Oil and Natural Gas Sector
Air Regulations Update

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Overview

- Brief review of EPA's air regulatory authorities for this sector
- 2012 air regulations
- 2013 storage vessel amendments
- 2014 well completion amendments in progress
- White paper process
New Source Performance Standards (NSPS)

- Authority: section 111(b) of Clean Air Act (CAA)
- Primarily regulate criteria pollutants and precursors from new, modified and reconstructed sources
  - Ozone (via precursors VOC* and NOx*)
  - Sulfur dioxide
  - Nitrogen dioxide
  - Particulate matter
  - Carbon monoxide
  - Lead
- Concept -- NSPS must reflect “best system of emission reductions”
- Must be reviewed every 8 years to determine whether technology advances warrant updating the requirements

*Volatile organic compounds (VOC) and oxides of nitrogen (NOx)
Section 112 of the CAA requires EPA to control a specific list of air toxics from new and existing sources.

Pollutants of primary concern to oil and natural gas sector:
- benzene, toluene, ethylbenzene, mixed xylenes (BTEX)
- n-hexane

Concept -- technology-based standards that require what the best facilities are doing (maximum achievable control technology -- MACT)

Requires risk and technology review (RTR)
- One-time residual risk assessment 8 years after promulgation of MACT to determine if existing rule provides an ample margin of safety
- Technology review every 8 years to determine if technology advances warrant updating the requirements
Some Regulatory History

- **1985** - NSPS KKK (VOC) and LLL (SO$_2$) for gas processing plants
- **1999** - NESHAP HH for oil & natural gas production facilities
- **1999** - NESHAP HHH for natural gas transmission & storage facilities
- **2007** - Area source NESHAP HH for oil & natural gas production

- **08/23/11** - Proposed new NSPS OOOO and updated NESHAP HH & HHH
- **08/16/12** - Published final rules for OOOO, HH and HHH
- **10/15/12** - Received petitions for reconsideration of OOOO, HH and HHH
- **04/12/13** - Proposed storage vessel implementation amendments (NSPS 1)
- **09/23/13** - Published final storage vessel implementation amendments
- **07/17/14** - Proposed clarifications to well completion provisions (NSPS 1.5)
NSPS - Well Completions

► Applies to all hydraulically fractured gas wells, both new wells and existing wells that are fractured or refractured

► Beginning 1/1/15, the rule requires “green completions” for most wells

► Requires flaring in situations not meeting criteria for green completions (and where flaring is not a hazard)
  ▶ Wildcat and delineation wells
  ▶ Low pressure wells
  ▶ Wells completed from 10/15/12 to 12/31/14
NSPS - Pneumatic Controllers and Equipment Leaks

- Pneumatic controllers at oil & gas production facilities
  - Requires “low-bleed” controllers (gas bleed rate $\leq 6$ scfh)
  - Exempts critical applications requiring high-bleed, gas-actuated controllers due to functional requirements

- Pneumatic controllers at gas processing plants
  - Requires continuous bleed, natural gas-actuated controllers to have zero gas bleed rate

- Equipment leaks at gas processing plants
  - Upgrades leak detection and repair (LDAR) for gas processing plants to lower leak threshold (500 ppm vs. 10,000 ppm)
NSPS - Compressors and Storage Vessels

► Centrifugal Compressors
  ► Dry seal compressors not affected
  ► 95% control for wet seal compressors

► Reciprocating Compressors
  ► Requires replacement of rod packing
  ► 26,000 hours of operation or every 3 years, regardless of hours of operation

► Storage vessels
  ► 95% control for tanks ≥ 6 tpy VOC PTE
  ► First compliance date 10/15/13
  ► Reconsidered in 2013 (details later)
NSPS - 2013 Storage Vessel Amendments

► Clarified which tanks are subject to the rule

► Revised definition of “storage vessel” – based on tank contents
  • Crude oil
  • Condensate
  • Intermediate hydrocarbon liquids
  • Produced water

► Revised “affected facility” description – based on tank emissions
  • Storage vessels with potential to emit VOC ≥ 6 tpy
  • PTE takes into account any legally and practically enforceable permit or other limitation
  • PTE does not include any vapor recovered and routed to a process
Phases in control dates for storage vessels constructed since NSPS proposal

- **Group 1** (constructed between August 23, 2011 and April 12, 2013)
  - Estimate emissions by October 15, 2013 to determine “affected facility” (≥ 6 tpy)
  - Submit one-time notification with first annual report (were due by January 16, 2014)
  - Control by April 15, 2015

- **Group 2** (constructed after April 12, 2013)
  - Estimate emissions by April 15, 2014 or within 30 days of startup, whichever is later
  - Control by 60 days after startup

**Alternative emission limits**

- 95% control, or

- Limit uncontrolled emissions to <4 tpy
  - Uncontrolled emissions must be <4 tpy for at least 12 consecutive months
  - Must estimate emissions monthly
  - Allows controls to be removed and potentially reused at another location
  - If emissions reach 4 tpy, must apply 95% control
NSPS - Time-Critical Clarifications (NSPS 1.5)

► January 1, 2015 compliance date for reduced emissions completion (REC) requirement for most hydraulically fractured gas wells

► EPA previously provided clarification letter to American Petroleum Institute addressing several issues following the 2012 final NSPS

► On July 17, 2014, published proposed amendments to clarify requirements and to add definitions of key terms

► Public comment period closed August 18, 2014

► NSPS 1.5 final rule scheduled prior to January 1, 2015 compliance date
Highlights of NSPS 1.5 Proposal

► Provides additional detail on requirements of handling of gas and liquids during well completion operations

► Clarifies requirements for storage tanks removed from service

► Defines low-pressure wells

► Clarifies certain requirements for leak detection at natural gas processing plants

► Updates requirements for reciprocating compressors; and

► Updates the definition of “responsible official.”
2012 NESHAP Improvements

 ► Oil and Natural Gas Production (HH)
   ► Glycol dehydrators
     • Sets new standards for small dehydrators at major sources
   ► Equipment leaks at gas plants
     • Strengthens requirements for leak detection and repair

 ► Natural Gas Transmission & Storage (HHH)
   ► Glycol dehydrators
     • Sets new standards for small dehydrators

Glycol dehydrators at a well production pad
EPA photo
Obama Administration Strategy to Reduce Methane Emissions

- Strategy released March 2014
- Sets forth plan to reduce domestic and international methane emissions
- Targets four key sources
  - Landfills
  - Coal Mines
  - Agriculture
  - Oil and Gas
- Strategy for oil and gas includes the release of five white papers on potentially significant sources of methane
White Paper Overview

► Purpose
  ► Obtain a common understanding of emerging data on emissions and control for certain potentially significant sources of VOCs and methane
  ► Focus on technical issues
  ► Part of Obama Administration’s *Strategy to Reduce Methane Emissions*

► Topics
  ► Compressors
  ► Completions and ongoing production of hydraulically fractured oil wells
  ► Leaks
  ► Liquids unloading
  ► Pneumatic devices

► Status
  ► Released on April 15, 2014, for external peer review and made publicly available
  ► Peer review was completed by June 16, 2014
  ► Currently assessing information received from reviewers and the public
For Additional Information

► Visit: Controlling Air Pollution from Oil and Natural Gas Industry

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