December 4, 2012

Draft Rule 9-10: NOx and CO from Boilers, Steam Generators and Process Heaters in Petroleum Refineries

Julian Elliot
Senior Air Quality Engineer
Overview

• Background
• Objective
• Alternative NOx Standard for Pre-1994 Heaters
• Non-CEMS Monitoring Provisions
• Errata
• Next Steps
Background

• Rule first adopted in 1994 and fully effective in 2002.
  - Average NOx limit for pre-1994 heaters relative to fuel use (0.033 lb NOx / MM BTU input).
  - Specific NOx limit for CO boilers (150 ppmv NOx).
  - Refinery heater NOx reduced ~65% 1994 through 2002.

• Rule amended in 2010.
  - No change to average NOx limit for pre-1994 heaters.
  - CO boiler NOx limits reduced effective 2015.
  - Unresolved comments regarding rule disincentives.
Objective of “Alternate NOx Compliance Plan” (ANCP):
Provide additional flexibility in achieving emission reduction goals of Reg 9-10 while minimizing cost-of-compliance.

- New heaters subject to BACT and offset requirements that are more stringent than Reg 9-10 requirements.
- ANCP allows replacement of pre-1994 heaters without triggering additional NOx controls on pre-1994 heaters.
Proposed Alternative NOx Standard

Elements of “Alternate NOx Compliance Plan”

Voluntary alternative to 0.033 lb/MM BTU limit in 9-10-301.

- ANCP replaces limit on NOx emission relative to fuel use with a NOx mass cap based on recent, actual emissions.
- Applies to same heaters currently subject to 9-10-301 with same exemptions.
- Once elected, refinery must remain subject to ANCP.
Elements of “Alternate NOx Compliance Plan”

Value of mass cap is sum of baseline emissions for each pre-1994 heater, expressed as a daily limit.

- Baseline emissions are calculated using “banking” procedure in Reg 2, Rule 2 (most recent 3-year period), with resulting annual average emission divided by 365.
- Value of mass cap is reduced whenever a heater that contributed to the cap is no longer subject to Reg 9-10 (reduction is equal to original contribution to cap).
Elements of “Alternate NOx Compliance Plan”

- If IERCs used to comply with 9-10-301 during baseline period OR if approved project requires NOx controls on pre-1994 heaters, mass cap is reduced by amount of IERCs applied or NOx controls required (ton/yr).
  - ERCs may be surrendered to mitigate this reduction at 1.15 to 1.0 ratio.

- All heaters subject to ANCP must have a CEMS within 18 months of ANCP approval.
Non-CEMS Monitoring Provisions

- Reg 9-10 heaters not equipped with Continuous Emissions Monitoring Systems (CEMS) are subject to some monitoring requirements in Reg 9-10 and others in their permit conditions, and these are inconsistent.

  - Reg 9-10 defines curtailed operation, which uses simplified monitoring, at $\leq 30\%$ of max firing rate, excluding startup and shutdown, while most permit conditions use $\leq 20\%$.

  - Reg 9-10 and permit conditions have different time limitations on the use curtailment monitoring.
Proposal includes two options for a curtailment definition:

• Option 1: Retain ≤ 30% criteria, but require either conventional burner emission factor or other, approved conservative emission factor.

• Option 2: Definition reverts to ≤ 20% criteria included in most Title V permits, with 5 consecutive-day and 60 day per calendar year limitations.
Errata

• **Section 9-10-204: Definition of CO Boiler.**
  Underline marks in this section are in error; this section is unchanged.

• **Section 9-10-308.1.2: Adjustment of NOx mass cap.**
  Reduction of NOx mass cap required for project that would require NOx controls to comply with 9-10-301:

  9-10-308.1.2 At a refinery with an [A/C], if the actions permitted in the [A/C] would require additional NOx IERC credits or additional NOx controls to comply with Section 9-10-301…
Next Steps

• Submit comments by January 11, 2013.
• Meetings as requested by interested parties.
• Revision of proposal
  – Final Proposal
  – Staff Report
  – Socioeconomic & CEQA analyses
• Public Hearing 1st quarter 2013
Contact Information

Julian Elliot
Senior Air Quality Engineer
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, California 94109

(415) 749-4705

ejelliot@baaqmd.gov