources.

B. Does this action apply to me?

Categories and entities potentially regulated by this final rule include:

TABLE 2—INDUSTRIAL SOURCE CATEGORIES AFFECTED BY THIS NESHAP AND NSPS FINAL ACTION

Category	NAICS code [a]	Examples of regulated entities
Industry	327310	Portland cement manufacturing plants.
Federal government		Not affected.
State/local/tribal government		Portland cement manufacturing plants.

[a] North American Industry Classification System.

Table 2 of this preamble 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 appropriate person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

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

In addition to being available in the docket, an electronic copy of this final action 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 final 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. In addition, more information can be obtained at the following address: *http://www.epa.gov/airquality/cement.*

D. Judicial Review

Under section 307(b)(1) of the CAA, judicial review of this final action is available only by filing a petition for review in the court by April 13, 2013. Under section 307(b)(2) of the CAA, the requirements established by the final rule may not be challenged separately in any civil or criminal proceedings brought by the EPA to enforce the requirements.

Section 307(d)(7)(B) of the CAA further provides that ''[o]nly an objection to a rule or procedure which was raised with reasonable specificity during the period for public comment (including any public hearing) may be raised during judicial review.'' This section also provides a mechanism for the EPA to convene a proceeding for reconsideration, ''[i]f the person raising an objection can demonstrate to EPA that it was impracticable to raise such objection within [the period for public comment] or if the grounds for such objection arose after the period for public comment (but within the time specified for judicial review) and if such objection is of central relevance to the outcome of the rule.'' Any person seeking to make such a demonstration to us should submit a Petition for Reconsideration to the Office of the Administrator, U.S. EPA, Room 3000,

Ariel Rios Building, 1200 Pennsylvania Ave. NW., Washington, DC 20460, with a copy to both the person(s) listed in the preceding **FOR FURTHER INFORMATION CONTACT** section and the Associate General Counsel for the Air and Radiation Law Office, Office of General Counsel (Mail Code 2344A), U.S. EPA, 1200 Pennsylvania Ave. NW., Washington, DC 20460.

II. Background Information

A. What is the statutory authority for these 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).

Under section 112(i)(3)(A), compliance dates for existing sources shall ''be as expeditiou[s] as practicable'', but in no event later than 3 years after the date of publication of the final rule in the **Federal Register**. The EPA may set a revised compliance date of a MACT standard when amending that standard, see *NRDC* v. *EPA,* 489 F. 3d 1364, 1373–74 (D.C. Cir. 2007), but any such amended compliance date must still establish ''compliance as expeditiously as practicable.''

Section 111(b) requires the EPA to set standards for emissions that ''reflect the 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 final rule?

The history of this final 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). The Portland Cement Association (PCA) and several cement companies filed petitions for reconsideration of aspects of those amendments (copies of the petitions are in the Portland Cement Reconsideration docket, EPA–HQ–OAR–2011–0817). 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 finding 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)), The NHSM 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). The court did not stay any of the numerical emission standards, but did stay the work practice standards for open clinker storage 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 had done so by removing all kilns classified as CISWI units from the data used to establish the 2010 NESHAP standards. The EPA then recalculated each of the floors based on this dataset (the 2010 dataset minus CISWI units) and made beyond-the-floor determinations based on the recalculated floors. The EPA believes that this approach is properly 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, EPA used the same data as used to establish the 2010 floors—namely the performance of the best controlled similar sources as required by section 112(d)(3).

III. Summary of Final Amendments to Subpart LLL and Subpart F

As discussed in the preamble of the proposed rule, 77 FR 42368, in this final action the EPA is finalizing several amendments to Subpart LLL and Subpart F. These amendments are summarized below.

A. Reconsideration of Standards

As noted above, EPA has responded to the action of the DC Circuit by removing all CISWI cement kilns from the database used to establish the existing source standards, and recalculating existing source floors and standards from that revised database. As described in the preamble of the proposal, the EPA had determined based on the final NHSM rule that there are 24 cement kilns which combust solid waste. 77 FR 42372. During the comment period, one company provided reliable information in its comments regarding the materials it processes indicating that one of these kilns is, in fact, a cement kiln (meaning that the EPA had properly classified it as a cement kiln in the 2010 rulemaking).[1] After reviewing the information provided, the EPA agrees that this source should not be classified as a CISWI kiln and, therefore, should not be removed from the Portland cement kiln database. We received no other comments concerning the identification of cement kilns and CISWI units. There are thus now 23 kilns identified as combusting solid waste and therefore classified as CISWI units. As directed by the Court's decision, we removed these 23 kilns from the database and recalculated the floors. This calculation resulted in the same floors as proposed in the July 2012 proposal.

Consistent with this analysis, the EPA is finalizing amendments to the emission standards as follows:

[1] The company burns dried biosolids as a fuel which are not classified as solid wastes. Refer to the Docket, No. EPA–HQ–OAR–2011–0817–0482.

1. PM Emission Standards

The EPA is revising several provisions of the emission standards for PM as follows:

- Changing the compliance basis for the PM standards from continuous monitoring with a PM CEMS to a manual three run stack test, amending the level and averaging time of the standard, and requiring a continuous parametric monitoring system using a CPMS. As a consequence, the EPA is also:
- Amending PM standards under the NESHAP for existing sources to 0.07 lb/ton clinker based on manual stack testing, and 0.02 lb/ton clinker for new and reconstructed sources based on manual stack testing;
- Amending PM standards under the NSPS for modified sources to 0.07 lb/ton clinker based on manual stack testing and 0.02 lb/ton clinker for new and reconstructed sources likewise based on manual stack testing;
- Requiring that sources establish a site-specific parametric operating limit for PM, and requiring that the parametric limit be continuously monitored using a PM CPMS;
- Requiring that sources retest once a year to reset the PM CPMS operating limit;
- Adding a provision that, if a source exceeds that site-specific parametric operating limit, it must conduct corrective action including performing a Method 5 or 5I performance test within 45 days; in addition, if the source exceeds that parametric limit four times in a calendar year, the source is presumed to be in violation of the PM emissions standard itself, subject to rebuttal by the source.

2. Mercury Standard

As proposed, the EPA is establishing a standard for mercury of 55 pounds per million (lb/MM) tons clinker for existing sources and is not changing the emission standard (21 lb/MM tons clinker) for new sources. The emission standard for existing sources is the same as the 2010 standard but is a beyond the floor standard.

3. Other Emissions Standards

As the Court requested, the EPA removed the CISWI units from the database and re-calculated the standards for THC and HCl. The standards remain the same as they were in the final 2010 rule. See also 76 FR 21149, 21152, and 21154 explaining why beyond the floor standards for THC and HCl are not justified. The 2010 rules provide an alternative to the THC standard whereby sources can meet a limit for non-dioxin organic HAP by measuring those HAP directly rather than meeting the standard for THC (a surrogate for non-dioxin organic HAP). As proposed, the EPA is changing the level of the alternative non-dioxin organic HAP standard from 9 ppm to 12 ppm. Table 3 summarizes the Final Existing and New Source Standards

TABLE 3—EXISTING AND NEW SOURCE 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 [b]	12 ppmvd	12 ppmvd.

[a] Standards 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.
[b] If the source opts to comply with the THC emission limit, this standard does not apply.

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

In addition to amending the level of the alternative oHAP standard (i.e., the standard whereby sources meet a standard for oHAP rather than for THC), the EPA is amending the provisions for the site-specific THC operating parameter for that alternative standard (where THC is a site-specific parameter monitored continuously to show compliance with the oHAP standard). The THC operating parameter is established based on THC levels measured during the successful stack test where oHAP are measured directly to demonstrate compliance. As amended, if compliance source testing of oHAP averages a value that is 75 percent or less of the emission limit for oHAP, the facility is allowed to establish a THC parametric operating level corresponding to 75 percent of the oHAP emission limit. We are adopting this provision to avoid penalizing lower-emitting sources by burdening them with the most stringent parametric operating levels. The EPA is adopting a similar provision for continuous PM parametric monitoring, for the same reason (see Section IV.A below). Sources which show oHAP emissions in compliance, but greater than 75 percent of the standard, must establish the average THC concentration measured during the 3-hour organic HAP test and use that as the site-specific THC operating level. Thus, the parametric monitoring level for THC will be the level corresponding to oHAP levels of 75 percent of the standard or the THC level of the oHAP performance test, whichever is higher.[2] Compliance with the oHAP standard will be shown as a ratio of three test runs during mill-on conditions and three test runs during mill-off conditions, with the percentage of operating time spent in each condition determining the ratio. The parametric operating level will be set according to average THC values measured during these same test runs, or to the default value of 75 percent of the standard, as just explained. In addition, the EPA will allow facilities to extend the testing time of the oHAP performance test if they believe extended testing is required to adequately capture THC variability over time. This final rule further requires that the stack test for oHAP be repeated every 30 months to establish a new site-specific THC parameter.

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

The 2010 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. Sources electing to comply by means of stack tests must establish continuously monitored parameters including liquid flow rate, pressure, and pH. Under this final rule, kilns with dry scrubbers may also demonstrate

[2] If a source believes that monitoring non-methane THC rather than total THC is a more reliable indicator of its oHAP emissions, it can submit an alternative monitoring request pursuant to the requirements of 40 CFR 63.8(f).

compliance with the HCl emissions limit by means of an initial and periodic stack test rather than with continuous compliance monitoring with an HCl CEMS. If a kiln equipped with a dry scrubber chooses this alternative, this final rule requires that the sorbent injection rate used during a successful performance test be recorded and then continuously monitored to show that the injection rate remains at or above the rate used during the performance test.

Where either wet or dry scrubbers are used, owners and operators may also establish sulfur dioxide (SO_2) as an operating parameter, rather than, for example, sorbent injection rate, liquid injection rate or pressure drop. If the owner or operator of a scrubber-equipped kiln makes this choice, it must establish the SO_2 operating limit equal to the average of the HCl levels recorded during the HCl performance test, and meet that operating limit on a 30 day rolling average basis. If a source exceeds any established parameter level, it must retest for HCl in order to verify compliance with the HCl emissions standard and must verify or re-establish the parametric monitoring levels as well.

At a minimum, a repeat performance test to confirm compliance with the HCl emissions limit is required every 30 months.

D. Alternative PM Limit

The 2010 final rule established an alternative PM limit to accommodate situations where kilns combine exhaust gas from various operations. 77 FR 42382. The equation establishing the alternative limit contained certain technical errors which the EPA proposed to correct. As proposed, this final rule revises the alternative PM equation so that it includes exhaust gas flows from all 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 thus finalizing 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.

0.0060 = The PM exhaust concentration (grains per dry standard cubic feet (gr/dscf)) equivalent to 0.07 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 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 gr/dscf, which is equivalent to the new source PM limit of 0.02 lb/ton clinker.

E. Coal Mills

The EPA discussed at length in the preamble to the proposed rule a potential regulatory regime to cover situations where a portion of the kiln exhaust is ducted to the coal mill. See 77 FR 42383–85; see also the regulatory text at 77 FR 42398, 42402–06, 42408–09. To assure that cement kilns do not exhaust untreated HAP through coal mills, and to assure accurate accounting of commingled emissions so that cement kilns are not penalized for commingling emissions where it makes sense to do so, the EPA is finalizing rules applicable to kiln/coal mill emissions for two configurations. In one, a portion of the kiln exhaust is ducted to a coal mill, and then the coal mill exhaust is commingled with remaining kiln exhaust and discharged through the main kiln stack. In the other, a portion of the kiln exhaust is routed through the coal mill and discharged through the coal mill stack.

In the case of a coal mill that receives and discharges a portion of the cement kiln exhaust, this final rule requires that the sum of the mercury, THC and HCl in the kiln exhaust diverted to the coal mill, and the kiln exhaust exhausted from the main kiln stack, must not exceed the subpart LLL emission limits for each respective HAP or HAP surrogate. The facility must document the contribution of the emissions diverted to the coal mill. For mercury, the rule allows tests to be performed downstream of the coal mill to take advantage of any mercury removal that occurs in the coal mill air pollution control device, and to avoid double counting emissions from mercury that becomes re-entrained in the coal. For THC and HCl, the rule allows tests to be performed upstream of the coal mill to avoid any THC or HCl that might be emitted by the coal. For owners and operators who believe that the impact of the testing location (upstream or downstream of the coal mill) would not result in their exceeding the kiln mercury, THC or HCl emissions limits and wish to conduct all their THC, HCl and mercury testing at a single location, this final rule allows testing either upstream or downstream of the coal mill. For sources complying with the alternate organic HAP limit, the facility would not be required to test for THC emissions, but would test for the organic HAP and add that concentration to the remaining emission points to estimate their total emissions for organic HAP.

A cement kiln that commingles emissions from its coal mill with all other kiln exhaust emissions and discharges through a single stack could simply meet the kiln emission limits. 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 D above. In this configuration, the source would also have the option of monitoring and/or testing kiln exhaust gases prior to the introduction of the coal mill exhaust gas, and testing the kiln gas diverted to the coal mill. In this case this final rule requires that the sum of the mercury, THC (or organic HAP if the source chooses the alternative organic HAP limit), and HCl in the kiln exhaust diverted to the coal mill plus the kiln exhaust measured in the main kiln exhaust must not exceed the subpart LLL emission limits for each respective HAP or HAP surrogate.

The same provisions for coal mills also apply to kilns equipped with an alkali bypass. The one minor exception is that for PM, the summed PM emissions from the kiln and alkali bypass must be equal to or less than the PM limit in subpart LLL. Tests for PM from the alkali bypass must be conducted downstream of the alkali bypass air pollution control devices (APCD) to account for those emission reductions.

With regard to PM, the EPA stated at proposal that where a coal mill receives and discharges a portion of the cement kiln exhaust, the kiln owner operator would have to demonstrate compliance with the 40 CFR 60 subpart Y standard for PM. Although the subpart Y standard is numerically higher than the subpart LLL PM standard, EPA assumed that control would be to the same level because the subpart Y PM standard is predicated on use of fabric filer control technology. 77 FR 42383/2. However, a commenter pointed out accurately that this proposal contravened the basic principle EPA indicated it was adopting here of not allowing diverted kiln emissions to meet a more lenient standard than required by the NESHAP,

and further indicated that EPA had failed to show that these diverted PM emissions were controlled as required by section 112(d)(2) and (3) of the Act. EPA agrees with this comment, and accordingly is indicating in the final rule that commingled emissions in this situation would be required to meet the subpart LLL NESHAP for PM. Because coal mill stacks are controlled with fabric filters, we project that they can meet the subpart LLL numeric standard without further controls. See 77 FR 42383. Coal mill stacks will be required to meet annual PM performance testing and combine the measured emissions with PM emissions from the separated alkali stack, bypass stack, and/or main kiln as required in sections 60.62(b)(3), 63.1349 and 63.1350 of this rule.

This final rule also states that sources equipped with an alkali bypass stack or sources that exhaust kiln gases to a coal mill that exhausts through a separate stack are not required to install CEMS on these stacks. Instead of installing a CEMS, such sources may use the results of the initial and subsequent performance test to demonstrate compliance with the PM, THC, HCl and mercury emissions limits. Note that for the main kiln exhaust, the CEMS requirements remain.

We expand on these monitoring provisions below.

1. Mercury

Although mercury from the kiln stack is monitored using a CEMS, mercury emissions from the coal mill are based on a periodic performance test and use of the gas flow rate to the coal mill. Performance tests for mercury must be conducted annually unless and until the tested mercury levels are below the method detection limits for two consecutive years, after which tests may be conducted every 30 months. The performance test results must be summed with the emissions from the kiln stack to determine compliance. The coal mill exhaust mercury emissions are calculated on a mass basis using the measured mercury concentration and the coal mill exhaust gas flow. The coal mill exhaust flow is established using a continuous monitoring system (CMS), or the design maximum flow rate. Mass mercury emissions from the coal mill would be summed with the hourly mercury emissions from the kiln measured by the mercury CEMS. Hourly mercury emissions are then summed to calculate the rolling 30-day mass mercury emissions. This number is then divided by the corresponding 30 days of clinker production to determine the 30-day rolling average. This final rule provides equations for summing emissions from the coal mill with the mercury emissions from the kiln to determine continuous compliance. To see an example calculation, see Section 4 of the Portland Cement Reconsideration Technical Support Document (developed for the proposal), docket item EPA–HQ–OAR–2011–0817–0225.

2. THC and HCl

In this case, site specific kiln stack emission limits (to be continuously monitored) are to 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. In order to determine the flow rates and concentrations of THC and HCl in the coal mill and alkali bypass streams, the source must test every 30 months using the appropriate test method. For HCl, the performance test must 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 is required. With these data, the concentration of THC and HCl that must be monitored by the kiln CEMS in order to demonstrate compliance with the kiln MACT limit can be calculated using the equations in this final rule. As with mercury, the coal mill flow rate used to calculate the allowable main kiln stack THC and HCl concentrations can be based on a CMS, or on the maximum design flow rate. The sum of the kiln CEMS and the maximum emissions from the coal mill or alkali bypass must be at or below the subpart LLL limits for THC and HCl. See Section 4 of Portland Cement Reconsideration Technical Support Document (developed for the proposal), docket item EPA–HQ–OAR–2011–0817–0225, for an example calculation.

Also, as a result of these revisions, the EPA is revising the definition of kiln to include inline coal mills and adding a definition of inline coal mill.

F. NESHAP Compliance Date Extension for Existing Sources

This final rule establishes that the compliance date for the amended PM standard, and for the THC, mercury and HCl standards, for existing sources for kilns, clinker coolers and raw material dryers is September 9, 2015. This final rule also establishes February 12, 2014, as the compliance date for the existing open clinker storage pile work practice standards. A detailed discussion of these compliance dates can be found in Section V.D. below.

G. Section 112 Eligibility To Be a New Source

The EPA is not changing the date for new source eligibility under the NESHAP. Thus, a source that commenced construction or reconstruction after May 6, 2009, would remain subject to the section 112 new source standards. A more detailed discussion of this topic can be found below in Section V.E.

H. Other Testing and Monitoring Revisions

In this action we are finalizing the proposed corrections and clarifications to the 2010 rule including changes to: Equations for calculating rolling operating day emissions rates; procedures that include extraneous wording; and cross references and typographical errors in the rule.[3]

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 performance specification (PS) 15. This final rule also removes from the standard the oxygen correction factors for raw material dryers and makes minor, non-substantive changes to the sections and paragraphs below:

- 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)(1) and (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), l(2), (m)(3), (m)(10) and (11), (o) and (p).
- Section 63.1352(b).
- Section 63.1356.
- In addition, we are adding requirements in section 63.1348(a), that

[3] We note that these changes required the agency to reprint sections of regulatory text. See e.g. 63.1348(a)(3)(i). In reprinting these passages, EPA has not reopened, reconsidered, or otherwise reevaluated the substance of these provisions but rather is only making the needed technical alteration.

a cement kiln that becomes subject to the rule after having been subject to the CISWI regulations, must meet all the initial compliance testing requirements even if they were previously subject to Subpart LLL.

I. Miscellaneous Amendments

We are also finalizing amendments to clarify various requirements in this final rule including issues of applicability, treatment of multiple sources that vent to a single stack, third party certification, definitions and use of bag leak detection systems when PM CPMS are in use.

For raw material, clinker or finished product storage bins, we have clarified that the requirements of this final rule apply only at facilities that are a major source (see section 63.1340(b)(6)) and that affected sources that are subject to subpart OOO (standards for nonmetallic mineral processing) are not subject to the requirements of subpart LLL (see section 63.1340(c)).

With regard to the NSPS, to clarify the recordkeeping and reporting requirement in section 60.65(a) to submit excess emission reports, we have added to section 60.61 of the NSPS a definition of ''excess emissions'' to mean ''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.'' To clarify what data are used in the calculation of emissions, or used in the calculation of parametric levels that are used to demonstrate continuous compliance, we added to this section a definition of ''operating day'' to mean ''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.'' The definition for ''operating day'' in section 63.1341 of the NESHAP is revised to be consistent with the above definition. We also became aware that some raw material dryers may be used to dry materials other than kiln feed and we have revised the definition of ''raw material dryer'' in recognition of that fact.

J. Standards During Periods of Startup and Shutdown

In the 2010 final NESHAP, the EPA established separate standards for periods of startup and shutdown which differ from the main standards that apply during steady state operations. In this action, based on comments received and the EPA's reconsideration of several technical issues related to startup and shutdown, the EPA is adopting work practices in place of these numerical standards. The rationale and provisions for the work practice standards are discussed in detail in section IV.C.

The EPA is also clarifying the operating conditions during which these standards apply, including a definition of ''startup'' and ''shutdown''. Under the amended definition, startup begins when the kiln's induced fan is turned on and fuel combustion is occurring in the main burner of the kiln. Startup ends when feed has been continuously fed to the kiln for at least 120 minutes or when the kiln feed rate exceeds 60 percent of the kiln design limitation rate. Shutdown begins when continuous feed to the kiln is halted and ends when continuous kiln rotation ceases.

The startup and shutdown-related changes include:

- Adding a definition of startup and shutdown in section 63.1341, as described;
- Adding section 63.1346(f) describing work practice standards to be met during periods of startup and shutdown;
- Revising section 63.1347 to require that startup and shutdown procedures be included in the facility's operation and maintenance plan;
- Adding section 63.1355(f) requiring records of each startup and shutdown including the date, time and duration and the quantity of feed and fuel added to the kiln during startup and shutdown;
- Adding section 63.1348(b)(9) requiring continuous compliance by operating all air pollution control devices during periods of startup and shutdown.

K. Reporting for Malfunctions and Affirmative Defense for Violation of Emission Standards During Malfunctions

The EPA added to the September 9, 2010, final NESHAP rule an affirmative defense to civil penalties for violations of emissions limits that are caused by malfunctions. Various environmental advocacy groups, as well as the PCA, indicated that there had been insufficient notice of this provision. The EPA agreed and granted reconsideration. See 76 FR 28325 (May 17, 2011). This action finalizes the EPA's decision to retain the affirmative defense on reconsideration.

The EPA is retaining in the final NESHAP rule an affirmative defense to civil penalties for violations of emission standards that are caused by malfunctions. See 40 CFR 63.1341 (defining ''affirmative defense'' to mean, in the context of an enforcement proceeding, a response or defense put forward by a defendant, regarding which the defendant has the burden of proof, and the merits of which are independently and objectively evaluated in a judicial or administrative proceeding). We are also revising some of the regulatory provisions that specify the elements that are necessary to establish this affirmative defense as proposed with minor changes from proposal described later in this section. The source must prove by a preponderance of the evidence that it has met all of the elements set forth in section 63.1344. (See 40 CFR 22.24). The criteria are designed in part to ensure that the affirmative defense is available only where the event that causes a violation of the emission standard meets the narrow definition of malfunction in 40 CFR 63.2 (sudden, infrequent, not reasonably preventable and not caused by poor maintenance or careless operation). For example, to successfully assert the affirmative defense, the source must prove by a preponderance of the evidence that the violation ''[w]as caused by a sudden, infrequent, and unavoidable failure of air pollution control, process equipment, or a process to operate in a normal or usual manner * * *.'' The criteria also are designed to ensure that steps are taken to correct the malfunction, to minimize emissions in accordance with section 63.1344 and to prevent future malfunctions.

Similar to actions taken in several other recent NESHAP amendments (see National Emissions Standards for Hazardous Air Pollutants From Secondary Lead Smelting, 77 FR 556, January 5, 2012, National Emission Standards for Hazardous Air Pollutant Emissions for Shipbuilding and Ship Repair (Surface Coating), and National Emission Standards for Wood Furniture Manufacturing Operations, 76 FR 72050, November 21, 2011), the EPA included an affirmative defense in the 2010 final rule and is retaining it in this rule (see section 63.1344). The affirmative defense provisions give the EPA the flexibility to both ensure that its emission standards 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. In addition to the authority cited in support of the affirmative defense in the preamble to the proposed rule, the EPA notes that a recent court decision further supports

the EPA's authority to promulgate an affirmative defense. The United States Court of Appeals for the Fifth Circuit recently upheld the EPA's view that an affirmative defense provision is consistent with section 113(e) of the Clean Air Act. *Luminant Generation Co. LLC v. United States EPA,* 2012 U.S. App. LEXIS 21223 (5th Cir. Oct. 12, 2012) (upholding the EPA's approval of affirmative defense provisions in a CAA State Implementation Plan). As discussed in the preamble to the proposed rule (77 FR 42379), the EPA's view is that an affirmative defense to civil penalties for exceedances of applicable emission standards during periods of malfunction appropriately resolves an underlying tension inherent in many types of air regulation, to ensure continuous compliance while simultaneously recognizing that despite the most diligent of efforts, emission limits may be exceeded under circumstances beyond the control of the source. See generally, *Virginia v. Browner,* 80 F.3d 869, 878 (4th Cir. 1996) (the EPA's interpretation that resolved a tension within the CAA is reasonable). 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.

We are promulgating revisions to the affirmative defense provisions in section 40 CFR 63.1344 as described at proposal (77 FR 42380) and making some minor additional revisions. The phrase ''emission limit'' was changed to ''emission standards'' to reflect that the affirmative defense could be applicable to certain work practice standards. The phrase, ''Off-shift and overtime labor were used, to the extent practicable to make these repairs'' was removed. The term ''notification'' to ''reporting'' was changed to reflect that the root cause analysis required under affirmative defense would be submitted with other periodic reporting. The term ''and monitoring'' was deleted because monitoring malfunctions are defined differently than malfunctions of process and control units and the affirmative defense is intended to apply to malfunctions to affected units that cause a failure to meet an emission standard. The word ''however'' was removed to incorporate more plain language into the regulation. The phrase ''the respondent fails'' was removed and replaced with ''you fail'' to incorporate more plain language into the regulation. The word ''its'' was replaced with ''your'' to incorporate more plain language into the regulation. The phrase ''all of the'' was replaced with ''your'' also to incorporate more plain language into the regulation. The phrase ''air pollution control practice'' was shortened to ''good practices'' to incorporate more plain language into the regulation. In addition, the written report required when asserting an affirmative defense was changed from a separate ''semiannual'' report to a report that is submitted with the first periodic compliance, deviation report or excess emission report due after the event.

We are finalizing the reporting and recordkeeping associated with violations due to malfunctions as described at proposal (77 FR 42388) and making some minor additional revisions as described below.

- Revising section 63.1354(b)(vii) for reporting and recordkeeping violations due to malfunctions. The phrase ''failure to meet a standard'' was used to replace ''deviation'' in the requirement to report violations of the standard. This was changed because the EPA is not finalizing a definition of deviation in this subpart and the term is not defined in the general provisions.
- Revising section 63.1354(c) for reporting a failure to meet a standard due to a malfunction. In addition, the phrase ''failure to meet a standard'' was used to replace ''deviation'' in the requirement to report violations of the standard. This was changed because the EPA is not finalizing a definition of deviation in this subpart and the term is not defined in the general provisions.
- Revising section 63.1355(f) addressing recordkeeping during startup and shutdown. The proposed recordkeeping requirement applicable to startup and shutdown assumed that a numerical emission standard was applicable during startup and shutdown. In finalizing the work practice standards in 63.1346(f) there will no longer be a numerical emission standard applicable during startup and shutdown. As such the recordkeeping requirement must change to reflect the content of the work practice standard. Records must be kept of the date, time and duration of the periods when the work practice is applicable, as well as the fuel and feed data to demonstrate compliance with the work practice standard.

L. What are the compliance dates of the standards?

During the comment period, comments were received that confirmed the need for additional compliance time, since the revised standards can result in different compliance strategies relative to the 2010 final rule. Thus, as proposed, this final rule establishes the compliance date for the amended existing source standards including standards for PM, mercury, HCl and THC to be September 9, 2015. The existing source compliance date for the requirements for open clinker storage piles is February 12, 2014. New sources which commenced construction or reconstruction after May 6, 2009, would remain subject to the new source standards and a compliance date of February 12, 2013, or startup, whichever is later.

M. Open Clinker Storage Piles

The EPA has added work practice requirements for open clinker storage piles that will reduce fugitive dust emissions from these sources. This final rule also contains a definition of open clinker storage piles and requires that a source's operation and maintenance plan include the steps the facility will take to minimize fugitive dust emissions from open clinker storage piles. A detailed discussion of these requirements can be found in section V.C below.

IV. Summary of Major Changes Since Proposal

A. PM Parametric Monitoring

Changes to PM Parametric Monitoring. The EPA proposed the use of PM CPMS for continuous monitoring of PM emissions as a 30-day rolling average established by identifying the average PM CPMS response corresponding to the highest 1-hour PM compliance test. Failure to meet this 30-day rolling average would result in retesting, and more than four exceedances from the parametric limit in a year would be presumed (subject to possibility of rebuttal by the source) to be a violation of the emission standard itself. See 77 FR 42377. Industry commented that this requirement would trigger unnecessary retests for many facilities, especially for the lower-emitting sources. The issue of increased compliance burden falling on the lower emitting sources is legitimate. Sources with especially low PM limits in their performance test would be most at risk of exceeding a parametric limit due to a few emission spikes, even though they would still be operating well under the actual PM compliance limit. We also received comment that the highest PM performance test run may represent, in some circumstances, a number higher than the PM emissions standard. To avoid this eventuality we have changed the final rule to require setting the PM operating limit equivalent to the average of the three PM performance tests, which constitutes the demonstration of compliance with the standard. To avoid

penalizing lower emitting facilities, the EPA has modified the way PM CPMS operating limits are established. Sources whose compliance with the PM emission standard are shown to be 75 percent or below the emission limit in the PM method 5 compliance test will set their PM parametric operating limit to be a 30-day rolling average equivalent to that 75 percent level. In a recent rule (76 FR 15736, March 21, 2011), the EPA established 75 percent of the limit as a number that allows for compliance flexibility and is simultaneously protective of the emission standard, and the same technical basis is applicable here as well. Sources whose compliance with the PM emission standard are above 75 percent of the emission limit will establish their operating limit as a 30-day rolling average equal to the average PM CPMS values recorded during the PM compliance test. It should be noted that this provision affects the allowable level of the parametric limit, but does not change the PM emission limit that must be met.

B. Scaling for Continuous Parametric Monitoring of THC for Alternative OHAP Standard

As explained in section III.B above, the EPA is adopting a scaling approach for parametric monitoring of THC under the alternative organic HAP standard which is conceptually similar to the one just discussed for parametric monitoring of PM. This provision affects the allowable level of the THC parametric limit, but does not change the oHAP emission limit that must be met.

The EPA proposed the use of THC monitoring in conjunction with organic HAP compliance testing to determine a parametric operating limit option for monitoring continuous compliance with the alternative organic HAP standard. In the proposed rule the organic HAP parametric operating limit was established by correlating the highest of three organic HAP test results with the corresponding average THC concentration recorded by a parametric THC monitor. Industry commented that this requirement would trigger unnecessary retests for many facilities, especially for the best performing sources. Not wishing to penalize those sources showing good performance, and simultaneously wanting to be protective of the emission standard, the EPA is changing the way parametric THC operating levels are established. Sources whose compliance with the organic HAP emission standard are shown to be below 75 percent of the emission limit will set their operating limit to be a 30-day rolling average equivalent to that 75 percent level. Sources whose compliance with the organic HAP emission standard are at or above 75 percent of the emission limit will establish their operating limit as a 30-day rolling average equal to the average parametric THC values recorded during the organic HAP compliance test. Sources with an in-line kiln/raw mill will use the fraction of time the raw mill is on and the fraction of time that the raw mill is off, and calculate this limit as a weighted average of the THC levels measured during raw mill on and raw mill off testing.

C. Work Practice Standard in Lieu of Numerical Emissions Limits for Periods of Startup and Shutdown

Under section 112(h) of the Act, the EPA may adopt a work practice standard in lieu of a numerical emission standard only if it is ''not feasible in the judgment of the Administrator to prescribe or enforce an emission standard for control of a hazardous air pollutant''. This phrase is defined in the Act to apply to any situation ''in which the Administrator determines that * * * the application of measurement methodology to a particular class of sources is not practicable due to technological and economic limitations.'' CAA section 112(h)(1) and (2). In adopting numerical limits for startup and shutdown in the 2010 final NESHAP, the EPA rejected comments that it should adopt work practices as a standard during startup and shutdown. This was largely because the commenters had not addressed the issue of whether the requirements of section 112(h) had been met. See docket item EPA–HQ–OAR–2002–0051–3464, pp. 183–84. The EPA later denied petitions to reconsider this issue on the grounds that the agency had already provided ample opportunity for comment on the issue, which petitioners had used. See 76 FR at 28323. The DC Circuit dismissed all challenges to the startup and shutdown provisions in the NESHAP (665 F 3d at 189). The EPA granted reconsideration on several technical issues related to startup and shutdown—specifically, monitoring of mercury and PM during startup and shutdown and having an HCl limit of zero for kilns not equipped with CEMS (see 76 FR at 28325), but these issues are no longer relevant based on the approach adopted in this final rule.

In the proposed reconsideration rule, the EPA proposed to retain the numerical standards, but to use recordkeeping rather than measurements to document compliance with the numerical standard. 77 FR 42382–83. EPA further solicited comment ''on whether the numeric standards during startup and shutdown should be amended to provide work practices'', and suggested what potential work practices might be. *Id.* at 42383. Some commenters supported retention of numerical standards, stating that nothing in the record supports a decision by the EPA that numeric standards are not feasible to measure. However, these commenters provided no supporting technical data. We also received comments opposing numeric limits and supporting work practices in their stead. Commenters stated that any numeric limit should be based on actual data gathered during startup and shutdown, which the proposed limits are not, and that measurement of emissions during startup and shutdown poses significant technical problems, mainly based on CEMS calibration issues, and the duration of startups and shutdowns.

Industry has presented information specific to the cement industry to the EPA on technical issues associated with cement kilns measuring PM, mercury, THC and HCl during periods of startup and shutdown. See docket item EPA–HQ–OAR–2011–0817–0237[1] and PCA Meeting 9–15–11 monitoring presentation in the docket for this rulemaking, as well as their public comments. EPA has continued to evaluate these data. In light of all of these public comments and further evaluation of the data, the EPA has decided to establish work practice standards in lieu of numeric standards during startup and shutdown periods. The EPA is doing so because the application of measurement methodology is not practicable for technological and economic reasons. See CAA section 112(h)(2)(B).

The operation of kilns at cement manufacturing plants is different from many other sources. Kiln startups can last days, during which time fuels are switched and temperatures and moisture conditions fluctuate substantially. Also, cement kilns have two types of inputs—raw feed that is changed into clinker in the kiln, and kiln fuel. The cement kiln is sized to accommodate not just exhaust gas flow from combustion, but the gases evolved from the calcination of limestone and moisture that evaporates from the kiln feed. As a result of these factors, the difference in gas flow characteristics of a cement kiln during steady state operation and startup/shutdown is more pronounced than that for other combustion source categories. In addition, cement kilns begin introducing feed as part of the startup process which further exacerbates the transient and fluctuating nature of these

operations not only because of the impact of this feed on the exhaust gases, but because raw materials and fuels are introduced at opposite ends of the kiln, which results in countercurrent flow of the solid material in the kiln and kiln exhaust gas, increasing the turbulence, transience and fluctuating conditions. The result is that conditions change constantly when cement kilns are in startup or shutdown mode. These conditions make stack measurements, both manual and continuous, for this source category unreliable because the constant shifting in conditions prevents any stack measurement from being representative of anything but conditions at that precise moment. For that reason manual stack tests, which take place over a period of a few hours, would not be presenting accurate information, since they would not be reliably measuring conditions across the duration of the test.

There is no way to craft a testing regime to compensate for these testing issues at each kiln in a manner that can produce reliable and replicable results. Such modifications would be specific to that individual startup event—i.e. *ad hoc* and therefore not of general applicability or utility in showing compliance. Continuous measurements conducted during these periods for cement kilns are also subject to inaccuracies resulting from these rapidly changing conditions. The temperature changes of greater than one thousand degrees Fahrenheit, flue gas moisture changes greater than 20 percent, and gas flow changes over several thousand cubic feet per minute, as well as other factors such as flue gas molecular weight swings, combine to create a complex matrix of measurement variables not accounted for in a cement kiln CEMS installation. That is, CEMS for PM, HCl, Hg, and THC are not able to reliably accommodate all of these transient shifting variables when measuring cement kiln startup and shutdown emissions. As noted above, these issues are further exacerbated by the fact that cement kilns have multiple inputs (fuel and feed), and the clinker production process generates higher gas flows than would be expected based on just the fuel inputs. This fact also means that flue gas flow rates cannot be accurately calculated from fuel inputs alone.

The EPA regards situations where a measurement may yield a value which is analytically suspect, which is the case for cement kilns during startup and shutdown for the reasons just described, as being a situation where measurement is not ''technologically practicable'' within the meaning of section 112(h)(2)(B) of the Act. Unreliable measurements raise issues of practicability and of feasibility and enforceability (see section 112(h)(1)).[4]

The EPA is not finalizing its proposed approach of setting numerical emission limits for startup and shutdown and requiring that sources certify compliance with those limits by keeping certain records certifying that they used certain fuels and did not introduce feed into the kiln. Under the proposal, sources would have had to certify compliance with the standards for the various organics based on assumed combustion conditions. As pointed out persuasively in the public comments, combustion conditions during startup and shutdown are too widely varying to either reliably measure or calculate emissions because combustion conditions change widely during startup and shutdown, sources indicated that they could not certify compliance based on an assumed combustion condition. See docket item EPA–HQ–OAR–2011–0817–0506, p. 11 (''Until ideal combustion conditions can be met in the combustion chamber (adequate temperature and turbulence), the combustion process will be incomplete. While this should not impact fuel-derived hazardous air pollutants (chlorine and mercury), it will impact the emissions of organics and possibly PM''). In light of the measurement issues noted above and the fact that sources could not certify compliance under the proposed approach, the EPA is not finalizing the proposed approach of setting numerical limits for startup and shutdown and allowing sources to certify compliance with the limits by maintaining certain records.

Instead, for the reasons explained above, the EPA is establishing work practice standards to demonstrate compliance with startup and shutdown. The work practices that apply during startup and shutdown are as follows:

- During startup the kiln must initially use any one or combination of the following clean fuels: Natural gas, synthetic natural gas, propane, distillate oil, synthesis gas, and ultra-low sulfur diesel until the kiln reaches a temperature of 1200 degrees Fahrenheit.
- Combustion of the primary kiln fuel may commence once the kiln temperature reaches 1200 degrees Fahrenheit.
- All air pollution control devices must be turned on and operating prior to combusting any fuel.
- You must keep records as specified in § 63.1355 during periods of startup and shutdown.

For the purpose of identifying when the kiln is in a startup/shutdown mode and subject to work practices and when the kiln is subject to numerical emission limits, we are defining the beginning and ending of startup and shutdown. At proposal we defined startup as when the kiln's induced fan is turned on and shutdown was defined as beginning when feed to the kiln is halted. Commenters noted that a kiln may have the induced draft (ID) fan operating even when the kiln is completely shutdown, no fuel is being burned, and there is no potential for emissions. Therefore, we changed the startup definition to be when a shutdown kiln turns on the ID fan and begins firing fuel in the main burner, because this is the point where the potential for emissions to occur begins. Startup ends when feed is being continuously introduced into the kiln for at least 120 minutes or until the feed rate exceeds 60 percent of the kiln design limitation rate. We added the duration/load element to the definition of startup because during startup a kiln must begin adding feed material to achieve steady state operation. After feed is first introduced it requires up to two hours or sufficient feed to achieve 60 percent of maximum operation to achieve a representative steady-state condition. (See meeting notes, PCA November 28, 2012, in the docket for this rulemaking). Shutdown begins when continuous feed to the kiln is halted and ends when the kiln rotation ceases.

We believe these work practices, which include the requirement that all air pollution control devices be operating, will ensure that emissions during startup and shutdown will be lower than the standards that apply during steady state operations, given use of cleaner fuels, minimal raw material inputs, and operation of all control devices during these periods. See 77 FR 42382 (noting that emissions during startup and shutdown would be expected to be lower than during steady state operations for these reasons).

[4] The application of measurement methodology during cement kiln startup and shutdown would also not be ''practicable due to * * * economic limitation'' within the meaning of section 112(h)(2)(B) since it would just result in cost expended to produce analytically suspect measurements.

V. Summary of Significant Comments and Responses

A. Amendments to Existing Source and New Source Standards for PM Under CAA Sections 112(d) and 111(b)

1. Changes to Level and Averaging Time of Existing Source NESHAP

The EPA proposed to amend the existing and new source standards for PM. The floor for the existing source standards increased from 0.04 lb/ton clinker to 0.05 lb/ton clinker as a result of removing CISWI kilns from the database. See Section 8.3, Portland Cement Reconsideration Technical Support Document, June 15, 2012, Docket item EPA–HQ–OAR–2011–0817–0225; see also 77 FR 42372/3. Second, the EPA proposed to change the compliance regime for the standard from use of PM CEMS to stack testing, a consequence being that the standard would no longer be expressed as a 30-day average but rather as the average of three test runs. The EPA thus proposed to express the recalculated floor (i.e. 0.05 lb/ton clinker 30-day average resulting from the reanalysis) as .07 lb/ton of clinker (average of three test runs). The 0.07 lb/ton clinker standard expresses the recalculated floor (i.e. 0.05 lb/ton clinker) as a not-to-exceed value based on stack testing, using the Upper Prediction Limit equation to do so. See Portland Cement Reconsideration Technical Support Document, June 15, 2012, Docket item EPA–HQ–OAR–2011–0817–0225.[5]

The EPA further proposed to use CPMS for continuous parametric monitoring. This system responds to changes in PM concentration and generates a corresponding milliamp output signal. 77 FR 42376–77. The proposed PM parametric level was correlated to the highest recorded value during three test runs. A source would meet this site-specific level on a 30-day rolling average. Failure to meet this 30-day rolling average would result in retesting, and more than four deviations from the parametric level in a year would be presumed (subject to possibility of rebuttal by the source) to be a violation of the emission standard itself. See 77 FR 42377.

Our proposal to change the compliance regime from use of CEMS to stack tests reflected technical issues related to a PM CEMS' reliability with measuring the Portland cement PM standard. Specifically, the EPA discussed the reliability of measurements, obtained using PM CEMS calibrated as required by the mandated PS 11, below the level of the 2010 standard or the level of the recalculated PM floor. See 77 FR 42374–76. The EPA's judgment at proposal was that as a result of PM measurement uncertainties, ''this correlation will not be technically or practically achievable for a significant number of cement kiln sources.'' *Id.* at 42376.

One commenter challenged the necessity of amending the standard to a stack test regime (apparently not realizing that the existing source standard also changed as a result of removing CISWI kilns from the database). First, the commenter maintained that the EPA has no authority to voluntarily change a promulgated MACT standard to make the standard less stringent, based on the language of section 112(d)(7). The commenter further maintained that the EPA had not definitively shown that PM CEMS calibrated pursuant to PS 11 could not be used to reliably measure the Portland cement PM standard. Specifically, the commenter stated that the various problems identified by the EPA at proposal are amenable to resolution by testing longer and more often, and argued that the EPA essentially admitted as much at proposal. The commenter noted that other technical problems, like the difficulty of accounting for varied particle sizes, could be resolved by using a beta gauge CEMS. The commenter dismissed the EPA's technical reservations on these issues as arbitrary speculation. The commenter also stated that PM CEMS are already in successful use by cement plants both in this country and overseas. The commenter further believed that the EPA could resolve these technical issues by amending the PM CEMS Performance Specification rather than by amending the averaging time of the PM standard and changing its compliance basis.

In response, we note first that we do not accept the commenter's legal argument based on section 112(d)(7). 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 111 of this title, part C or D of this subchapter, or other authority of this chapter or a standard issued under State authority.'' Although the commenter maintained that this provision unambiguously bars the EPA from amending the promulgated NESHAP to make it less stringent, we disagree. Indeed, it is hard to read the statutory language in such a way. On its face, the provision indicates that a section 112(d) standard does not supplant more stringent standards issued under some authority other than section 112(d). Nor does the commenter's interpretation make sense. It would bar the EPA from amending a section 112(d) standard that was technically deficient or incorrect. This cannot have been Congress' intent when adopting the technology-based section 112(d) MACT regime.[6] Moreover, when Congress adopted anti-backsliding provisions in the CAA, it did so explicitly. See CAA sections 172(e); 110(l); and 193. There is no such explicit language in section 112(d)(7). Thus, the EPA does not read section 112(d)(7) as precluding amendments to MACT standards which result in numerically less stringent standards, provided of course, that such standards are technically justified and otherwise consistent with the requirements of the Act.

The commenter is also mistaken in asserting that sources can simply utilize PM CEMS not correlated to PS 11. The PS 11 requirements apply to all PM CEMS used by a cement kiln. See sections 63.1349(b)(1)(A) and 1350 (b)(1) from the 2010 final rule (75 FR 55057, 55059).[7]

With regard to the technical issues raised by this commenter, the EPA explained in detail at proposal the problems of correlating PM CEMS under PS 11 at cement plants (see 77 FR 42374–42377). These obstacles are not resolvable simply by measuring more often and longer, as the commenter maintains. Extending the duration of the Method 5 test gives this reference method additional opportunity to collect more sample mass, but this is no guarantee that the time added to the test will collect enough particulate mass to resolve detection issues, especially when testing is conducted at the better performing (lower emitting) sources. Longer test runs inherently increase the variability of the PM CEMS data collected during the test, which may cause further difficulties with the

[5] One commenter inaccurately stated that the proposed rule would essentially double the PM standard. As just explained, the existing source floor (and standard) increased from 0.04 30-day average to 0.05 lb/ton clinker 30-day average as a result of removing CISWI kilns. As a not-to-exceed standard, that same level is expressed as 0.07 lb/ton clinker, the higher level reflecting the greater variability involved when basing the standard on the average of the three test runs rather than on 30 days of measurements.

[6] The commenter cites no legislative history to support its reading, nor is EPA aware of any.

[7] It also makes no sense to use PM CEMS not subject to a uniform calibration protocol. The results obtained would not be comparable.

correlation between instrument and reference method. Nor does conducting a higher number of reference method tests resolve the difficulties with PS 11 correlation created by greater uncertainty in the reference method at low levels. Put another way, more tests with high uncertainty and poor correlation do not improve the likelihood of passing PS 11 as there is no expectation of improving the mathematical relationship between the reference test and the instrument. Furthermore, PS 11 section 8.6 requires a minimum number of fifteen tests to develop a correlation curve, with no limit to the maximum number. Considering more than 15 tests when developing the correlation creates much difficulty in developing a precise mathematical relationship. Sources are allowed to discard 5 runs for any reason they wish, but must present at least 15 test runs for the correlation calculation. *Id.* As a source increases the number of test runs beyond 20, any additional runs must be included in the correlation equation and at that point the ability of a source to satisfy PS 11 becomes more hampered with every test run.

The EPA noted that special problems are posed by the size and variability of cement kiln-generated particulate. The EPA also noted that the standard light-scintillation type of PM CEMS would likely encounter higher variability for the same PM concentration, and have difficulty satisfying correlation protocols as a result. The EPA noted that beta gauge CEMS could potentially resolve at least some issues related to cement particle variability but noted further that these devices were largely untested in the cement industry, and none (so far as the EPA is aware) has successfully completed a PS 11 certification. See 77 FR 42375/3. The commenter maintains that the existence of beta gauge CEMS resolves all questions as to their reliability in the cement industry, but the EPA reiterates, as it did at proposal, that there needs to be some assurance of the reliability of that methodology to certify with PS 11 at low levels (as required by this final rule). That information does not presently exist. The commenter states that the EPA is being speculative as to potential difficulties with a different CEMS technology, but relative to Portland cement sources, it would be speculative to assume that beta gauge CEMS would successfully pass a PS 11 certification to reliably and quantifiably measure compliance with the NESHAP, especially at the very low PM levels at some of the sources in the cement source category.

The commenter also maintains that Tapered Element Oscillating Microbalance (TEOM) devices could be used in place of light scintillation PM CEMS. A TEOM is a device that uses a very thin, tapered, element vibrating at a known frequency that has a first principle relationship to the measurement of mass. Particles that impact the element also impact the harmonic vibration of the sensor which can be translated to a measurement of the particle mass. This is a more direct approach to measuring the actual mass of PM in stack gas, and has shown promise to operate very consistently at low levels in laboratory conditions. Several TEOMs are currently used for monitoring ambient PM levels at several non-cement, non-domestic industry installations. TEOMs that are capable of measuring stack gas are not currently available for sale in the U.S., though this may change in future years. Even so, with a monitor capable of more direct mass measurement of PM in stack gas, using PS 11 to certify one against Method 5 may be problematic at low PM concentrations. The EPA currently has no data to assess TEOM capabilities versus Method 5 at very low PM concentrations such as those presented by the better performing sources in this category. Were TEOM instrumentation commercially available, the EPA would need to conduct a re-evaluation of PM CEMS technology that included TEOM data to determine if this instrument could overcome the challenges posed by calibration with Method 5 at the very low PM levels emitted by some of the sources in the cement source category. As just explained, it is not speculation, but rather legitimate engineering caution that makes it appropriate not to require compliance with a rule based on an untested measurement methodology.

The commenter further maintains that rather than amend the standard to change the compliance test methodology and averaging time, the EPA should revise PS 11 instead, evidently assuming that a revision can be done rapidly. The commenter's assumption is mistaken. Performance specification development is a process that takes multiple years and involves data collection on types of technologies, field testing, comparison to reference measurement methodology, workgroup and stakeholder meetings, peer review, rule proposal and public comment period, as well as comment response and final promulgation of the Performance Specification. With the development of PA 12A for Mercury CEMS, the EPA invested a budget in excess of one million dollars to conduct technology and field studies, as well as to refine the analytical techniques and work through stakeholder concerns prior to proposal of the Performance Specification. The process from inception to final promulgation took over 5 years to complete. PS 11, at issue here, was over 3 years in development, from concept to final promulgation, and involved a budget of $250,000. Based on this past history, it is likely to result in a delay of 3 years or more were the EPA to delay promulgation of this final rule until we could undertake the process to research, propose and finalize solutions to PS 11 that may ameliorate some of the issues vis-a-vis the cement industry now present. Furthermore, such a process would not address the issues relating to measurement uncertainties using Method 5 at low PM concentration levels near its detection limit (i.e. below its practical quantitation limit of 3 mg), and so there would remain significant technological hurdles to clear before the EPA could require the use of PM CEMS in respect to this final rule.

The commenter points to PM CEMS use by European cement kilns. This is a misplaced comparison. The European calibration and certification of this instrumentation is completely different than PS 11 requirements developed by the EPA. European monitoring is certified in a laboratory environment, and calibrated on site by the instrument vendor when installed. The EPA has a long history of requiring CEMS installations in the USA to meet more rigorous calibration and performance specification certification through a series of comparisons to reference Method 5 test measurements conducted on the stack with the flue gas matrix at the facility, not in a controlled laboratory. For a PM CEMS, this would be a correlation developed with Method 5 as described in PS 11. The two certification regimes differ greatly in approach and simply adapting European certification standards to USA facilities does nothing to mitigate this difference.

In summary, the EPA has carefully considered the issue and it is our engineering judgment that the PS 11 correlation will not be technically or practically achievable for a significant number of cement kiln sources. This is due to the combination of the low emissions concentrations, PM CEMS measurement uncertainty factors, the variability in composition of cement PM, and need for extraordinarily long test runs to reduce Method 5 uncertainty to a level that provides normal measurement confidence (i.e. greater than the 3 mg practical quantitation level of Method 5), plus the

compounding uncertainties associated with source operational variability. The EPA further recognizes that these problems in developing PS 11 correlations are most likely to adversely affect the lowest emitting sources in the category and are more likely to result in violations of the rule more often for these sources than for sources operating with higher PM emissions. This result would obviously be environmentally counterproductive. We are therefore amending the standard to be based on stack testing, and expressing the standard as a not-to-exceed (i.e., stack test Method 5 or 5I) standard of 0.07 lb/ton clinker.[8]

Additional responses regarding these issues, including responses to issues raised in the comments from industry, are found in sections 3 and 4 of the Response to Comment document, which is found in the docket for this rulemaking.

2. Issues Related to Use of CPMS for Parametric Monitoring

To document continuous compliance with the Method 5 standard (i.e., parametric monitoring designed to monitor proper operation of PM controls), the EPA proposed that PM be monitored continuously using a CPMS. See 77 FR 42376–77. The parametric limit was to reflect the highest of the three method 5 test runs from the stack test, and would be averaged over 30-days. The EPA further proposed corrective action requirements in the event of exceeding the 30-day rolling average parametric limit, and a rebuttable presumption that four such exceedances in a calendar year showed a violation of the emission standard itself.

With respect to the use of CPMS technology, the EPA has recognized that PM CEMS technology cannot meet PS 11 requirements in all Portland cement installations, yet the EPA has also recognized that PM CEMS sensors are more sensitive and better at detecting small differences in PM concentration than other technologies such as opacity monitors (*http://www.epa.gov/ttn/emc/cem/pmcemsknowfinalrep.pdf*) In considering the use of PM CEMS at Portland cement facilities we find that while using PM CEMS technology for continuous quantitative measurement of PM concentration as correlated to Method 5 with PS 11 is frequently not achievable (as stated in the preceding subsection of this preamble), using the same technology for continuous qualitative measurement of PM emissions is practicable in every instance. Given the information we have that shows PM CEMS technology to be more sensitive to in-stack PM concentration differences than opacity monitors and nepheolmeters, the EPA sees a distinct advantage in using these technologies for continuous parametric PM monitoring, rather than measuring some other parameter.

In using a PM CEMS as a CPMS to conduct continuous qualitative monitoring of PM concentration in the stack, we are not interested in specific output information from the instrument (e.g. lbs/ton clinker). We only need to know that PM concentration increases or decreases. The signal output from the instrument need not be correlated to PM concentration through PS 11 trials to achieve this, but rather we can accept the native signal output from the instrument, as is, in milliamps, and track that signal to determine trends in PM emissions. In this final rule we are requiring PM CPMS instruments to employ a 4–20 milliamp output, which is a standard electronic signal output common to many CEMS.[9] With a PM CPMS the milliamp output would not represent an opacity value, but like an opacity analyzer, the milliamps would increase as PM concentration increases and decrease as PM concentration decreases. We can then monitor the milliamp signal while conducting a Method 5 performance test and correlate the average milliamp signal to the average PM concentration during the testing. This relationship is notably coarser in terms of understanding the precise PM concentration in the stack, but the instrument's sensitivity to changing PM concentration in the stack, and its changing milliamp signal output, does not deteriorate and may still be employed to qualitatively monitor PM emissions.

The EPA received numerous comments about our proposed PM CPMS parametric monitoring approach. Industry commenters maintained that sources would have to continually retest unnecessarily, since CPMS measure an increase in PM CPMS values. This increase in PM CPMS values would (or at least, could) denote a modest rise in PM emissions, but actual stack emissions of PM could still be well below the limit. The EPA recognizes this concern as creating additional burden for facilities exhibiting good control of their PM emissions (see section IV.A above), and, therefore, we have modified the process by which a source would establish and comply with their PM CPMS operating limit in this final rule. In doing so we considered scaling options for PM CPMS signals, as they correspond with PM emissions, that were proposed by industry but found the options presented were not protective enough of the emission standard. After extensive analysis (see S. Johnson, memo to docket number EPA–HQ–OAR–2011–0817, ''Establishing an Operating Limit for PM CPMS'', November 2012), we are promulgating a scaling factor of 75 percent of the emission limit as a benchmark. See section IV.A above. As in the proposed rule, every source will need to conduct an annual Method 5 test to determine compliance with the PM emissions limit, and during this testing will also monitor their PM CPMS milliamp output. Sources which emit PM less than 75 percent of their emission limit will be able to scale their PM CPMS milliamp output to determine where their PM CPMS would intersect 75 percent of their allowed PM emissions, and set their operating level at that milliamp output. This alleviates many re-testing concerns for sources that operate well below the emission limit and provides them with greater operational flexibility while still assuring continuous compliance with the PM stack emission standard. It also creates an incentive for sources to select high efficiency PM controls when sources are evaluating potential compliance strategies.

For sources whose Method 5 compliance tests place them at or above 75 percent of the emission standard, their operating level will be the average PM CPMS milliamp output during the three Method 5 test runs. This means their operating level is the milliamp output that correlates to their PM compliance determination, and not the highest average 1 hour run value that was in the proposed rule. Now that we are adopting a scaling factor, we no longer believe that it is also appropriate to establish the parametric limit based on the highest of the three runs (which moreover, could reflect a level higher than the level of the standard). Moreover, as noted below, we believe that on balance the 30 days of averaged

[8] Because the EPA believes that these same issues pertain to measurements of the section 111(b) new source performance standard for modified sources, and because further controls would be both costly and not cost effective (see section V.A.3 below), the EPA is adopting the same amendment for modified new sources under the NSPS.

[9] For example, an opacity instrument uses a series of filters to calibrate the analyzer and produce a ''percent opacity'' output. Twenty five percent opacity likely correlates to a milliamp value near eight milliamps, or 4 milliamps plus 25 percent of the difference between 4 and 20 milliamps (again, 4 milliamps). Fifty percent opacity would represent a signal near 12 milliamps, and so on, with 20 milliamps representing a signal of 100 percent opacity.

CPMS measurements provides ample operating cushion.

In a recent rule (76 FR 15736, March 21, 2011), the EPA established 75 percent of the limit as a number that allows for compliance flexibility and is simultaneously protective of the emission standard. In this final rule we are utilizing that value so as not to impose unintended and costly retest requirements for the lowest emitting sources and to provide for more cost effective, continuous, PM parametric monitoring across the Portland cement sector. This approach was selected from among many considered as it provides the greatest amount of flexibility while demonstrating continuous compliance for sources which are the lower emitters in the category and is also effective in holding higher emitters to the emission standard. With this parametric monitoring approach in place we expect sources to evaluate control options that provide excellent PM emissions control and provide them greater operational flexibility below the standard.

One commenter maintained that the use of a CPMS for parametric monitoring would be ''egregious'' since the milliamp output of the CPMS allowed a source to select operational parameters of tangential relation to PM emissions and would therefore not provide useful information as to proper PM control. The commenter also stated that monitoring of opacity would be preferable. An industry commenter likewise requested that continuous opacity monitors or bag leak detectors be used rather than CPMS.

The EPA does not agree with these comments. First, the milliamp output of the CPMS reliably and sensitively indicates increasing or decreasing PM concentration in the stack. Where PM controls are failing, the PM CPMS signal will indicate the increasing concentration of PM in the stack. A source will need to monitor the trend from the PM CPMS daily reading to maintain compliance with the 30-day emission standard. Indeed, the EPA has sufficient confidence that four exceedances of the CPMS continuous measurements is a presumptive violation of the emission standard itself. Moreover, the CPMS is considerably more sensitive than an opacity monitor or bag leak detector at detecting fluctuations in PM level. An opacity monitor determines the percent of a light signal that is occluded across the stack diameter. Opacity analyzers operate on a zero to 100 percent scale, meaning they are capable of registering PM that completely occludes the far stack wall from the instrument light source. This amount of PM is roughly equivalent to a complete failure of the emission control device. A properly operating control device will emit five percent opacity or less, which is barely visible to the naked eye and on the low end of the opacity monitor capability. PM emissions that increase opacity two percent at this level may well exceed the emission standard, yet they only mildly deflect the opacity monitor output. This same 2 percent opacity increase is capable of registering changes of several milliamps on a PM CPMS when operating on the scale provided in this final rule. With several decimal fractions available between each milliamp to track signal output, and three or four milliamps representing 1 percent opacity, the PM CPMS has a clear advantage in low PM concentration measurement over continuous opacity monitoring systems. Regarding baghouse leak detectors, the EPA has no information that shows them operating on the same sensitivity level as PM CPMS technology, and we do not require baghouse leak detection systems on sources where PM CPMS are in use for this reason.

Industry commenters objected to the proposal that 4 calendar year exceedances [10] from the parametric limit would be a presumptive violation of the emission standard. Again, the EPA does not agree. First, the EPA may permissibly establish such a presumption by rule, assuming there is a reasonable factual basis to do so. See *Hazardous Waste Treatment Council* v. *EPA,* 886 F. 2d 355, 367–68 (DC Cir. 1989) explaining that such presumptions can legitimately establish the elements of the agency's *prima facie* case in an enforcement action. Second, there is a reasonable basis here for the presumption that four exceedances (i.e. increases over the parametric operating limit) in a calendar year are a violation of the emission standard. The parametric monitoring limit is established as a 30-day average of the averaged test value in the performance test, or the 75th percentile value if that is higher. In either instance, the 30-day averaging feature provides significant leeway to the owner operator not to deviate from the parametric operating level since the 30 measurements will significantly dampen variability in the single measurement (average of three test runs) that produced the parametric value. See 77 FR 42377/2 and sources there cited. The EPA acknowledges that the difference was even greater between the parametric level and the emission standard in the proposed rule (which was based on the highest measured test run). The EPA believes that the 30-day averaging feature plus the 75-percent scaling feature for the lower emitting sources now provides a sufficient operating cushion. See 77 FR 42377.

[10] In the proposed rule, the EPA referred to a measurement higher than the parametric limit as a ''deviation'' and proposed a definition of deviation. See 77 FR 42398. The EPA is not including this terminology in this final rule. The term ''deviation'' is not in the Portland cement NESHAP rules (which date back to 1998), and has not proved necessary in practice. More important, the rule itself states what the consequences of measurements which exceed a parametric limit are (i.e. retesting, and in some instances, a presumptive violation of the emission standard itself), so that no further general regulatory provision (i.e. a generalized definition of 'deviation' or similar term) is necessary.

3. Existing Source Beyond the Floor Determination

The EPA proposed to use the floor levels for PM as the standard, rejecting more stringent standards on the grounds of poor cost effectiveness (after considering non-air environmental impacts and energy implications of a more stringent standard as well). See 77 FR 42376. One commenter argued that the EPA should adopt a beyond the floor standard for PM, maintaining that such a standard was justified under the factors set out in section 112 (d)(2).

The EPA disagrees, and is not adopting a beyond the floor standard. After considering the cost of the emission reductions attributable to such a standard, and the associated non-air and energy impacts of such a standard, the EPA determines that the standard is not ''achievable'' within the meaning of section 112 (d)(2). Specifically, the EPA estimates that a beyond the floor standard set at the level of the original (2010 final rule) standard would only result in 138 tpy—nationwide—of PM reduction (a value not questioned by any of the commenters). See Final Portland Cement Reconsideration Technical Support Document, December 20, 2012. We further estimate that the cost of achieving this modest incremental reduction would be approximately $37 million (the estimated cost savings attributable to the amended PM standard (including savings attributable to ancillary PM controls related to collection of PM from the control of Hg, THC, and HCl). See Final Portland Cement Reconsideration Technical Support Document, December 20, 2012, included in the rule docket, EPA–HQ–OAR–2011–0817. These total costs are high compared to the small nationwide emission reductions, and the cost effectiveness of these reductions is correspondingly high: approximately $268,000 per ton of PM removed. This is significantly higher cost effectiveness for PM than the EPA has accepted in other NESHAP

standards. See 76 FR 15704 (March 21, 2011) (rejecting $48,501 per ton of PM as not cost effective for PM emitted by CISWI energy recovery units); see also 72 FR 53814, 53826 (Sept. 20, 2007) (proposing (and later accepting) cost effectiveness of $10,000 per ton for PM as reasonable in determining Generally Available Control Technology, and noting that the EPA had viewed cost effectiveness only as high as approximately $31,000 per ton as reasonable under its Title II program for mobile sources). A beyond the floor standard at the level of the 2010 standard would also involve slightly higher energy use, although this is not a major factor in EPA's decision. EPA is therefore not adopting a beyond the floor standard for PM at the level of the 2010 standard. A standard even more stringent would likewise not be justified. See 76 FR 54988.[11]

4. New Source PM Standard Under Section 112(d)(3)

One commenter challenged the methodology the EPA used in the 2010 rulemaking to establish the new source floor and standard, maintaining that for new plants, the EPA's floors must reflect the emission level achieved by the single best performing kiln in the category, not the best performing kiln for which the EPA happens to have emissions information. See section 112(d)(3). The EPA did not reopen the methodology by which new source floors for this industry are determined. See 77 FR 42373 n. 3 (''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.'') In any case, if the issue is (against the EPA's view) deemed to be reopened, CAA section 112(d)(3) indicates that new source floors are to be based on ''the emission control that is achieved in practice by the best controlled similar source, *as determined by the Administrator''* (emphasis supplied). This language affords considerable discretion for the agency to base the NESHAP new source floors on performance of sources for which the agency has emissions information.

B. Mercury Standard

The EPA explained at proposal that reanalysis of the mercury floor, after removing CISWI kilns, resulted in a floor of 58 lb/MM tons clinker produced—slightly higher than the previously calculated floor and standard of 55 lb/MM tons clinker produced. The EPA further proposed to adopt 55 lb/MM tons clinker produced as a beyond-the-floor standard. See 77 FR 42373. The new source standard was unchanged since the standard was based on the performance of the best performing similar source.

The EPA is adopting the standards as proposed. One commenter challenged the appropriateness of adopting a beyond-the-floor standard, not for the industry as a whole, but for itself. As to this individual plant (Ash Grove, Durkee), the commenter maintained that the cost of attaining the three additional lb/MM ton clinker produced reduction (i.e., the difference between 58 and 55 lb/MM tons clinker produced) was greater than the EPA estimated because it would require more than just additional carbon in an activated carbon injection system to achieve the incremental difference. According to the commenter, they have performed extensive testing and the addition of activated carbon per million actual cubic feet per minute of exhaust gas has little or no impact on mercury emissions. The commenter states that for plants such as Ash Grove's Durkee plant, there is no known add-on control technology at this time that will assure achievement of the standard on a continuous basis.

We note first that the commenter is somewhat over-estimating the incremental reduction of mercury actually needed. To achieve the emission standard, sources will need to operate their processes and controls so that they can achieve the average emissions level used in setting the existing source limit of 55 lb/MM ton—the so-called design level. See e.g. 77 FR 42389/3 (estimating emissions attributable to this final rule based on design levels); see also discussion of design values in section VI.B below. That level is 31.7 lb/MM ton for the standard of 55 lb/MM ton. See 75 FR 54976/3. The average for the 58 lb/MM ton is 34.1 lb/MM ton. The additional reduction needed is therefore 2.4 lb/MM tons, not 3 lb/MM tons as stated by the commenter.

As the EPA has acknowledged repeatedly, due to the high levels of mercury in their limestone, mercury emissions from the Ash Grove Durkee plant are not typical of other plants in the industry. See, e.g. 75 FR 54978–79. As a result, this plant faces a particularly great challenge in meeting the mercury standard, whether the standard is 55 or 58 lb/MM tons. Because of their unique situation, we do not believe that the difficulties this facility is having in meeting the mercury standards can be generalized to the rest of the industry. Section 112(d)(2) of the Act posits an industry-wide standard. Having said this, our cost analysis conducted for the 2009 proposal and 2010 final rule assumed that this plant would have to install multiple control systems in order to meet the limit for mercury. See Docket item EPA–HQ–OAR–2002–0051–3438. Therefore, if in this particular case the activated carbon injection (ACI) system cannot achieve the small additional reductions required, then the facility has other mercury control options available such as further dust shuttling, or treating cement kiln dust to remove mercury. Dust shuttling entails moving dust from within the kiln to other parts of the process and is considered a closed loop process, thereby not causing any waste impacts. In addition, any costs associated with dust shuttling have already been accounted for in the cost estimates the EPA has developed for this particular facility.

The commenter alluded to control performance data that it shared with the EPA. We note that the commenter has provided pilot scale data as part of the 2010 rulemaking (see Docket item EPA–HQ–OAR–2002–0051–2073), but has not provided data on the effects of increasing carbon injection on mercury emissions for a full scale facility. We note that in the electric utility industry, where there is significantly more experience with ACI, it is well established that higher carbon injection rates increase mercury removal (Sjostrom, S.; Durham, M.; Bustard, J. Martin, C.; ''Activated Carbon Injection for Mercury Control: Overview'', FUEL, 89, 6, 1320 (2010)). There is no data to indicate that ACI systems in the cement industry would behave differently than those in the utility industry. Given the lack of data on the efficacy of increasing carbon injection rates on mercury removal for full scale cement operations, we cannot conclude that increasing carbon injection is not a

[11] The commenter's argument that section 112 (d)(2)'s requirement that the EPA consider ''the cost of achieving such emission reduction'' limits the EPA to considerations of economic achievability, and not cost effectiveness, is misplaced. See *Husqvarna AB* v. *EPA,* 254 F. 3d 195, 200 (DC Cir. 2001) (cost effectiveness properly considered in evaluating cost of compliance under CAA section 213, a technology-based provision similar to section 112 (d)(2)). The commenter's further argument that the requirement in section 112 (d)(2) for standards to result in ''the maximum degree of reduction in emissions of hazardous air pollutants * * * achievable'' considering cost and other factors constrains the EPA's ability to consider cost-effectiveness or otherwise balance the statutory factors has likewise been rejected. See *Sierra Club* v. *EPA,* 325 F. 3d 374, 378 (DC Cir. 2003) (the EPA was left with great discretion in determining how to balance such factors when considering technology-based standards which are to result in maximum reductions achievable).

reasonable approach for increasing mercury removal efficiency.

C. Standards for Fugitive Emissions From Open Clinker Storage Piles

The EPA proposed that cement kilns control fugitive emissions from open clinker storage piles, defined at proposal as ''any clinker storage pile that is not completely enclosed in a building or structure''. These piles would be controlled through the use of work practices which minimized emissions by means of (among others) partial enclosure, damping down the pile by chemical or physical means or shielding piles from wind. These work practices were drawn from permits for existing cement kilns, and every cement kiln appears to already be utilizing some type of work practice to minimize fugitive emissions from open clinker storage piles. See 77 FR 42378. Cement kiln sources were allowed to select from among the specified work practices and choose those most suitable for its operations.

For both new and existing sources, the NESHAP is amended to require that one or more of the control measures identified in the rule be used to minimize fugitive dust emissions from open clinker storage piles. The work practices would apply to open clinker storage piles regardless of the quantity of clinker or the length of time that the clinker pile is in existence.

In addition, the owner or operator must include as part of their operations and maintenance plan (required in § 63.1347) the location of their open clinker storage piles and the fugitive dust control measures as specified in this rule that will be implemented to control fugitive dust emissions from open clinker piles. We agree with comments received that the list of allowed work practices reflects all of the available practices documented in cement kiln facility operating permits to control clinker storage pile fugitive emissions. The size, type and duration of a clinker pile may warrant different types of work practices. The final rule requires that one or more of a variety of work practices need to be employed, recognizing that the source will use the work practices that will be effective for the particular piles. Thus, the EPA has revised the list of work practices to be consistent with those listed in the proposal preamble. These are: Use of partial enclosures, using a water spray or fogging system, applying appropriate dust suppression agents, using a wind barrier and using a tarp. Commenters also requested that the EPA allow other work practices if approved by the delegated authority. Our regulations already provide procedures for sources to seek approval of alternative work practices. See section 112(h)(3) as implemented by 40 CFR 63.8(f).

Several industry commenters stated that the definition of clinker pile is problematic as proposed because it was not limited by size or duration. Commenters note that it is not uncommon for small amounts of clinker to be dropped, or to fall off a front-loader onto the ground when being moved from a kiln to a storage location or from such a location to the grinding mill. Because these are small amounts of clinker, it is also not uncommon that these small quantities of clinker will remain where they were dropped and may not be picked up or removed until the necessary manpower becomes available; in some cases this could be multiple days. Another industry commenter noted that because of the short-term duration of temporary clinker stockpiles, the use of work practices similar to those proposed for clinker storage piles is not feasible. The industry trade association suggested the following definition: ''Open clinker storage pile means an outdoor, unenclosed accumulation of clinker on the ground, which contains in excess of 50,000 tons of clinker, and is utilized for a continuous period in excess of 180 days.'' Under this suggested approach, only a clinker storage pile meeting this definition would be subject to the work practice standards.

We are not adopting this approach. We believe that the potential to emit may be different at different sites for a variety of reasons such as weather and traffic conditions. Nor did the commenter provide information indicating that open clinker storage piles of less than 50,000 tons or stored for less than 180 days are unlikely to produce fugitive emissions. Indeed, as a result of weather, traffic or other conditions, smaller piles stored for shorter periods have the evident potential to emit substantial levels of fugitive emissions. Nor is any such uniformly applicable distinction based on duration evident. Clinker piles can be temporary but be replaced by a new pile at the same (or nearby) location a few days later, with no essential difference in fugitive emissions.

Nonetheless, we believe that the commenter is correct that spills are unavoidable, and that work practices designed for non-temporary piles cannot feasibly be applied in such circumstances. The commenter is also correct that work practices used for non-temporary piles would be misapplied to temporary piles attributable to cleaning storage structures. For these reasons, the definition of ''open storage pile'' excludes these types of piles. Specifically, the definition of open clinker storage pile does not include temporary piles of clinker that are the result of accidental spillage or temporary use of outdoor storage while clinker storage buildings are being cleaned. This final rule defines ''temporary'' to mean piles that remain in place for 3 days or less from their generation (3 days accommodating weekend scheduling). This is sufficient time to either pick these spills up (the applicable work practice for these spills) or to cover them to prevent fugitive emissions.

These final amendments will result in a cost savings to the industry as compared to the 2010 rule. As a result of requiring work practices instead of enclosures, we estimate that there will be a savings of $8.25 million annually. See Final Portland Cement Reconsideration Technical Support Document, December 20, 2012, in this rulemaking docket.

D. September 9, 2015, Compliance Date for the Amended Existing Source Standards

The EPA proposed to establish September 9, 2015, as the compliance date for the amended existing source NESHAP standards. The basic reason for the proposed compliance date was that the proposed change in the PM standard made possible different compliance alternatives for all of the stack emission standards, and that it could legitimately take two years from the original compliance date to implement these new compliance strategies. See 77 FR 42385–87. Further, the amended compliance date would apply to all of the stack emission standards due to the interrelatedness of the standards: the mercury, THC and HCl standards all typically involve some element of PM generation and capture and so the controls must be integrated with PM control strategies. Id. at 42386.

The record for this final rule supports the need for the September 9, 2015 compliance date. With respect to PM control, as the EPA explained at proposal, plants now have the option of retaining electrostatic precipitators (ESP) with modification or downstream polishing baghouses, rather than replacing ESP with baghouses. Plants may also size baghouses differently (with or without incorporation of upstream or downstream polishing elements). The various types of sorbent injection strategies to control organics, mercury and HCl, are affected by the PM limits (and vice versa). Based on the facts of this record for this source

category, the type, size and aggressiveness of the controls for these HAP, as well as the PM controls, are not only interdependent but can all change as a result of the amended PM standard. In addition, the amended alternative oHAP standard affords additional compliance alternatives for control of non-dioxin organic HAP, including alternatives to use of Residual Thermal Oxidizers. See generally, Final Portland Cement Reconsideration Technical Support Document, section 3.1, December 2012, in the docket for this rulemaking.

Determining, developing, installing, testing and otherwise implementing a different comprehensive HAP control regime takes time. Specifically, plants will need to conduct engineering studies, determine the most cost-effective control strategy, seek contract bids, purchase equipment, install and test the new equipment. Below is an estimate of a timeline for a cement kiln to undertake these steps.

TIME NEEDED TO PREPARE FOR COMPLIANCE

[Docket item EPA–HQ–OAR–2011–0817–0505–A1]

Steps in preparing for compliance	Time period
New engineering study	January–April 2013.
Selection of technology providers	April–August 2013.
Technology procurement	August–December 2013.
Detailed technology design and final engineering	January–June 2014.
Equipment fabrication and permitting	June–December 2014.
Construction and tying into existing operation	January–May 2015.
Technology commissioning	June–August 2015.

One commenter, sharply opposing any change in compliance date, maintained that all of this reasoning is hypothetical and that such a consequential extension could not legitimately rest on speculation. The EPA disagrees that this analysis is speculative. First, the EPA's engineering judgment is that the changes in the PM standard and alternative oHAP standard, open up different compliance alternatives from those under the 2010 rule. The EPA has indicated what those alternatives can be, and the time needed to determine, purchase, install and test them. Comments from the affected industry are consistent with the EPA's engineering judgment as to the type of different compliance approaches now available for existing sources.

The EPA's engineering determinations as to the time needed for cement kilns to implement a different multi-HAP control strategy here are moreover consistent with the agency's long-standing analysis (i.e. analysis not specific to the cement industry) of the time needed to install multipollutant control systems. See US EPA, Engineering and Economic Factors Affecting the Installation of Control Technologies for Multipollutant Strategies, EPA–600/R–02/073, October 2002) (cited at 77 FR 42386). Therefore, the EPA estimated that it is normal for the development and implementation of new compliance measures to take between 15–27 months for single control systems, and longer for systems involving multiple controls for HAP and criteria pollutants, as is the case here.

The record to this rule also contains a survey of 92 of the 97 domestic cement kilns currently in operation. These survey results document, on a kiln by kiln basis, alternative engineering strategies now available to these kilns as a result of the amended PM standard and also documents the time each kiln estimates would be needed to carry out these new compliance strategies. See Comments of PCA, Appendix D (EPA–HQ–OAR–2011–0817–0505). For example, kiln B [12] has the option of modifying its ESP system using a hybrid ESP/baghouse filter system, or of using a cyclone upstream of the ESP. Steps needed to implement these possibilities include main stack evaluation, cooler stack testing, and evaluation, vendor/contractor selection, final design, equipment procurement and fabrication, startup and commissioning, and demonstrating compliance. The plant has already commenced some of these steps, but provides reasonable time estimates for why it would take until September 2015 to complete them. Kiln Q [13] expects to be able to retain its ESP system (whereas it could not under the 2010 final rule), but needs to resize its dust conveying system, upgrade the ESP, and utilize a larger activated carbon injection system differently from planned (since an ESP will not capture mercury as would a baghouse). Steps involved in developing and implementing a system include reviewing the structural integrity of the existing ESP, obtaining proposals on ESP upgrades, relocating an existing stack adjacent to the existing ESP, complete stack design, order equipment for ESP upgrades, order a new stack, contract construction, perform necessary construction, modify the ESP as needed, evaluate CEMS performance and conduct stack testing and make any adjustments to the integrated control system. Again, reasonable timelines for carrying out these steps are provided.

Neither the EPA nor the industry has said definitively what each kiln will do and how long it will take. Until the standards are finalized, no such definitive pronouncement is possible. However, the record is quite specific that additional control strategies are now possible; what the range of those new control strategies are; that the strategies are interrelated so that the standards for PM, organics, mercury and HCl are all implicated; and the time needed to carry out the various strategies. Thus, the commenter is mistaken that the record regarding the need for a compliance date of September 2015 is merely conjectural.

The EPA solicited comment on the possibility of a shorter extension for the stack emission standards, noting that by virtue of the 2010 final rule, the industry was not starting from scratch but could already undertake compliance steps. See 77 FR 42386/3. The survey results referred to above confirm that this is the case, since a number of plants (to their credit) indicated that they have taken preliminary steps toward compliance such as conducting stack testing, and testing various control strategies (e.g., survey results for kilns A, F and G). Nonetheless, many commenters made the evident point that this preliminary work could only go so far when there was uncertainty about

[12] For competitiveness reasons, kilns in this survey are identified by letter. The survey results are consistent with the EPA's engineering understanding and judgment, and the EPA has no reason to dispute the overall survey results (although some details may be open to question).

[13] These examples were chosen at random by the EPA from the survey information provided in the comment.

the final standard and uncertainty around which standard would determine their final control strategy. Moreover, even those plants which had begun preliminary compliance steps indicated (with specific timelines provided) that the remaining work would legitimately stretch through the summer of 2015.

This same record refutes those comments maintaining that an even longer compliance extension is needed. Not only is this inconsistent with the EPA's own estimates, but the industry survey results document that no further time is needed. See CAA section 112(i)(3)(A) (compliance with CAA section 112(d) standards to be as expeditious as practicable). Therefore, the EPA is revising the compliance date for existing sources for PM, THC, HCl, and Hg to be September 9, 2015.

However, the EPA is establishing February 12, 2014, as the compliance date for the standards for existing open clinker piles. These standards are not inter-related to the stack emission standards, and so need not be on the same timeline. The work practices we are adopting as the standards reflect practices already in place throughout the entire industry. The time needed to come into compliance consequently is to establish a reporting and recordkeeping apparatus, and in some instances to obtain approval (after appropriate demonstration) to use work practices not enumerated in the standard. The EPA estimates that these various steps should not exceed twelve months. Since section 112(i)(3)(A) requires compliance to be as expeditious as practicable, the EPA is establishing a 12 month compliance period for these standards.

A compliance date for an amended standard must still be ''as expeditiou[s] as practicable'' and not more than 3 years. We believe a compliance extension is appropriate where, as here, for the stack emission standards, the amended result in a compliance regime differs from the initial rule and additional time is needed to develop, install, and implement the controls needed to meet the amended standard. The EPA has shown that to be the case here, as explained above.

The Sierra Club in its comments also argued that the EPA could not change the 2013 compliance date in the 2010 final rule as a matter of law. The commenter rests this argument on CAA sections 112(d)(7) and 112(i)(3)(A). We have responded above to the argument based on section 112(d)(7). Section 112(d)(7) simply is not an anti-backsliding provision (or, at the least, does not have to be interpreted that way).

CAA Section 112(i)(3)(A) states in relevant part:

''[a]fter the effective date of any emissions standard, limitation or regulation * * * the Administrator shall establish a compliance date or dates for each category or subcategory of existing sources, which shall provide for compliance as expeditiously as practicable, but in no event later than 3 years after the effective date of such standard''.

In *NRDC* v. *EPA (Plywood MACT*), 489 F. 3d 1364, 1373–74 (D.C. Cir. 2007) the court held that ''only the effective date of Section 112 emissions standards matters when determining the maximum compliance date.'' 489 F. 3d at 1373 (emphasis original). The EPA, therefore, lacked authority to extend the compliance date when it was only adjusting reporting terms. Id. at 1374. The opinion implies, however, that the EPA may reset the compliance date when the EPA amends the actual standard, as here. If the statute provided an absolute bar on the EPA extending an effective date, there was no reason for the court to distinguish the situation where the EPA amends some ancillary feature of the rule from the situation where the EPA amends the actual standard.[14]

The reason it makes sense for the EPA to have the authority to reestablish a compliance date when it amends a MACT standard is evident. In a technology-based regime like section 112(d), if the technology basis of the standard changes with a change of the standard, it takes time to adopt the revised controls. This result fits the statutory text.

Where the EPA has amended an existing source MACT standard, the compliance date for that amended standard must be as expeditious as practicable, and no later than 3 years from its effective date. Sierra Club argues that the original standard (the one that has been amended) must nonetheless take effect, but that standard no longer exists. It has been amended. Moreover, the result of Sierra Club's approach would force sources to install one technology and rip it out in short order to install another. Congress cannot have mandated this result. See *PCA* v. *EPA,* 655 F. 3d at 189 (staying NESHAP standards for clinker piles—that is, effectively extending their compliance date—because ''the standards could likely change substantially. Thus, industry should not have to build expensive new containment structures until the standard is finally determined.'') [15] [16] Moreover, in the extreme case where the initial standard was outright technically infeasible by any source (and was amended by the EPA to correct this defect), Sierra Club's reading would leave sources with literally no legitimate compliance option.[17] Technology-based standards simply do not work this way.

[14] Sierra Club maintains that because the revisions to the PM standard leave that standard nearly as stringent as the 2010 standard, all that has effectively changed is the standard's averaging time. Sierra Club likens this situation to the amendments to ancillary provisions like reporting at issue in *Plywood MACT.* This is incorrect. First, as explained in section V.A. above, the standard did increase numerically as a result of removing commercial incinerators from the database. Portland Cement Reconsideration Technical Support Document, June 15, 2012, Docket item EPA–HQ–OAR–2011–0817–0225. Second, although the amended PM standard is relatively as stringent as the 2010 standard (75 FR 54988/2 and 77 FR 42389/3), it nonetheless affords different compliance options for all of the standards, as explained above and in further detail in the Response to Comment document. The standard allows flexibility for those days when emissions increase as a result of normal operating variability, without significantly affecting the long-term average performance for PM and affords different compliance opportunities as a result. Nor does the commenter consider the amendment to the alternative oHAP standard, which amendment likewise affords new compliance opportunities.

[15] In a variant of this argument, Sierra Club maintains that in a situation where the compliance date for an initial existing source MACT standard has not yet passed and the EPA amended that standard to make it more stringent, the EPA would nonetheless leave the predecessor less stringent standard in place and require compliance with it. Although this situation has not arisen, the EPA would presumably be governed by the same principle noted by the *PCA* court: is the technology basis for the standard changing in such a way as to require more time for compliance and in a way that negates the compliance strategy of the initial rule. (Of course, if the compliance date of a standard has already occurred and a standard is later amended, that compliance date would not change retroactively.)

[16] Sierra Club maintains that *PCA* is distinguishable because it involved a standard which the EPA was compelled to change. First, the comment is factually mistaken. The EPA had granted reconsideration of the clinker pile standards but had not indicated that the standards would be amended. See 76 FR 28325/1 (May 17, 2011). Nor did the court indicate that the pile standards must change. Rather, ''[b]ecause EPA will now be receiving comments for the first time, the standards *could* likely change substantially.'' 655 F. 3d at 189 (emphasis supplied). Thus, the court effectively reset the compliance date because of a potential future change in the rule which could result in a compliance regime which differed from that in the 2010 final rule. This is directly parallel to the situation now presented by the amended PM and alternative oHAP standards.

[17] An example is the startup and shutdown standard for HCl in the 2010 final rule. The EPA established this standard as zero on the mistaken assumption that no chlorine could be present in the kiln during there periods. See 76 FR 28325 (granting consideration on this basis). The commenter's approach would leave this technically infeasible standard and its compliance date in place without recourse.

E. Eligibility To Be a New Source Under NESHAP

CAA section 112(a)(4) states that a new source is a stationary source if ''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.'' As we explained previously, there is some ambiguity in the language ''first proposes'' and such language could refer to different dates in different circumstances, such as the first time the Agency proposes any standards for the source category, the first time the Agency proposes standards under a particular rulemaking record for the source category, or the first time the Agency proposes a particular standard.

In the proposed reconsideration rule, the EPA proposed to retain May 6, 2009, as the date which determines new source eligibility and solicited comment on this issue. Industry commenters stated that we should change the date for determining new source status from May 9, 2009 to July 18, 2012, the date of the proposed reconsideration rule. In support, they asserted that they will not know what the final standards are until we finalize the reconsideration rule. We disagree with the commenters' suggestion and are retaining the May 6, 2009 date as the date that determines whether a source is a new source under CAA section 112(a)(4).

As we explained at proposal, it is reasonable to retain the May 6, 2009 date as the date the Agency ''first proposed'' standards for this source category. This is the date that EPA first proposed these standards under this particular rulemaking record. Today's action is a reconsideration action, and although it revises the particulate matter new source standard, it is premised on the same general rulemaking record. It is thus reasonable to view the date EPA ''first proposes'' standards to be the May 2009 date. Further, industry commenters essentially advocate an approach whereby any time the Agency changes a new source standard, in any way, on reconsideration, the new source trigger date would change. Such a result is not consistent with Congress' intent in defining the term ''new source'' in section 112(a)(4), to be the date the Agency ''first proposes'' standards. Furthermore, EPA notes that the new source standards finalized today are ones that will be met, in our view, using the same or similar control technologies as would be used to meet the standards issued in May 2010, and commenters have not disputed this conclusion. See 77 FR 42387.

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

A. What are the affected sources?

As noted in the proposed 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 this final rule, and that approximately 5 of those facilities are new greenfield facilities. All these facilities will operate 156 cement kilns and associated clinker coolers. Of these kilns, 23 are CISWI kilns. These 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 PM, mercury, HCl and THC, and 7 kilns and clinker coolers subject to the amended NSPS for nitrogen oxide and SO_2. Some of these new kilns will be built at existing facilities and some at new greenfield facilities.

B. How did the EPA evaluate the impacts of these amendments?

For these final amendments, we determined whether additional control measures, work practices and monitoring requirements would be required by cement manufacturing facilities to comply with the amended rules, incremental to the 2010 final standards (since any other comparison would result in double counting). 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 any of the additional measures in order to comply with these final amendments. Using this approach, we assessed potential impacts from the proposed revisions.

These final amendments to the 2010 rule are expected to result in lower costs for the Portland cement industry. The final amendment to the PM standard affords alternative, less costly compliance opportunities for existing sources. See section V.D above. 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, for instance). 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. There are also potential cost savings associated with the amended oHAP alternative standard (which now may be a viable compliance alternative for some sources since issues of reliable analytic measurement have been resolved). Following proposal, industry submitted kiln specific information on likely changes in compliance strategy resulting from the proposed amendments so that we are now better able to estimate potential savings resulting from the final amendments. Based on an industry survey of 18 Portland cement facilities (20 kilns) after proposal (see Docket item EPA–HQ–OAR–2011–0817–0505, Appendix D), it appears that the amendments may have the following effects, which may result in savings in capital and annual costs associated with implementing control technologies for these pollutants:

- Regenerative thermal oxidizers (RTO) may not need to be installed due to the amended oHAP alternative.
- Carbon injection rates may be lowered or not required for THC control.
- Existing PM controls (ESP and baghouse) may not need to be replaced, but may instead be upgraded.
- Additional PM controls may not have to be implemented.
- Polishing and hybrid filter configurations may be implemented instead of total replacements.

There are also certain costs, and cost savings, associated with other provisions of the final amendments. There may be a difference in costs of stack testing for PM and use of a CPMS, rather than use of a PM CEMS. In addition, there are cost savings when changing from a PM CEMS compliance demonstration to a CPMS demonstration. For example as part of the PS 11 calibration requirements, a minimum of 15 Method 5 test runs are required to develop a correlation curve, with no limit to the maximum number of test runs. Omitting the need for these multiple test runs will save the facility a minimum of $20,000 per kiln (each Method 5 test costs $5,000). At a savings of $20,000 per kiln, nationwide savings for 133 new and existing kilns, would be $2.7 million per year. However, the CPMS is the same type of device as a PM CEMS, so the capital cost of the CPMS would not be significantly different than the CEMS device.

The final revisions to the alternative organic HAP standard (from 9 ppm to 12 ppm, reflecting the analytic method practical quantitation limit) would allow more sources to select this compliance alternative and demonstrate compliance without needing to install

very expensive and energy-intensive RTO. In addition, providing parametric monitoring flexibilities (not present in the 2010 final rule) will provide lower costs for the better-performing sources in the industry. See section IV.B above. We have quantified these savings (see Final Portland Cement Reconsideration Technical Support Document, December 20, 2012, Section 3).

The revisions to the standard for open clinker storage piles codify current fugitive dust control measures already required by most states, so no impacts are expected. These final standards would be significantly less expensive than the controls for open piles in the 2010 final rule, which required enclosures in all instances. We estimate that the savings to industry over the 2010 rule will be $8.25 million annually. See Final Portland Cement Reconsideration Technical Support Document, December 20, 2012, in this rulemaking docket.

We have estimated the additional industry cost associated with the affirmative defense to civil penalties provisions. We estimate the additional cost is $3,258 per year for the entire industry. See Supporting Statement in the docket.

One of the final revisions would allow sources that control HCl with dry scrubbers to use periodic performance testing and parametric monitoring rather than monitoring compliance with an HCl CEMS. This will provide those sources with additional flexibility in complying with the HCl standard.

The 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 revision.

The amendments provide for work practices rather than numerical standards during periods of startup and shutdown. The work practice standards reflect common industry practices, so there should be no costs associated with them. There should also be substantial savings associated with the work practices.

At an annual cost of about $51,000 per year ($22,800 per Method 30B test for mercury + $8,000 per year for Method 25A test for THC + $20,000 per year for Method 321 test for HCl), the final 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 revisions would make existing kilns that undergo a modification, as defined by NSPS, subject to a PM standard of 0.07 lb/ton clinker, 3-run average. There may be less costly compliance alternatives under the amended standard, similar to alternatives available under the amended existing source NESHAP for PM.

C. What are the air quality impacts?

In these final amendments, emission limits for mercury, THC and HCl are unchanged from the 2010 rule. Thus, there is no change in emissions from the 2010 rule for these HAP and HAP surrogates. The alternative HAP organic standard is being amended to 12 ppm, which is the analytic method practical quantitation limit based on the performance test method detection limit of 4 ppm. The impact on emission levels due to this change is not clear since measuring below the quantitation limit does not yield a value with enough certainty to represent the actual level. Thus, a measurement below 12 ppm could very well actually be 12 ppm or something less. For PM, the limit for existing sources changes from 0.04 lb/ton clinker 30-day average to 0.07 lb/ton clinker based on stack testing. The PM limit for new sources also changed: To 0.02 lb/ton clinker stack test from 0.01 lb/ton clinker 30-day average. The final changes in the PM standards, while not significant in absolute terms, may result in a small increase in total nationwide emissions by allowing slightly more variability, although, as noted at proposal, we estimate that design values will be essentially identical under the 2010 and this final standard. 77 FR 42389. 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. As a practical matter, plants operate to comply with this lower average emissions level (the so-called design level), rather than the emissions limit, so that on those days where there is normal operating variability they do not exceed the emissions limit. See 77 FR 42386–87. Under the 2010 rule, the average PM emissions from the existing floor kilns were 0.02296 lb/ton clinker. Under the amended standard, 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 as 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 this final rule of 0.00359 lb/ton clinker compared to the 2010 rule, nationwide emissions of PM would increase by 138 tons per year ($0.00359 \times 76{,}664{,}662/2000$). Thus, the EPA estimates that the main effect of this final 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. Nonetheless, as explained in section V.D above, this change does allow for changes in compliance strategies in the form of types, sizes and sequencing of treatment trains.

Emission reductions under the 2010 rule and this final rule, in 2015, are compared in Table 4.

TABLE 4—COMPARISON OF NATIONWIDE PM EMISSIONS FROM 2010 RULE TO FINAL RULE IN 2015

	Kiln type	2010 rule	Final 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 (CISWI kilns removed) (tons/yr).		11,433	11,433	NA
Nationwide emissions reduction (tons/yr)	Total	10,540	10,402	−138

One commenter noted that the compliance extension will result in two additional years of HAP emissions at pre-standard levels, noting especially the emission of PM, noting further that fine PM ($PM_{2.5}$) is causally associated with mortality and serious morbidity effects at a population level. See, e.g., 77 FR 38909 (June 29, 2012). We note first that these rules are technology-based, not risk-based, and that there are compelling reasons to amend the PM standard and to establish new compliance dates for existing sources as a result of technological limitations with the 2010 rule PM standard, and the new compliance opportunities afforded as a result of the amendment to that standard. See section V.D above. We also question the commenter's premise that all of the predicted emission reductions and benefits would accrue if the existing source CEM-based PM standards took effect in September 2013. As explained at length in section V.A above and in other comment responses, PM CEMS would not reliably measure the level of the PM standard in many instances. One cannot assume the full range of emission reductions (and consequent health benefits) would accrue in the real world if the emission measurements themselves are uncertain. Thus, in a meaningful sense, today's amendments result in a regime where the required emission reductions will be reliably measured, so that the rule's health benefits will reliably occur.

D. What are the water quality impacts?

At proposal, we believed that none of the amendments being proposed would have significant impacts on water quality and that to the extent that the revision affecting dry caustic scrubbers encourages their use, some reduction in water consumption may occur although we had no information upon which to base a quantified estimate. We received no comments questioning this assessment. Further, in reviewing the industry survey information on the impacts of the proposed changes, only 1 of the 20 kilns for which information was provided was considering the addition of a wet scrubber, although it was also evaluating a dry scrubber (see docket item EPA–HQ–OAR–2011–0817–0505, Appendix D, kiln S). Therefore, we continue to believe that these final amendments will not significantly impact water quality.

E. What are the solid waste impacts?

None of the amendments being finalized with this final rule are expected to have any solid waste impacts.[18]

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 amendments. Because we are finalizing revisions that slightly reduce the stringency of the existing source emission limits for PM from the promulgated 2010 limits, we project that some facilities will 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. The survey results discussed in section V.D above confirm the EPA's engineering judgment. Other facilities in the survey that were not able to meet the THC limit or the alternative organic HAP limit in the 2010 rule were considering the installation of RTO. Because some of these facilities may now meet the limit without the installation of an RTO, we have estimated a reduction of 24,702 tons per year less CO_2 emissions being emitted to the atmosphere (equivalent to 2 less RTO's being installed). As a result of the organic HAP limit being revised from 9 ppm to 12 ppm, these sources responded that they now had other less costly alternatives. The additional compliance time was also cited as a factor that would gives sources the additional time they needed to consider other HAP control alternatives to RTO. As the industry survey highlights, 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. In general, this survey indicates that the combination of the revised limits for PM and organic HAP as well as the September 2015 compliance date will give sources the opportunity to develop less costly and less aggressive compliance strategies. We do not have enough information to quantify the impact of overall secondary impacts, (with the exception of the CO_2 reductions noted above), but we believe the impacts would in fact be reduced relative to the 2010 rule since less energy is expected to be needed for facilities that can retain and upgrade their current controls, instead of for example, installing additional controls in series.

G. What are the energy impacts?

As discussed in the preceding section, because of the final revisions to the PM emission limits, the organic HAP limits and the compliance date extension, some facilities will develop more cost effective and less energy intensive compliance strategies. For three of the facilities (five kilns) that were part of the industry survey, all five kilns required significant changes to meet the 2010 THC standard, in part because they were not pursuing the alternative organic HAP alternative standard due to analytic measurement uncertainties. See docket item EPA–HQ–OAR–2011–0817–0505, Appendix D (kilns A, C and D, and F and G). Prior to the proposed revisions, all five of the kilns were considering RTO as a control option as well as other options including catalytic ceramic filtration, a relatively new technology and as yet, not completely demonstrated technology for the cement industry. In response to the survey of what changes, if any, the facilities would make in response to the proposed revisions, all three facilities indicated that the amended organic HAP limit or the September 2015 compliance date allowed them to consider the use of less capital intensive alternatives and to continue testing alternatives for THC reduction other than the highly energy-intensive RTO for the five kilns involved. Although we cannot accurately predict for the entire industry the extent to which these site-specific compliance strategies may affect energy demands, the industry survey results indicate a trend toward less energy intensive strategies than RTO, and as noted above, we predict a reduction in CO_2 emissions due to less energy use as a result of two fewer kilns installing RTOs.

H. What are the cost impacts?

Under the cost scenario discussed above, we estimate that there could be savings of approximately $52 million associated with alternative compliance strategies for meeting amended PM standards, making corresponding adjustments in compliance strategies for the organic HAP and requiring work practice for open clinker storage piles. Table 5 summarizes the costs and emissions reductions of this final action.

[18] Although dust shuttling is likely to be one element of mercury compliance strategy, the amount of dust shuttling would not increase incremental to the 2010 final rule since the standards for new and existing sources are the same in the 2010 final rule and these amendments. Moreover, as explained in section V.B above, even with respect to the high mercury feed source, dust shuttling entails moving dust from within the kiln to other parts of the process and is considered a closed loop process, thereby not causing any waste impacts.

TABLE 5—SUMMARY OF THE COSTS AND EMISSION REDUCTIONS OF THE FINAL AMENDMENTS TO THE PORTLAND CEMENT MANUFACTURING INDUSTRY NESHAP RELATIVE TO THE 2010 RULE [a b c d e]

Proposed amendment	Annualized cost	PM emissions reduction 2010 rule	PM emissions reduction 2012 rule	Emission change tpy
Revised PM, oHAP standard	($42.2 million) [f]	10,540 tons	10,402 tons	138 increase.
Replace PM CEMS with PM CPMS	($2.7 million)	0.		
Coal Mill Testing	$1.3 million	0.		
Open clinker storage pile work practices	($8.25 million)	0.		
Total	($51.85 million).			

[a] Parentheses indicate cost savings. All costs are in 2005 dollars.
[b] We also estimate that there will be a one-time cost of $25,000 for each facility to revise their operation and maintenance plan to include procedures to minimize emissions during periods of startup and shutdown.
[c] Emissions reductions are the total once full compliance is achieved in 2015.
[d] Full compliance costs will not occur until September 9, 2015.
[e] Note emission reductions published in the 2010 rule included CISWI kilns, but the reductions in this table reflect reductions since CISWI kilns were removed from the database.
[f] Includes cost savings due to revised PM standard.

The cost information in Table 5 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.

With regard to the coal mill monitoring requirements in this action, sources with integral coal mills that exhaust through a separate exhaust would potentially incur a capital cost of $36,000 to install a continuous flow meter. The annualized cost of a flow meter is $11,000. Because this final rule allows the use of maximum design flow rate instead of installing flow meters, we believe that most facilities will take advantage of this and will not incur these costs. Annual testing at these coal mills for mercury, THC and HCl will cost about $51,000 ($22,800 per Method 30B test for mercury + $8,000 per year for Method 25A test for THC + $20,000 per year for Method 321 test for HCl). Using information supplied by the industry (see docket item EPA–HQ–OAR–2011–0817–0612), approximately 26 facilities would be affected by these requirements for an annual cost of $1.3 million. Costs for coal mills to meet the PM limits for this NESHAP are not included, since all equipment and monitoring are in place to meet requirements of Subpart Y and thus are not considered additional costs.

With the final change to PM CPMS instead of CEMS, it is estimated that the elimination of the PS correlation tests will result in a savings of $20,000 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).[19] When adequate data and resources are available and a regulatory impact analysis (RIA) is required, the EPA generally quantifies several health effects associated with exposure to $PM_{2.5}$ (e.g., U.S. EPA, 2011).[20] 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).

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.[21] 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. HCl has not been classified for carcinogenic effects.[22]

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 National

[19] 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*.

[20] 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*.

[21] 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*.

[22] 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*.

Academy of Science (NAS) Study was issued which provides a thorough review of the effects of MeHg on human health (National Research Council (NRC), 2000).[23] 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 NAS found neurodevelopmental effects to be the most sensitive and best documented endpoints and appropriate for establishing an oral reference dose (RfD) (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 Study[24] 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.[25] 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 immune activity or an autoimmune response (ATSDR, 1999), evidence for immunotoxic effects of MeHg is limited (NRC, 2000).[26]

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 Integrated Risk Information System (IRIS) (U.S. EPA, 2002).[27] [28] 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 Office of Management and Budget (OMB) for review under Executive Orders 12866 and 13563 (76 3821, January 21, 2011) and any changes made in response to OMB recommendations have been documented in the docket for this action. An RIA was prepared for the September 2010 final rule and can be found at: *http://www.epa.gov/ttn/ecas/regdata/RIAs/portlandcementfinalria.pdf. http://www.epa.gov/ttn/ecas/regdata/RIAs/portlandcementfinalria.pdf.*

B. Paperwork Reduction Act

The information collection requirements in this final 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 1801.11 for the NESHAP; there are no additional recordkeeping and reporting requirements for the NSPS. The information requirements are based on notification, recordkeeping and reporting requirements in the NESHAP

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

[24] 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.*

[25] 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.

[26] 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.

[27] 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.*

[28] 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).

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 finalizing new paperwork requirements for the Portland Cement Manufacturing source category in the form of a requirement to incorporate work practices for periods of startup and shutdown and fugitive dust control measures for clinker piles into their existing operations and maintenance plan.

This final rule also includes new paperwork requirements for recordkeeping of malfunctions, as described in 40 CFR 63.454(g) (conducted in support of the affirmative defense provisions, as described in 40 CFR 63.456).

When a malfunction occurs, sources must report the event according to the applicable reporting requirements of 40 CFR part 63, subpart LLL. An affirmative defense to civil penalties for violations of emission limits that are caused by malfunctions is available to a source if it can demonstrate that certain criteria and requirements are satisfied. The criteria ensure that the affirmative defense is available only where the event that causes a violation of the emission limit meets the narrow definition of malfunction in 40 CFR 63.2 (sudden, infrequent, not reasonable preventable and not caused by poor maintenance and or careless operation) and where the source took necessary actions to minimize emissions. In addition, the source must meet certain notification and reporting requirements. For example, the source must prepare a written root cause analysis and submit a written report to the Administrator documenting that it has met the conditions and requirements for assertion of the affirmative defense.

The EPA is adding the paperwork and recordkeeping associated with the affirmative defense to civil penalties for malfunctions 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 the ICR that 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 $3,258, 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 a violation 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 violations caused by malfunctions would result in the source choosing to assert the affirmative defense. Thus, we expect the number of instances in which source operators might be expected to avail themselves of the affirmative defense will be extremely small. For this reason, we estimate no more than two such occurrences per year for all sources subject to subpart LLL over the 3-year period covered by this ICR. We expect to gather information on such events in the future and will revise this estimate as better information becomes available.

We estimate 86 facilities will be subject to all final standards. The remaining 14 facilities will only be subject to the open clinker pile standards in this action. The annual monitoring, reporting and recordkeeping cost for this source (averaged over the first three years after the effective date of the standards) for these amendments to subpart LLL is estimated to be $352,814 per year for the industry. 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 requirements for open clinker storage piles. The total burden to the federal government (averaged over the first three years after the effective date of the standard) as a result of these amendments 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.

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 based on the size definition for the affected NAICS code (327310), 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 and comprise 3 plants. After considering the economic impacts of this final 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 these amendments to the 2010 final 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 open clinker storage piles in their title V permits).

Although this final rule will not have a significant economic impact on a substantial number of small entities, the EPA nonetheless adopted amendments which should reduce the impact of this final rule on small entities. For example, we are expanding the provision that allows periodic HCl performance tests as an alternative to HCl CEMS for sources equipped with wet scrubbers to also apply to those sources that use dry scrubbers. This final rule also adds an option for sources using wet or dry scrubbers for HCl control to use SO_2 as a monitored parameter. If these sources already have a CEMS for SO_2, then this will provide operational flexibility.

D. Unfunded Mandates Reform Act

This rule does not contain a Federal mandate that may result in expenditures of $100 million or more for State, local and tribal governments, in the aggregate, or the private sector in any one year. As discussed earlier in this preamble, there is an actual savings to the industry of $52 million per year. Thus, this final rule is not subject to the requirements of section 202 and 205 of the UMRA. This final action is also not subject to the requirements of section 203 of the UMRA because it contains no regulatory requirements that might significantly or uniquely affect small governments. This final action contains no requirements that apply to such governments, imposes no obligations upon them, and will not result in expenditures by them of $100 million or more in any one year or any disproportionate impacts on them.

E. Executive Order 13132: Federalism

This final 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.

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

This action may have tribal implications, as specified in Executive Order 13175 (65 FR 67249, November 9, 2000). The EPA is aware of one tribally owned Portland cement facility currently subject to subpart LLL and that will be subject to this final rule. The provisions of this final rule are not expected to impose new substantial direct compliance costs on Tribal governments since the same control technologies that are necessary under the current NESHAP will be needed to meet the final emissions limits. The EPA has tried to reduce the impact of this final rule on Tribal owned facilities. For example, we are expanding the provision that allows periodic HCl performance tests as an alternative to HCl CEMS for sources equipped with wet scrubbers to also apply to those sources that use dry sorbent injection (i.e., dry scrubbing systems). This final rule adds an option for sources using wet or dry scrubbers for HCl control to use SO_2 as a monitored parameter. If these sources already have a CEMS for SO_2, then this will provide operational flexibility.

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 final 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 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 final 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 (See docket item 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 final rule will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it increases the level of environmental protection for all affected populations without having any disproportionately high and adverse human health or environmental effects on any population, including any minority or low-income populations. In addition, the full benefits of this final rule will not result until 2015 due to the final amended compliance date but 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.

K. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801, *et seq.,* as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that, before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the

Congress and to the Comptroller General of the United States. The EPA will submit a report containing this final rule and other required information to the U.S. Senate, the U.S. House of Representatives and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. A major rule cannot take effect until 60 days after it is published in the **Federal Register**. This action is not a ''major rule'' as defined by 5 U.S.C. 804(2). This final rule will be effective on February 12, 2013.

List of Subjects in 40 CFR Part 63

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

Dated: December 20, 2012.

Lisa P. Jackson,

Administrator.

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

PART 60—[AMENDED]

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

Authority: 23 U.S.C. 101; 42 U.S.C. 7401–7671q.

Subpart F—[AMENDED]

■ 2. 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.

* * * * *

■ 3. Section 60.62 is amended by:
■ a. Removing and reserving paragraph (a)(1)(i), revising paragraph (a)(1)(ii) and adding paragraph (a)(1)(iii);
■ b. Removing and reserving paragraph (a)(2);
■ c. Revising paragraphs (b)(1)(i) and (ii);
■ d. Removing paragraph (b)(2);
■ e. Redesignating paragraphs (b)(3) and (4) as (b)(2) and (3);
■ f. Revising newly designated paragraph (b)(3); and
■ g. Revising paragraph (d).

The revisions read as follows:

§ 60.62 Standards.

(a) * * *

(1) * * *

(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.

* * * * *

(b) * * *

(1) * * *

(i) 0.02 pound per ton of clinker if construction or reconstruction of the clinker cooler commences after June 16, 2008.

(ii) 0.07 pound per ton of clinker if the clinker cooler has undergone a modification.

* * * * *

(3) If the kiln has a separated alkali bypass stack and/or an inline coal mill with a separate stack, you must combine the PM emissions from the bypass stack and/or the inline coal mill stack with the PM emissions from the main kiln exhaust to determine total PM emissions.

* * * * *

(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.

■ 4. Section 60.63 is amended by:
■ a. Revising paragraphs (b)(1)(i) and (ii);
■ b. Adding paragraph (b)(1)(iii);
■ c. Revising paragraphs (b)(2) and (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 (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) introductory text and (i)(1)(i).

The revisions and addition 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. You will conduct your performance test using Method 5 or Method 5I at appendix A–3 to part 60 of this chapter. You must also 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. If your PM performance test demonstrates your PM emission levels to be below 75 percent of your emission limit you will use the average PM CPMS value recorded during the PM compliance test, the milliamp equivalent of zero output from your PM CPMS, and the average PM result of your compliance test to establish your operating limit equivalent to 75 percent of the standard. If your PM compliance test demonstrates your PM emission levels to be at or above 75 percent of your emission limit you will use the average PM CPMS value recorded during the PM compliance test demonstrating compliance with the PM limit to establish your operating limit. 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.

(i) Your PM CPMS must provide a 4–20 milliamp output and the establishment of its relationship to manual reference method measurements must be determined in units of milliamps.

(ii) Your PM CPMS operating range must be capable of reading PM concentrations from zero to a level equivalent to two times your allowable emission limit. If your PM CPMS is an auto-ranging instrument capable of multiple scales, the primary range of the instrument must be capable of reading PM concentration from zero to a level equivalent to two times your allowable emission limit.

(iii) During the initial performance test or any such subsequent performance test that demonstrates compliance with the PM limit, record and average all milliamp output values from the PM CPMS for the periods corresponding to the compliance test runs (e.g., average all your PM CPMS output values for three corresponding 2-hour Method 5I test runs).

(3) Determine your operating limit as specified in paragraphs (c)(4)(i) through (c)(5) of this section. If your PM performance test demonstrates your PM emission levels to be below 75 percent of your emission limit you will use the average PM CPMS value recorded during the PM compliance test, the milliamp equivalent of zero output from your PM CPMS, and the average PM result of your compliance test to establish your operating limit. If your PM compliance test demonstrates your PM emission levels to be at or above 75 percent of your emission limit you will use the average PM CPMS value recorded during the PM compliance test to establish your operating limit. You must verify an existing or establish a new operating limit after each repeated performance test. You must repeat the performance test at least annually and reassess and adjust the site-specific operating limit in accordance with the results of the performance test.

(4) If the average of your three Method 5 or 5I compliance test runs are below 75 percent of your PM emission limit, you must calculate an operating limit by establishing a relationship of PM CPMS signal to PM concentration using the PM CPMS instrument zero, the average PM CPMS values corresponding to the three compliance test runs, and the average PM concentration from the Method 5 or 5I compliance test with the procedures in (c)(4)(i)(A) through (D) of this section.

(i) Determine your PM CPMS instrument zero output with one of the following procedures.

(A) Zero point data for in-situ instruments should be obtained by removing the instrument from the stack and monitoring ambient air on a test bench.

(B) Zero point data for extractive instruments should be obtained by removing the extractive probe from the stack and drawing in clean ambient air.

(C) The zero point can also can be obtained by performing manual reference method measurements when the flue gas is free of PM emissions or contains very low PM concentrations (e.g., when your process is not operating, but the fans are operating or your source is combusting only natural gas) and plotting these with the compliance data to find the zero intercept.

(D) If none of the steps in paragraphs (c)(4)(i)(A) through (C) of this section are possible, you must use a zero output value provided by the manufacturer.

(ii) Determine your PM CPMS instrument average in milliamps, and the average of your corresponding three PM compliance test runs, using equation 1.

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

Where:

X1 = The PM CPMS data points for the three runs constituting the performance test,

Y1 = The PM concentration value for the three runs constituting the performance test, and

n = The number of data points.

(iii) With your PM CPMS instrument zero expressed in milliamps, your three run average PM CPMS milliamp value, and your three run average PM concentration from your three PM performance test runs, determine a relationship of lb/ton-clinker per milliamp with equation 2.

$$R = \frac{Y_1}{(X_1 - z)} \qquad \text{(Eq. 2)}$$

Where:

R = The relative lb/ton clinker per milliamp for your PM CPMS.

Y1 = The three run average PM lb/ton clinker.

X1 = The three run average milliamp output from you PM CPMS.

z = the milliamp equivalent of your instrument zero determined from (c)(4)(i) of this section.

(iv) Determine your source specific 30-day rolling average operating limit using the lb/ton-clinker per milliamp value from Equation 2 above in Equation 3, below. This sets your operating limit at the PM CPMS output value corresponding to 75 percent of your emission limit.

$$O_l = z + (0.75(L)) / R \qquad \text{(Eq. 3)}$$

Where:

O_l = The operating limit for your PM CPMS on a 30-day rolling average, in milliamps.

L = Your source emission limit expressed in lb/ton clinker.

z = Your instrument zero in milliamps, determined from (1)(i).

R = The relative lb/ton-clinker per milliamp for your PM CPMS, from Equation 2.

(5) If the average of your three PM compliance test runs is at or above 75 percent of your PM emission limit you must determine your operating limit by averaging the PM CPMS milliamp output corresponding to your three PM performance test runs that demonstrate compliance with the emission limit using Equation 4.

$$O_h = \frac{1}{n}\sum_{i=1}^{n} X_1 \qquad \text{(Eq. 4)}$$

Where:

X1 = The PM CPMS data points for all runs i.

n = The number of data points.

O_h = Your site specific operating limit, in milliamps.

(6) To determine continuous compliance, you must record the PM CPMS output data for all periods when the process is operating, and use all the PM CPMS data for calculations when the source 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 (milliamps) on a 30 operating day rolling average basis, updated at the end of each new kiln operating day. Use Equation 5 to determine the 30 kiln operating day average.

$$30\text{kiln operating day average} = \frac{\sum_{i=1}^{n} Hpv_i}{n} \qquad \text{(Eq. 5)}$$

Where:

Hpvi = The hourly parameter value for hour i.

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

(7) Use EPA Method 5 or Method 5I of appendix A to part 60 of this chapter to determine PM emissions. For each performance test, conduct at least 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 consecutive runs to determine compliance. You need not determine the particulate matter collected in the impingers (''back half'') of the Method 5 or Method 5I particulate sampling train to demonstrate compliance with the PM standards of this subpart. This shall not preclude the permitting authority from requiring a determination of the ''back half'' for other purposes.

(8) For PM performance test reports used to set a PM CPMS operating limit, the electronic submission of the test report must also include the make and model of the PM CPMS instrument, serial number of the instrument, analytical principle of the instrument (e.g. beta attenuation), span of the instruments primary analytical range, milliamp value equivalent to the instrument zero output, technique by which this zero value was determined, and the average milliamp signals corresponding to each PM compliance test run.

(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 SO_2 emissions into the atmosphere for any kiln subject to the SO_2 emissions limit in § 60.62(a)(4). If you are complying with the alternative 90 percent SO_2 emissions reduction emissions limit, you must also continuously monitor and record the concentration by volume of SO_2 present at the wet scrubber inlet.

(f) The NO_X and SO_2 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 SO_2 CEMS monitor is the SO_2 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 SO_2 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 SO_2 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 (iii) and (b)(1)(i) and (ii), the NO_X emissions limit in § 60.62(a)(3), or the SO_2 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 SO_2 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.* To 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 § 60.13(3)(i). 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);

* * * * *

■ 5. Section 60.64 is revised 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)(1)You must demonstrate compliance with the PM standards in § 60.62 using EPA method 5 or method 5I.

(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 subject to the 10 percent opacity limit must follow the appropriate monitoring procedures in § 63.1350(f), (m)(1)through (4), (10) and (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 SO_2 according to the procedures in paragraphs (c)(1) and (2) of this section.

(1) Calculate the rolling 30 kiln operating day average emissions according to equation 6:

$$E_{30D} = k \frac{\sum_{i=1}^{n} C_i Q_i}{P} \qquad \text{(Eq. 6)}$$

Where:

E_{30D} = 30 kiln operating day average emission rate of NO_X or SO_2, lb/ton of clinker.

C_i = Concentration of NO_X or SO_2 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 = 30 days of clinker production during the same time period as the NO_X or SO_2 emissions measured, tons.

k = Conversion factor, 1.194×10^{-7} for NO_X and 1.660×10^{-7} for SO_2, lb/scf/ppm.

n = Number of kiln operating hours over 30 kiln operating days.

(2) 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) (*http://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, flash drive or other commonly used electronic storage media to the EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAPQS/CORE CBI Office, Attention: 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 CBI, to the delegated authority in the format specified by the delegated authority. For any performance test conducted using test methods that are not listed on the ERT Web site, you must submit the results of the performance test to the Administrator at the appropriate address listed in § 63.13.

(2) Within 60 days after the date of completing each CEMS performance evaluation test as defined in § 63.2, you must submit relative accuracy test audit (RATA) data to the EPA's CDX by using CEDRI in accordance with paragraph (d)(1) of this section. Only RATA pollutants that can be documented with the ERT (as listed on the ERT Web site) are subject to this requirement. For any performance evaluations with no corresponding RATA pollutants listed on the ERT Web site, you must submit the results of the performance evaluation to the Administrator at the appropriate address listed in § 63.13.

(3) For PM performance test reports used to set a PM CPMS operating limit, the electronic submission of the test report must also include the make and model of the PM CPMS instrument, serial number of the instrument, analytical principle of the instrument (e.g. beta attenuation), span of the instruments primary analytical range, milliamp value equivalent to the instrument zero output, technique by which this zero value was determined, and the average milliamp signals corresponding to each PM compliance test run.

(4) 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.

■ 6. 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) through (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) through (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.

■ 7. 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—NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR SOURCE CATEGORIES

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

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

Subpart LLL—[Amended]

■ 9. Section 63.1340 is amended by revising paragraphs (b)(1), (b)(6) through (9), and (c) to read as follows:

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

* * * * *

(b) * * *:

(1) Each kiln including alkali bypasses and inline coal mills, except for kilns that burn hazardous waste and are subject to and regulated under subpart EEE of this part;

* * * * *

(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.

* * * * *

■ 10. Section 63.1341 is amended by:

■ a. Removing definitions of ''Enclosed storage pile,'' and ''Inactive clinker pile'';

■ b. Adding a definition for ''In-line coal mill,'' ''Open clinker storage pile,'' ''Startup,'' and ''Shutdown'' in alphabetical order; and

■ c. Revising definitions for ''Kiln,'' ''New source,'' ''Operating day,'' ''Raw material dryer,'' and ''Total organic HAP,''.

The additions and revisions read as follows:

§ 63.1341 Definitions.

* * * * *

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 or reconstruction 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 a clinker storage pile on the ground for more than three days 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.

* * * * *

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

* * * * *

Startup means the time from when a shutdown kiln first begins firing fuel until it begins producing clinker. Startup begins when a shutdown kiln turns on the induced draft fan and begins firing fuel in the main burner. Startup ends when feed is being continuously introduced into the kiln for at least 120 minutes or when the feed rate exceeds 60 percent of the kiln design limitation rate, whichever occurs first.

* * * * *

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 [1] or a combination of these methods, as appropriate. 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.

* * * * *

■ 11. 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 storage piles?

(a) *General.* The provisions in this section apply to each kiln and any alkali bypass associated with that kiln, clinker cooler, raw material dryer, and open clinker storage pile. 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.

[1] 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 percent R must be 70 percent ≥ R ≤ 130 percent; and (4) The percent R value for each compound must be reported in the test report and all field measurements corrected with the calculated percent R value for that compound using the following equation: Reported Result = The measured concentration in the stack divided by the calculated percent R value and then the whole term multiplied by 100.

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 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 (TEQ)	7 percent.
				Mercury 55	lb/MM tons clinker	NA.
				THC [3 4] 24	ppmvd	7 percent.
2.	Existing kiln	Normal operation	Major source	HCl 3	ppmvd	7 percent.
3.	Existing kiln	Startup and shutdown.	Major or area source	Work practices (63.1346(f))	NA	NA.
4.	New kiln	Normal operation	Major or area source	PM 0.02	lb/ton clinker	NA.
				D/F [2] 0.2	ng/dscm (TEQ)	7 percent.
				Mercury 21	lb/MM tons clinker	NA
				THC [3 4] 24	ppmvd	7 percent.
5.	New kiln	Normal operation	Major source	HCl 3	ppmvd	7 percent.
6.	New kiln	Startup and shutdown.	Major or area source	Work practices (63.1346(f))	NA	NA.
7.	Existing clinker cooler.	Normal operation	Major or area source	PM 0.07	lb/ton clinker	NA.
8.	Existing clinker cooler.	Startup and shutdown.	Major or area source	Work practices (63.1348(b)(9))	NA	NA.
9.	New clinker cooler	Normal operation	Major or area source	PM 0.02	lb/ton clinker	NA.
10.	New clinker cooler	Startup and shutdown.	Major or area source	Work practices (63.1348(b)(9))	NA	NA.
11.	Existing or new raw material dryer.	Normal operation	Major or area source	THC [3 4] 24	ppmvd	NA.
12.	Existing or new raw material dryer.	Startup and shutdown.	Major or area source	Work practices (63.1348(b)(9))	NA	NA.
13.	Existing or new raw or finish mill.	All operating modes	Major source	Opacity 10	percent	NA.

[1] The initial and subsequent PM performance tests are performed using Method 5 or 5I and consist of three 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 0.40 ng/dscm (TEQ).
[3] Measured as propane.
[4] Any source subject to the 24 ppmvd THC limit may elect to meet an alternative limit of 12 ppmvd for total organic HAP.

(2) When there is an alkali bypass and/or an inline coal mill with a separate stack associated with a kiln, the combined PM emissions from the kiln and the alkali bypass stack and/or the inline coal mill stack are subject to the PM emissions limit. Existing kilns that combine the clinker cooler exhaust and/or coal mill exhaust with the kiln exhaust 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 ton feed per ton 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 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 ton feed per ton 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 storage pile.* The owner or operator of an open clinker storage 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) through

(3) of this section. The operation and maintenance plan must also describe the measures that will be used to minimize fugitive dust emissions from piles of clinker, such as accidental spillage, that are not part of open clinker storage piles.

(1) The operation and maintenance plan must identify and describe the location of each current or future open clinker storage pile and 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, use of a wind barrier, compaction, use of tarpaulin or other equally effective cover or use of a vegetative cover. You 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.

(3) Temporary piles of clinker that result from accidental spillage or clinker storage cleaning operations must be cleaned up within 3 days.

(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.

■ 12. Section 63.1344 is revised to read as follows:

§ 63.1344 Affirmative Defense for Violation of Emission Standards During Malfunction.

In response to an action to enforce the standards set forth in § 63.1343(b) and (c) and § 63.1345 and 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 if you fail to meet your burden of proving all of the requirements in the affirmative defense. The affirmative defense shall not be available for claims for injunctive relief.

(a) *Assertion of affirmative defense.* To establish the affirmative defense in any action to enforce such a standard, you must timely meet the reporting 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 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; 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) All of the 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 practices 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 first periodic compliance, 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 emission report is due less than 45 days after the initial occurrence of the violation, the affirmative defense report may be included in the second compliance, deviation report or excess emission report due after the initial occurrence of the violation of the relevant standard.

■ 13. Section 63.1345 is revised to read as follows:

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

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.

■ 14. Section 63.1346 is amended by:

■ a. Revising paragraph (a) introductory text;

■ b. Revising paragraph (a)(1);

■ c. Revising paragraphs (c) through (f); and

■ d. Adding paragraph (g)

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 and 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 for D/F control, you must operate the sorbent injection system in accordance with paragraphs (c)(1) and (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 is in compliance with a mercury emissions limit specified in § 63.1343, this paragraph no longer applies.

(g) During periods of startup and shutdown you must meet the requirements listed in (g)(1) through (4) of this section.

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

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

(3) All air pollution control devices must be turned on and operating prior to combusting any fuel.

(4) You must keep records as specified in § 63.1355 during periods of startup and shutdown.

■ 15. 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 operations and maintenance plan must address periods of startup and shutdown;

* * * * *

■ 16. Section 63.1348 is amended by:

■ a. Revising paragraphs (a) introductory text and (a)(1) and (2);

■ b. Adding two sentences to paragraph (a)(3)(i);

■ c. Revising paragraph (a)(3)(ii);

■ d. Revising paragraphs (a)(3)(iii) and (iv);

■ e. Revising paragraphs (a)(4) through (8);

■ f. Revising paragraph (b); and

■ g. Revising paragraph (c)(2)(iv).

The revisions and additions read as follows:

§ 63.1348 Compliance requirements.

(a) *Initial Performance Test Requirements.* For an affected source subject to this subpart, you must demonstrate compliance with the emissions standards and operating limits by using the test methods and procedures in §§ 63.1349 and 63.7. Any cement kiln that has been subject to the requirements of subpart CCCC or subpart DDDD of 40 CFR Part 60, and is now electing to cease burning nonhazardous solid waste and become subject to this subpart, must meet all the initial compliance testing requirements each time it becomes subject to this subpart, even if it was previously subject to this subpart.

NOTE to paragraph (a): The first day of the 30 operating day performance test is the first day after the compliance date 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. The source has the option of performing the compliance test earlier then the compliance date if desired.

(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) * * *

(i) * * * 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 TEQ concentration for each run and calculate the arithmetic average of the TEQ 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).

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

(4)(i) *THC Compliance.* 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.

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

(iii) If you are demonstrating initial compliance, you must conduct the separate performance tests as specified in § 63.1349(b)(7) while the raw mill of the inline kiln/raw mill is operating and while the raw mill of the inline kiln/raw mill is not operating.

(iv) The average total organic HAP concentration measured during the separate initial performance test specified by § 63.1349(b)(7) must be used to determine initial compliance.

(v) The average THC concentration measured during the initial performance test specified by § 63.1349(b)(4) must be used to determine the site-specific THC limit. Using the fraction of time the inline kiln/raw mill is on and the fraction of time that the inline kiln/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 using one of the two approaches in § 63.1349(b)(7)(vii) or (viii) depending on the level of organic HAP measured during the compliance test.

(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 or sorbent trap monitoring system after the compliance date of this rule.

(i) 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 monitoring system 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.

(ii) For example, a sorbent trap monitoring system 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 may 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 establish 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 values obtained during the first 30 kiln operating days that occur after the compliance date of this rule to determine initial compliance.

(7) *Commingled Exhaust Requirements.* If the coal mill exhaust is commingled with kiln exhaust in a single stack, you may demonstrate compliance with the kiln emission limits by either:

(i) Performing required emissions monitoring and testing on the commingled coal mill and kiln exhaust, or

(ii) Perform required emission monitoring and testing of the kiln exhaust prior to the reintroduction of the coal mill exhaust, and also testing the kiln exhaust diverted to the coal mill. All emissions must be added together for all emission points, and must not exceed the limit per each pollutant as listed in S63.1343(b).

(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 startup and shutdown, 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 mercury emissions (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 of § 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) THC must be measured either upstream of the coal mill or in the coal mill stack.

(7) Mercury Compliance. (i) 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 monitoring system 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 day 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 trap 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).

(ii) Mercury must be measured either upstream of the coal mill or in the coal mill stack.

(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 may demonstrate compliance using the monitoring methods and procedures in § 63.1350(l)(2).

(iii) HCl may be measured either upstream of the coal mill or in the coal mill stack.

(iv) As an alternative to paragraph (b)(8)(ii) of this section, you may use an SO_2 CEMS to establish an SO_2 operating level during your initial and repeat HCl performance tests and monitor the SO_2 level using the procedures in § 63.1350(l)(3).

(9) Startup and Shutdown Compliance. In order to demonstrate continuous compliance during startup and shutdown, all air pollution control devices must be operating.

(c) * * *

(2) * * *

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

* * * * *

■ 17. Section 63.1349 is amended by:

■ a. Revising paragraph (a) introductory text;

■ b. Revising paragraph (b)(1);

■ c. Revising paragraph (b)(3) introductory text;

■ d. Revising paragraphs (b)(3)(v) and (vi);

■ e. Revising paragraphs (b)(4), (5), and (6);

■ f. Adding paragraph (b)(7) and (8); and

■ g. Revising paragraphs (c), (d)(1) introductory text, (d)(1)(ii), (d)(2), and (e).

The revisions and additions 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 (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. For purposes of determining exhaust gas flow rate to the atmosphere from an alkali bypass stack or a coal mill stack, you must either install, operate, calibrate and maintain an instrument for continuously measuring and recording the exhaust gas flow rate according to the requirements in paragraphs § 63.1350(n)(1) through (10) of this subpart or use the maximum design exhaust gas flow rate. For purposes of determining the combined emissions from kilns equipped with an alkali bypass or that exhaust kiln gases to a coal mill that exhausts through a separate stack, instead of installing a CEMS on the alkali bypass stack or coal mill stack, you may use the results of the initial and subsequent performance test to demonstrate compliance with the relevant emissions limit.

* * * * *

(b)(1) *PM emissions tests.* The owner or operator of a kiln subject to limitations on PM emissions shall demonstrate initial compliance by conducting a performance test using Method 5 or Method 5I at appendix A–3 to part 60 of this chapter. You must

also monitor continuous performance through use of a PM continuous parametric monitoring system (PM CPMS).

(i) For your PM CPMS, you will establish a site-specific operating limit. If your PM performance test demonstrates your PM emission levels to be below 75 percent of your emission limit you will use the average PM CPMS value recorded during the PM compliance test, the milliamp equivalent of zero output from your PM CPMS, and the average PM result of your compliance test to establish your operating limit. If your PM compliance test demonstrates your PM emission levels to be at or above 75 percent of your emission limit you will use the average PM CPMS value recorded during the PM compliance test to establish your operating limit. 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.

(A) Your PM CPMS must provide a 4–20 milliamp output and the establishment of its relationship to manual reference method measurements must be determined in units of milliamps.

(B) Your PM CPMS operating range must be capable of reading PM concentrations from zero to a level equivalent to three times your allowable emission limit. If your PM CPMS is an auto-ranging instrument capable of multiple scales, the primary range of the instrument must be capable of reading PM concentration from zero to a level equivalent to three times your allowable emission limit.

(C) During the initial performance test or any such subsequent performance test that demonstrates compliance with the PM limit, record and average all milliamp output values from the PM CPMS for the periods corresponding to the compliance test runs (e.g., average all your PM CPMS output values for three corresponding 2-hour Method 5I test runs).

(ii) Determine your operating limit as specified in paragraphs (b)(1)(iii) through (iv) of this section. If your PM performance test demonstrates your PM emission levels to be below 75 percent of your emission limit you will use the average PM CPMS value recorded during the PM compliance test, the milliamp equivalent of zero output from your PM CPMS, and the average PM result of your compliance test to establish your operating limit. If your PM compliance test demonstrates your PM emission levels to be at or above 75 percent of your emission limit you will use the average PM CPMS value recorded during the PM compliance test to establish your operating limit. You must verify an existing or establish a new operating limit after each repeated performance test. You must repeat the performance test at least annually and reassess and adjust the site-specific operating limit in accordance with the results of the performance test.

(iii) If the average of your three Method 5 or 5I compliance test runs is below 75 percent of your PM emission limit, you must calculate an operating limit by establishing a relationship of PM CPMS signal to PM concentration using the PM CPMS instrument zero, the average PM CPMS values corresponding to the three compliance test runs, and the average PM concentration from the Method 5 or 5I compliance test with the procedures in (a)(1)(iii)(A) through (D) of this section.

(A) Determine your PM CPMS instrument zero output with one of the following procedures.

(*1*) Zero point data for in-situ instruments should be obtained by removing the instrument from the stack and monitoring ambient air on a test bench.

(*2*) Zero point data for extractive instruments should be obtained by removing the extractive probe from the stack and drawing in clean ambient air.

(*3*) The zero point may also be established by performing manual reference method measurements when the flue gas is free of PM emissions or contains very low PM concentrations (e.g., when your process is not operating, but the fans are operating or your source is combusting only natural gas) and plotting these with the compliance data to find the zero intercept.

(*4*) If none of the steps in paragraphs (a)(1)(iii)(A)(*1*) through (*3*) of this section are possible, you must use a zero output value provided by the manufacturer.

(B) Determine your PM CPMS instrument average in milliamps, and the average of your corresponding three PM compliance test runs, using equation 3.

$$\bar{x} = \frac{1}{n}\sum_{i=1}^{n} X_1 \,, \bar{y} = \frac{1}{n}\sum_{i=1}^{n} Y_1 \qquad \text{(Eq. 3)}$$

Where:

X_1 = The PM CPMS data points for the three runs constituting the performance test.

Y_1 = The PM concentration value for the three runs constituting the performance test.

n = The number of data points.

(C) With your instrument zero expressed in milliamps, your three run average PM CPMS milliamp value, and your three run PM compliance test average, determine a relationship of lb/ton-clinker per milliamp with Equation 4.

$$R = \frac{Y_1}{(X_1 - z)} \qquad \text{(Eq. 4)}$$

Where:

R = The relative lb/ton-clinker per milliamp for your PM CPMS.

Y_1 = The three run average lb/ton-clinker PM concentration.

X_1 = The three run average milliamp output from you PM CPMS.

z = The milliamp equivalent of your instrument zero determined from (b)(1)(iii)(A).

(D) Determine your source specific 30-day rolling average operating limit using the lb/ton-clinker per milliamp value from Equation 4 in Equation 5, below. This sets your operating limit at the PM CPMS output value corresponding to 75 percent of your emission limit.

$$O_l = z + \frac{0.75(L)}{R} \quad \text{(Eq. 5)}$$

Where:

O_l = The operating limit for your PM CPMS on a 30-day rolling average, in milliamps.

L = Your source emission limit expressed in lb/ton clinker.

z = Your instrument zero in milliamps, determined from (1)(i).

R = The relative lb/ton-clinker per milliamp for your PM CPMS, from Equation 4.

(iv) If the average of your three PM compliance test runs is at or above 75 percent of your PM emission limit you must determine your operating limit by averaging the PM CPMS milliamp output corresponding to your three PM performance test runs that demonstrate compliance with the emission limit using Equation 6.

$$O_h = \frac{1}{n}\sum_{i=1}^{n} X_1 \quad \text{(Eq. 6)}$$

Where:

X_1 = The PM CPMS data points for all runs i.

n = The number of data points.

O_h = Your site specific operating limit, in milliamps.

(v) To determine continuous operating compliance, you must record the PM CPMS output data for all periods when the process is operating, and use all the PM CPMS data for calculations when the source 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 (milliamps) on a 30 operating day rolling average basis, updated at the end of each new kiln operating day. Use Equation 7 to determine the 30 kiln operating day average.

$$30\text{kiln operating day} = \frac{\sum_{i=1}^{n} Hpv_i}{n} \quad \text{(Eq. 7)}$$

Where:

Hpvi = The hourly parameter value for hour i.

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

(vi) For each performance test, conduct at least three separate test runs under the conditions that exist when the affected source is operating at the 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 consecutive runs, including applicable sources as required by (D)(viii), to determine compliance. You need not determine the particulate matter collected in the impingers (''back half'') of the Method 5 or Method 5I particulate sampling train to demonstrate compliance with the PM standards of this subpart. This shall not preclude the permitting authority from requiring a determination of the ''back half'' for other purposes.

(vii) For PM performance test reports used to set a PM CPMS operating limit, the electronic submission of the test report must also include the make and model of the PM CPMS instrument, serial number of the instrument, analytical principle of the instrument (e.g. beta attenuation), span of the instruments primary analytical range, milliamp value equivalent to the instrument zero output, technique by which this zero value was determined, and the average milliamp signals corresponding to each PM compliance test run.

(viii) When there is an alkali bypass and/or an inline coal mill with a separate stack associated with a kiln, the main exhaust and alkali bypass and/or inline coal mill must be tested simultaneously and the combined emission rate of PM from the kiln and alkali bypass and/or inline coal mill must be computed for each run using Equation 8 of this section.

$$E_c = \frac{E_K + E_B + E_C}{P} \quad \text{(Eq. 8)}$$

Where:

E_C = Combined hourly emission rate of PM from the kiln and bypass stack and/or inline coal mill, 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.

E_C = Hourly PM emissions from the inline coal mill stack, lb.

P = Hourly clinker production, tons.

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

(ii) 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).

(iii) 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 9:

$$Cks = \frac{(MACT\ Limit \times (Qab + Qcm + Qks)) - (Qab \times Cab) - (Qcm \times Ccm)}{Qks} \quad ((Eq.\ 9)$$

Where:

Cks = Kiln stack concentration (ppmvd).
Qab = Alkali bypass flow rate (volume/hr).
Cab = Alkali bypass concentration (ppmvd).
Qcm = Coal mill flow rate (volume/hr).
Ccm = Coal mill concentration (ppmvd).
Qks = Kiln stack flow rate (volume/hr).

(iv) THC must be measured either upstream of the coal mill or the coal mill stack.

(v) Instead of conducting the performance test specified in paragraph (b)(4)of this section, you may conduct a performance test to determine emissions of total organic HAP by following the procedures in paragraphs (b)(7) of this section.

(5) *Mercury Emissions Tests.* If you are subject to limitations on mercury emissions, you must operate a mercury CEMS or a sorbent trap monitoring system 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 or a sorbent trap monitoring system 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 Equation 10 of this section:

$$E_{30D} = k \frac{\sum_{i=1}^{n} C_i Q_i}{P} \quad (Eq.\ 10)$$

Where:

E_{30D} = 30-day rolling emission rate of mercury, lb/MM tons clinker.
C_i = Concentration of mercury for operating hour i, µg/scm.
Q_i = Volumetric flow rate of effluent gas for operating hour i, where C_i and Q_i 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.
P = 30 days of clinker production during the same time period as the mercury emissions measured, million tons.

(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). For kilns with inline raw mills, testing should be conducted for the raw mill on and raw mill off conditions.

(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 (b)(6)(i)(B) of this section, 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 11:

$$Cks = \frac{(MACT\ Limit \times (Qab + Qcm + Qks)) - (Qab \times Cab) - (Qcm \times Ccm)}{Qks} \quad \text{(Eq. 11)}$$

Where:

Cks = Kiln stack concentration (ppmvd).
Qab = Alkali bypass flow rate (volume/hr).
Cab = Alkali bypass concentration (ppmvd).
Qcm = Coal mill flow rate (volume/hr).
Ccm = Coal mill concentration (ppmvd).
Qks = Kiln stack flow rate (volume/hr).

(7) *Total Organic HAP Emissions Tests.* Instead of conducting the performance test specified in paragraph (a)(4) of this section, you may conduct a performance test to determine emissions of total organic HAP by following the procedures in paragraphs (a)(7)(i) through (v) of this section.

(i) 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.

(ii) 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 THC CEMS in accordance with the requirements of § 63.1350(j). The duration of the performance test must be at least 3 hours and the average THC concentration (as calculated from the 1-minute averages) during the 3-hour test must be calculated. You must establish your THC operating limit and determine compliance with it according to paragraphs (a)(7)(vii)through (viii)of this section. It is permissible to extend the testing time of the organic HAP performance test if you believe extended testing is required to adequately capture THC variability over time.

(iii) If your source has an in-line kiln/raw mill you must use the fraction of time the raw mill is on and the fraction of time that the raw mill is off and calculate this limit as a weighted average of the THC levels measured during raw mill on and raw mill off testing.

(iv) If your organic HAP emissions are below 75 percent of the organic HAP standard and you determine your operating limit with paragraph (b)(7)(vii) of this section your THC CEMS must be calibrated and operated on a measurement scale no greater than 180 ppmvw, as carbon, or 60 ppmvw as propane.

(v) Your THC CEMS measurement scale must be capable of reading THC concentrations from zero to a level equivalent to two times your highest THC emissions average determined during your performance test, including mill on or mill off operation. **Note:** This may require the use of a dual range instrument to meet this requirement and paragraph (b)(7)(iv) of this section.

(vi) Determine your operating limit as specified in paragraphs (a)(7)(vii) and (viii) of this section. If your organic HAP performance test demonstrates your average organic HAP emission levels are below 75 percent of your emission limit (9 ppmv) you will use the average THC value recorded during the organic HAP performance test, and the average total organic HAP result of your performance test to establish your operating limit. If your organic HAP compliance test results demonstrate your average organic HAP emission levels are at or above 75 percent of your emission limit, your operating limit is established as the average THC value recorded during the organic HAP performance test. You must establish a new operating limit after each performance test. You must repeat the performance test no later than 30 months following your last performance test and reassess and adjust the site-specific operating limit in accordance with the results of the performance test.

(vii) If the average organic HAP results for your three Method 18 and/or Method 320 performance test runs are below 75 percent of your organic HAP emission limit, you must calculate an operating limit by establishing a relationship of THC CEMS signal to the organic HAP concentration using the average THC CEMS value corresponding to the three organic HAP compliance test runs and the average organic HAP total concentration from the Method 18 and/or Method 320 performance test runs with the procedures in (a)(7)(vii)(A) and (B) of this section.

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

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

Where:

$\bar{x}$ = The THC CEMS average values in ppmvw.
Xi= The THC CEMS data points for all three runs i.
Yi= The sum of organic HAP concentrations for test runs i. and
n = The number of data points.

(B) You must use your three run average THC CEMS value, and your three run average organic HAP concentration from your three Method 18 and/or Method 320 compliance tests to determine the operating limit. Use equation 13 to determine your operating limit in units of ppmvw THC, as propane.

$$T_l = \left(\frac{9}{\bar{Y}_1}\right) * X_1 \quad \text{(Eq. 13)}$$

Where:

T_l = The 30-day operating limit for your THC CEMS, ppmvw.

Y_1 = The average organic HAP concentration from Eq. 12, ppmv.

X_1 = The average THC CEMS concentration from Eq. 12, ppmvw.

(viii) If the average of your three organic HAP performance test runs is at or above 75 percent of your organic HAP emission limit, you must determine your operating limit using Equation 14 by averaging the THC CEMS output values corresponding to your three organic HAP performance test runs that demonstrate compliance with the emission limit. If your new THC CEMS value is below your current operating limit, you may opt to retain your current operating limit, but you must still submit all performance test and THC CEMS data according to the reporting requirements in paragraph (d)(1) of this section.

$$T_h = \frac{1}{n}\sum_{i=1}^{n} X_1 , \qquad \text{(Eq. 14)}$$

Where:

X1 = The THC CEMS data points for all runs i.

Y1 = The organic HAP total value for runs i.

n = The number of data points.

T_h = Your site specific operating limit, in ppmvw THC.

(ix) If your kiln has an inline kiln/raw mill, you must conduct separate performance tests while the raw mill is operating (''mill on'') and while the raw mill is not operating (''mill off''). Using the fraction of time the raw mill is on and the fraction of time that the raw mill is off, calculate this limit as a weighted average of the THC levels measured during raw mill on and raw mill off compliance testing with Equation 15.

$$R=(y*t)+(x*(1-t)) \qquad \text{(Eq.15)}$$

Where:

R = Operating limit as THC, ppmvw.

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

t = Percentage of operating time with mill on.

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

(1-t) = Percentage of operating time with mill off.

(x) To determine continuous compliance with the THC operating limit, you must record the THC CEMS output data for all periods when the process is operating and the THC CEMS is not out-of-control. You must demonstrate continuous compliance by using all quality-assured hourly average data collected by the THC CEMS for all operating hours to calculate the arithmetic average operating parameter in units of the operating limit (ppmvw) on a 30 operating day rolling average basis, updated at the end of each new kiln operating day. Use Equation 16 to determine the 30 kiln operating day average.

$$30\text{kiln operating day} = \frac{\sum_{i=1}^{n} Hpv_i}{n} \qquad \text{(Eq. 16)}$$

Where:

Hpvi = The hourly parameter value for hour i, ppmvw.

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

(xi) Use EPA Method 18 or Method 320 of appendix A to part 60 of this chapter to determine organic HAP emissions. For each performance test, conduct at least 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. If your source has an in-line kiln/raw mill you must conduct three separate test runs with the raw mill on, and 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 with the mill off. Conduct each Method 18 test run to collect a minimum target sample equivalent to three times the method detection limit. Calculate the average of the results from three runs to determine compliance.

(xii) 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.

(8) HCl Emissions Tests with SO_2 Monitoring. If you choose to monitor SO_2 emissions using a CEMS to demonstrate HCl compliance, follow the procedures in (b)(8)(i) through (ix) of this section and in accordance with the requirements of § 63.1350(l)(3). You must establish an SO_2 operating limit equal to the average of the SO_2 emissions recorded during the HCl stack test. This operating limit will apply only for demonstrating HCl compliance.

(i) Use Method 321 of appendix A to this part to determine emissions of HCl. 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 one hour.

(ii) At the same time that you are conducting the performance test for HCl, you must also determine a site-specific SO_2 emissions limit by

operating an SO_2 CEMS in accordance with the requirements of § 63.1350(l). The duration of the performance test must be three hours and the average SO_2 concentration (as calculated from the 1-minute averages) during the 3-hour test must be calculated. You must establish your SO_2 operating limit and determine compliance with it according to paragraphs (b)(8)(vii) and (viii)of this section.

(iii) If your source has an in-line kiln/raw mill you must use the fraction of time the raw mill is on and the fraction of time that the raw mill is off and calculate this limit as a weighted average of the SO_2 levels measured during raw mill on and raw mill off testing.

(iv) Your SO_2 CEMS must be calibrated and operated according to the requirements of § 60.63(f).

(v) Your SO_2 CEMS measurement scale must be capable of reading SO_2 concentrations consistent with the requirements of § 60.63(f), including mill on or mill off operation.

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

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

Where:

R = Operating limit as SO_2, ppmvw.
y = Average SO_2 CEMS value during mill on operations, ppmvw.
t = Percentage of operating time with mill on, expressed as a decimal.
x = Average SO_2 CEMS value during mill off operations, ppmvw.
t − 1 = Percentage of operating time with mill off, expressed as a decimal.

(vii) To determine continuous compliance with the SO_2 operating limit, you must record the SO_2 CEMS output data for all periods when the process is operating and the SO_2 CEMS is not out-of-control. You must demonstrate continuous compliance by using all quality-assured hourly average data collected by the SO_2 CEMS for all operating hours to calculate the arithmetic average operating parameter in units of the operating limit (ppmvw) on a 30 operating day rolling average basis, updated at the end of each new kiln operating day. Use Equation 18 to determine the 30 kiln operating day average.

$$30\text{kiln operating day} = \frac{\sum_{i=1}^{n} Hpv_i}{n} \qquad \text{(Eq. 18)}$$

Where:

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

(viii) Use EPA Method 321 of appendix A to part 60 of this chapter to determine HCl emissions. For each performance test, conduct at least 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. If your source has an in-line kiln/raw mill you must conduct three separate test runs with the raw mill on, and 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 with the mill off.

(ix) If the SO_2 level exceeds by 10 percent or more your site-specific SO_2 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 SO_2 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 HCl limit and to verify or re-establish your site-specific SO_2 emissions limit.

(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, organic HAP 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 are repeated every 12 months.

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

* * * * *

(ii) The values for the site-specific operating limits or parameters established pursuant to paragraphs (b)(1), (3), (6), and (7) 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.

■ 18. Section 63.1350 is amended by:
■ a. Revising paragraphs (a) through (d);
■ b. Revising paragraph (f) introductory text;

■ c. Revising paragraphs (f)(1)(iv) through (f)(1)(vi);
■ d. Revising paragraphs (f)(2)(i) and (f)(2)(iii);
■ e. Revising paragraphs (f)(3) and (f)(4);
■ f. Revising paragraph (g)(1) introductory text;
■ g. Revising paragraphs (g)(2) and (g)(4);
■ h. Revising paragraph (h)(1)(ii);
■ i. Revising paragraphs (i)(1) and (i)(2);
■ j. Revising paragraph (k);
■ k. Revising paragraph (l);
■ l. Revising paragraph (m) introductory text;
■ m. Revising paragraphs (m)(3) and (m)(7)(i);
■ n. Revising introductory text for paragraphs (m)(9) and (m) (10);
■ o. Revising paragraph (m)(10)(i) through (m)(10)(vii), and paragraph (m)(11)(v);
■ p. Revising introductory text for paragraphs (n), (o), and (p);
■ q. Removing and reserving paragraph (n)(3); and
■ r. Revising introductory text for paragraphs (p)(1), (p)(2), and (p)(5).

The revisions and additions 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 violation.

(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 or Method 5I 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 using the procedures in § 63.1349(b)(1) (i) through (vi) of this subpart. You must also repeat the test if you change the analytical range of the instrument, or if you replace the instrument itself or any principle analytical component of the instrument that would alter the relationship of output signal to in-stack PM concentration.

(ii) To determine continuous compliance, you must use 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 (milliamps) on a 30 operating day rolling average basis, updated at the end of each new kiln operating day.

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

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

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

(C) Within 30 days of the exceedance 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 PM CPMS operating limit within 45 days. You are not required to conduct additional testing for any exceedances that occur between the time of the original exceedance and the PM emissions compliance test required under this paragraph.

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

(2) [Reserved]

(c) [Reserved]

(d) *Clinker production monitoring requirements.* In order to determine clinker production, 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 hourly kiln feed and clinker production rates.

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

* * * * *

(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 (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 (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 minutes of opacity observations, recorded at 15-second intervals, 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) Any totally enclosed conveying system transfer point, regardless of the location of the transfer point is not required to conduct Method 22 visible emissions monitoring under this

paragraph. 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 (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 (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 three hours of process operation. See § 63.1349(b)(3).

* * * * *

(i) * * *

(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) 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 an integrated sorbent trap 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 (5) of this section. You must also develop an emissions monitoring plan in accordance with paragraphs (p)(1) through (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 and may be rounded up to the nearest multiple of 5 μg/m^3 of total mercury or higher level if necessary to include Hg concentrations which may occur (excluding concentrations during in-line raw ''mill off'' operation). 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. Engineering judgments made and calculations used to determine the corresponding span concentration from the emission standard shall be documented in the site-specific monitoring plan and associated records.

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

(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/m^3 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) Quality assure any data above the span value established in paragraph (k)(1) of this section using the following procedure. Any time two consecutive one-hour average measured concentration of Hg exceeds the span value you must, within 24 hours before or after, introduce a higher, ''above span'' Hg reference gas standard to the Hg CEMS. The ''above span'' reference gas must meet the requirements of PS 12A, Section 7.1, must be of a concentration level between 50 and 150 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 or following the ''above span'' calibration for reporting based on the Hg CEMS response to the reference gas as shown in equation 19:

$$\frac{\text{Certified reference gas value}}{\text{Measured value of reference gas}} \times \text{Measured stack gas result} = \text{Normalized stack gas result} \quad \text{(Eq. 19)}$$

Only one 'above span' calibration is needed per 24 hour period.

(3) You must operate and maintain each Hg CEMS or an integrated sorbent trap monitoring system according to the quality assurance requirements in Procedure 5 of appendix F to part 60 of this chapter. During the RATA of integrated sorbent trap monitoring systems required under Procedure 5, you may apply the appropriate exception for sorbent trap section 2 breakthrough in (k)(3)(i) through (iv) of this section:

(i) For stack Hg concentrations >1 μg/dscm, ≤10% of section 1 mass;

(ii) For stack Hg concentrations ≤1 μg/dscm and >0.5 μg/dscm, ≤20% of section 1 mass;

(iii) For stack Hg concentrations ≤0.5 μg/dscm and >0.1 μg/dscm, ≤50% of section 1 mass; and

(iv) For stack Hg concentrations ≤0.1 μg/dscm, no breakthrough criterion assuming all other QA/QC specifications are met.

(4) Relative accuracy testing of mercury monitoring systems under PS 12A, PS 12B, or Procedure 5 must be conducted at normal operating conditions. If a facility has an inline raw mill, the testing must occur with the raw mill on.

(5) If you use a Hg CEMS or an integrated 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 paragraphs (n)(1) through (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 (iv) of this section:

(i) Develop a mercury hourly mass emissions rate by conducting annual performance tests using Method 29, or Method 30B, to measure the concentration of mercury in the gases exhausted from the alkali bypass and coal mill.

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

(iii) 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.

(iv) 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 sorbent trap monitoring system conforming to PS 12B, you may use a monitoring period at least 24 hours but no longer than 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 (4) of this section or, if your kiln is controlled using a wet or dry scrubber or tray tower, you alternatively may parametrically monitor SO_2 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 (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 a HCl CEMS installed and certified under PS 15 according to the quality assurance requirements in Procedure 1 of appendix F to part 60 of this chapter except that the Relative Accuracy Test Audit requirements of Procedure 1 must be replaced with the validation requirements and criteria of sections 11.1.1 and 12.0 of PS 15. If you 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 (ii) of this section 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 inline raw ''mill on'' operation. The span value should be a concentration 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. Engineering judgments made and calculations used to determine the corresponding span concentration from the emission standard shall be documented in the site-specific monitoring plan and associated records.

(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 (B) of this section.

(A) Include a second span that encompasses the HCl 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 HCl. The requirements of the appropriate HCl monitor performance specification, shall be followed for this second span with the exception that a RATA with the mill off is not required.

(B) Quality assure any data above the span value established in paragraph (1)(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 between 50 and 100 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 shown in Equation 20:

$$\frac{\text{Certified reference gas value}}{\text{Measured value of reference gas}} \times \text{Measured stack gas result} = \text{Normalized stack gas result} \quad \text{(Eq. 20)}$$

Only one 'above span' calibration is needed per 24-hour period.

(2) Install, operate, and maintain a CMS to monitor wet scrubber or tray tower parameters, as specified in paragraphs (m)(5) and (7) of this section, and dry scrubber, as specified in paragraph (m)(9) of this section.

(3) If the source is equipped with a wet or dry scrubber or tray tower, and you choose to monitor SO_2 emissions, monitor SO_2 emissions continuously according to the requirements of § 60.63(e) through (f) of part 60 subpart F of this chapter. If SO_2 levels increase above the 30-day rolling average SO_2 operating limit established during your performance test, you must:

(i) As soon as possible but no later than 48 hours after you exceed the established SO_2 value conduct an inspection and take corrective action to return the SO_2 emissions to within the operating limit; and

(ii) Within 60 days of the exceedance or at the time of the next compliance test, whichever comes first, conduct an HCl emissions compliance test to determine compliance with the HCl emissions limit and to verify or re-establish the SO_2 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 (CPMS) 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 (11) that are applicable to you.

* * * * *

(3) Determine the 1-hour block average of all recorded readings.

* * * * *

(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.

* * * * *

(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 (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 (11) of this section for a period of 5 years, with at least the first 2 years on-site;

* * * * *

■ 19. Section 63.1351 is amended by revising paragraphs (c) and (d) and adding paragraph (e) to read as follows:

§ 63.1351 Compliance dates.

* * * * *

(c) The compliance date for existing sources for all the requirements that became effective on February 12, 2013, except for the open clinker pile requirements will be September 9, 2015.

(d) The compliance date for new sources is February 12, 2013, or startup, whichever is later.

(e) The compliance date for existing sources with the requirements for open clinker storage piles in § 63.1343(c) is February 12, 2014.

■ 20. 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.

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

§ 63.1353 Notification Requirements.

* * * * *

(b) * * *

(6) Within 48 hours of an exceedance 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(b) and 63.9(e) do not apply to retesting required for exceedances under this subpart.

■ 22. 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 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 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*). You must use the appropriate electronic reporting form in CEDRI or provide an alternate electronic file consistent with the 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 violation of an emissions standard or established operating parameter limit, the date, duration and description of each violation and the specific actions taken for each violation including inspections, corrective actions and repeat performance tests and the results of those actions.

* * * * *

(c) Reporting a failure to meet a standard due to a malfunction. For each failure to meet a standard or emissions limit caused by a malfunction at an affected source, you must report the failure in the semi-annual compliance report required by § 63.1354(b)(9). The report must contain the date, time and duration, and the cause of each event (including unknown cause, if applicable), and a sum of the number of events in the reporting period. The report must list for each event the affected source or equipment, an estimate of the 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.

■ 23. Section 63.1355 is amended by revising paragraphs (f) and (g)(1) and adding paragraph (h) to read as follows:

§ 63.1355 Recordkeeping Requirements.

* * * * *

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

(g)(1) You must keep records of 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 exceedance from an emissions standard or established operating parameter limit, you must keep records of the date, duration and description of each exceedance and the specific actions taken for each exceedance including inspections, corrective actions and repeat performance tests and the results of those actions.

■ 24. Section 63.1356 is revised 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.

■ 25. Section 63.1357 is amended by revising paragraphs (a)(1) and (2) to 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.

* * * * *

■ 26. Table 3 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 3—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	Your operations and maintenance plan must address periods of startup and shutdown. See § 63.1347(a)(1).
*	* *	*	* * *
63.7(b)	Notification period	Yes	Except for repeat performance test caused by an exceedance. See § 63.1353(b)(6)
*	* *	*	* * *
63.9(e)	Notification of performance test	Yes	Except for repeat performance test caused by an exceedance. See § 63.1353(b)(6)
*	* *	*	* * *

[FR Doc. 2012–31633 Filed 2–11–13; 8:45 am]

BILLING CODE 6560–50–P