Portland Cement Final MACT Standards

McIlvaine Cement MACT Webinar

September 16, 2010

Section 112 – MACT Standards

- MACT for new sources must be at least as stringent as the emission reduction achieved by the best performing similar source
- Existing source MACT standards must be at least as stringent as the emission reductions achieved by the average of the top 12 percent best controlled sources
- Setting a MACT standard is a two step process
  - The “MACT floor” is established based on what is currently achieved by sources – costs may not be considered
  - EPA may regulate “beyond the floor” where justified – costs and other issues must be considered
- In this action, only four standards were considered – HCl, Mercury, PM and THC

History of Portland Cement MACT

- 1999 – Promulgated MACT standards for Portland Cement Manufacturing.
- 2000 – D.C. Circuit Court remanded parts of the MACT standards for Portland Cement. EPA must set standards for HCl, mercury, and total hydrocarbons (THC).
- 2006 – Final response to remand, judicial review petitions were filed. Administrative petitions were also filed and we agreed to reconsider the final rule.
- May 2009 – Proposed MACT, numerical emissions limits for HCl, mercury, THC, and PM.
- August 6, 2010 Signature of final rule, publication on September 9

Changes Made to Final MACT Standards After Proposal

- Received numerous comments regarding our statistical approach used to establish emissions limits. We made appropriate changes in the statistical methods that more accurately quantify variability.
- Some of the raw materials data used to develop the mercury standard at proposal was not representative. Based on additional data the mercury standard was revised upward.
- Additional THC data received from industry during the comment period allowed us to more accurately determine variability of THC emissions and set a more representative MACT emissions limit
- Received additional HCl test data. However, the calculated HCl floor was below the HCl minimum quantification limit, so the minimum quantification limit was the basis of HCl MACT.
- The compliance method for particulate matter (PM)was changed from EPA Method 5 testing and use of bag leak detectors to the use of PM continuous emissions monitors and a 30 day rolling average.

MACT Limits in Proposed and Final Rule

Pollutant/Operating Mode	Proposed MACT	Final MACT
Mercury	Existing - 43 lb/MM tons clinker New – 14 lb/MM tons clinker	Existing - 55 lb/MM tons clinker New – 21 lb/MM tons clinker
Total Hydrocarbons	Existing – 7 ppmv New – 6 ppmv	Existing – 24 ppmv New – 24 ppmv
Organic HAP *	Existing – 2 ppmv New – 1 ppmv	Existing – 9 ppmv New – 9 ppmvd

* Alternative to the THC standard

MACT Limits in Proposed and Final Rule (Con't)

Pollutant/Operating Mode	Proposed MACT	Final MACT
HCl	Existing – 2 ppmv New – 0.1 ppmv	Existing – 3 ppmv New – 3 ppmv
PM*	Existing – 0.85 lb/ton clinker New – 0.80 lb/ton clinker	Existing – 0.04 lb/ton clinker New – 0.01 lb/ton clinker
Startup/Shutdown	Same as Normal Operation	Concentration based standard equivalent to normal operation with no oxygen correction

* Compliance for the proposed limits was based on a short term test. Compliance for the final limits is a 30 day rolling average.

Monitoring and Testing Requirements

- **Mercury**
  - Monitors meeting requirements of PS-12A or 12B
  - 30 day rolling average
- **THC**
  - THC CEMS meeting requirements of PS-8
  - 30 day rolling average
- **HCl**
  - If the facility has a wet scrubber, periodic compliance test using EPA Method 321
  - If no wet scrubber, continuous monitor meeting requirements of PS-15, 30 day rolling average
- **PM**
  - PM CEMS
  - 30 day rolling average

Available Control Techniques

Pollutant	Process Controls	Add-on Controls
HCl	Raw materials, moist limestone in raw mill	Lime Injection Limestone wet scrubber
	Finely divided lime in calciner, alkali in kiln	
THC, Organic HAP	Good combustion practices: Hot excess air, mixing, residence time	Regenerative thermal oxidation Activated carbon injection
	Raw material selection	
PM	Wet quarrying, process cyclones	Electrostatic precipitator (ESP) Fabric Filter
	Process cyclones	
Hg	Raw material and fuel selection Diversion of collected particulate to finish mill	Activated carbon injection Limestone wet scrubber