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Portland Cement NESHAP and NSPS Reconsideration Final Rule

*Webinar: Summary of 2012 Rules and
Adjustments to Requirements*

January 10th, 2013

Overview

- ▶ Background
- ▶ Non-Hazardous Secondary Materials (NHSM) Rule
- ▶ Summary of Cement Reconsideration Final Rule
- ▶ Organic HAP/THC Compliance Demonstration
- ▶ PM Compliance Demonstration

Background

- ▶ EPA issued Portland Cement NESHAP and NSPS on September 9, 2010
- ▶ EPA received petitions for reconsideration and granted reconsideration on several issues
- ▶ On December 9, 2011, in *Portland Cement Association (PCA) v. EPA*, court remanded NESHAP back to EPA and stayed the clinker pile standards in NESHAP
 - ▶ Court found EPA failed to reconsider NESHAP to account for those cement kilns now being classified as CISWI units
- ▶ In 2012, EPA entered settlement agreement that requires signature of final rule by December 20, 2012
- ▶ On June 22, 2012, EPA issued Portland cement reconsideration proposal (published July 18, 2012)
- ▶ Agency issued final rule December 20, 2012
- ▶ Expect FR publication later in January 2013

Non-Hazardous Secondary Materials (NHSM) Rule

- ▶ NHSM rule clarifies which secondary materials are, or are not, solid wastes when burned in combustion units
- ▶ Final NHSM rule was part of Boiler/CISWI package
- ▶ All four rules were signed on December 20, 2012, giving facilities certainty about which rule applies to their kilns
- ▶ Why the NHSM rule is important:
 - ▶ Units that burn **solid waste** are subject to requirements under CAA section 129 solid waste incinerator regulations
 - ▶ Units that burn materials that **are not a solid waste** are subject to requirements under CAA section 112 regulations (MACT standard)
- ▶ Specific revisions include the following:
 - ▶ Clarifies three definitions: (1) “clean cellulosic biomass,” (2) “contaminants,” (3) “established tire collection programs,” and (4) “resinated wood”
 - ▶ Clarifies that certain materials are already within the scope of clean cellulosic biomass and thus can be combusted in units meeting CAA 112 standards (e.g., hogged fuel, wood pallets, wood pellets)

Summary of Cement Reconsideration Final Rules

- ▶ Rules retain emission limits for mercury, acid gases and total hydrocarbons from the 2010 rules.
- ▶ EPA revised MACT floors after removing CISWI kilns from database
 - ▶ Mercury (Hg) floor increased slightly (from 55 to 58 lb/MM tons clinker produced)
 - ▶ Hydrogen chloride (HCl) and total hydrocarbon (THC) floors did not change
 - ▶ Particulate matter (PM) floor increased slightly (from 0.04 to 0.05 lb/ton clinker produced)
- ▶ For mercury, set beyond-the-floor Hg limit, which was cost-effective
 - ▶ Lowered limit from 58 lb/MM tons clinker (the revised MACT floor) to 55 lb/MM tons clinker (same as in 2010 final rule)
- ▶ Set revised existing kiln and clinker cooler PM limit of 0.07 lb/ton clinker -- in conjunction with Method 5 stack test with continuous parametric monitoring system (CPMS) to demonstrate compliance
 - ▶ Averaging time changed from long-term (30 day) to short-term (about 3 hours) limit due to issues with PM continuous emission monitoring system (CEMS) at lower concentrations; this raised limit from revised floor of 0.05 to 0.07 lb/ton clinker
 - ▶ This change in averaging time also resulted in changing the PM limit for new sources to 0.02 lb/ton clinker

Summary of Cement Reconsideration Final Rules (cont'd)

- ▶ Set September 2015 existing source compliance date for all standards
- ▶ Set work practice standards for clinker piles in lieu of requiring enclosures and opacity limits
- ▶ Established work practice standards for startup and shutdown
 - ▶ Measurement for these events is not practicable, due to changing variables during kiln startups and shutdowns
- ▶ Emissions from coal mills that use kiln exhaust as part of the cement kiln are now included
 - ▶ Coal mills as integral parts of kiln had not been regulated previously under NESHAP
- ▶ Adjusted NSPS PM standard for modified (new, reconstructed) sources to be consistent with NESHAP PM standard for existing (new) sources
- ▶ The revised rules are expected to yield significant reductions of mercury, acid gases, particulate matter and total hydrocarbons.

Organic HAP/THC Compliance Demonstration

- ▶ Final rule retained the 2010 THC limit with THC CEMS for compliance demonstration
- ▶ Final rule retained the organic HAP limit alternative to the THC limit, which was changed from 9 ppmv to 12 ppmv (due to minimum detection issues)
- ▶ Final rule retained the use of THC monitoring as an operating parameter if a source opts to meet the organic HAP alternative limit but incorporated a scaling factor for the best performers.
 - ▶ Without some type of scaling factor, the best performers would be penalized
- ▶ THC operating parameter can be set at a level equivalent to 75% of the organic HAP limit.
 - ▶ Continuous compliance based on THC CEMS measurements
 - ▶ THC concentration is used as monitoring parameter
 - ▶ Example:
 - Facility stack test measures 5 ppmv. This value is below 75% of the 12 ppmv limit.
 - At the same time, the THC CEMS measures 30 ppmv.
 - The facility can ratio its THC operating parameter up to a corresponding HAP limit ($5 \text{ ppmv}(X) = 9 \text{ ppmv}(30 \text{ ppmv THC})$). $X = 54$.
 - 54 ppmv is the facility operating limit.
- ▶ Organic HAP must be retested every 30 months and the THC parameter reset at that time.

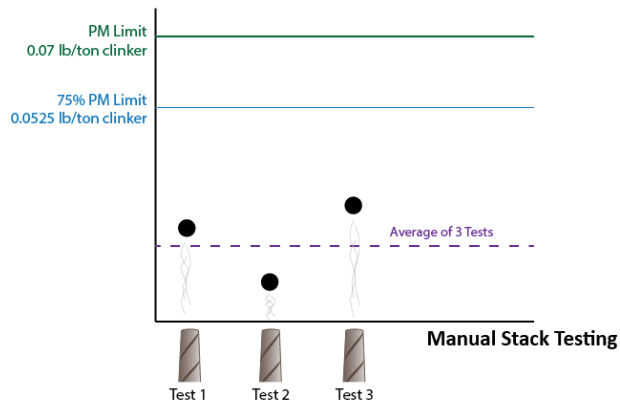
PM Compliance Demonstration

- ▶ PM compliance is now based on an annual three run Method 5 stack test (as opposed to a PM CEMS requirement in the 2010 rule)
- ▶ The annual compliance test also determines the sources operating limit,
- ▶ Sources must monitor continuously (with CPMS) to demonstrate compliance with the operating limit.
- ▶ The CPMS uses the same hardware as a PM CEMS, but the output is measured in milliamps
- ▶ The average of the milliamp readings over the method 5 test period sets the CPMS operating limit
- ▶ If the PM test results are below 0.0525 (75 percent of the PM limit), the milliamp reading can be scaled upward to a level that corresponds to the expected reading if the PM results were at the 0.0525 level; this provides more operating flexibility for the better performing kilns
 - ▶ Example:
 - Facility stack test measures .03 lb/ton clinker produced. This value is below 75% of the .07 lb/ton limit.
 - At the same time, the CPMS measures 6 milliamp, and the instrument zero reading is 4 milliamp.
 - Thus, Operating limit = $4 + .0525/((.03/6)-4)$. Operating limit is now 7.5 milliamps

Cement Kiln with Average PM Emissions **BELOW** the 75% PM Limit

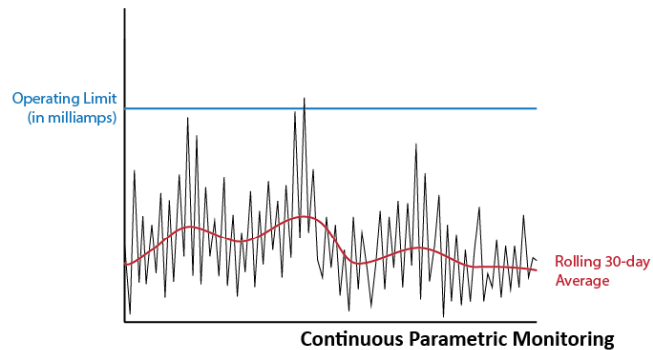
Step 1: Performance Testing

Facilities will conduct three manual stack tests to determine their average PM emissions. If the average of the three tests falls anywhere below 75% of the PM limit, then the facility's operating limit will be set to the PM CPMS (continuous parametric monitoring system) value that represents 75% of the PM emission limit (0.0525 lb/ton clinker).



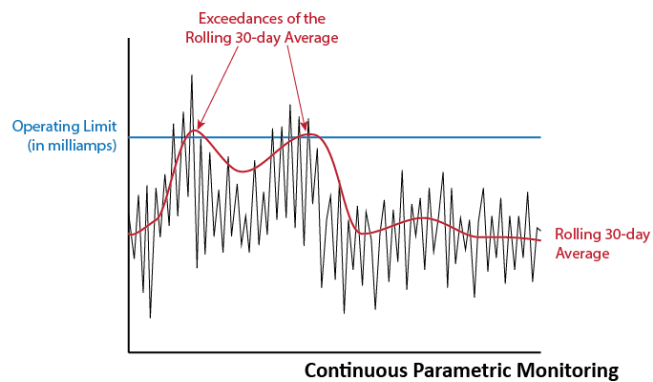
Step 2: Continuous Monitoring

Once the operating limit is established, facilities will then conduct continuous monitoring using the PM CPMS. Compliance is based on a 30-day rolling average. Individual milliamp values may exceed the operating limit provided that the 30-day rolling average remains below the operating limit.



Step 3: Corrective Action

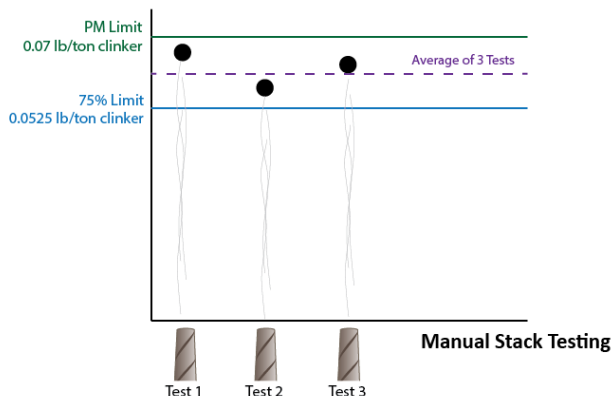
An exceedance is reported if the rolling 30-day average exceeds the operating limit, triggering corrective action. Within 45 days of the exceedance, facilities must conduct performance testing to prove they are in compliance and reset their parametric operating limit. Four or more exceedances above the operating limit are considered to be a violation of the emissions standard.



Cement Kiln with Average PM Emissions ABOVE the 75% PM Limit

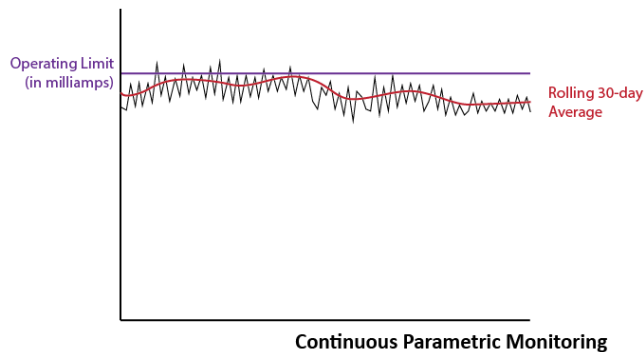
Step 1: Performance Testing

Facilities will conduct three manual stack tests to determine their average PM emissions. If the average of the three tests is at or above 75% of the PM emissions limit, then the facility's operating limit will be set to the average PM CPMS (continuous parametric monitoring system) value recorded during the three tests.



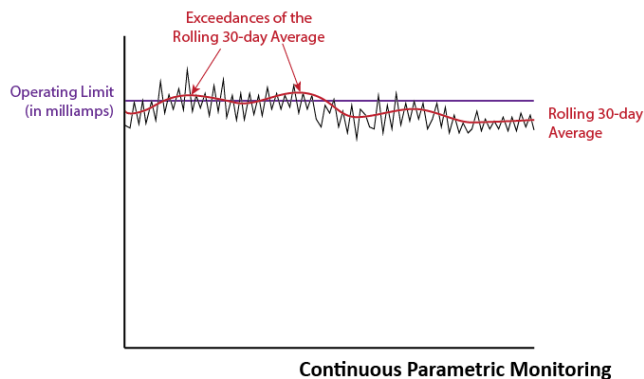
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Contact Information

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