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NSPS Subpart 0000 Overview

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Trinity Consultants - Overview



- > Founded 1974 in Dallas
- > ~400 employees in 35 U.S. offices, including China and Bahrain
- > Regulatory compliance and environmental management services with focus on air
- > ISO 9001 quality program certified in Dallas HQ

Trinity Consultants Offices



Trinity Services & Products

- > Air Quality Consulting
- > General Environmental and Safety Consulting
- > EH&S Auditing Services
- > Environmental Software
- > Professional Training
- > EH&S Staffing Services



Air Quality is a Dynamic, Changing Field



Always be certain to obtain the latest forms, policies, and regulations from the appropriate regulatory authority before determining permitting and compliance needs for your site. The information provided in this manual, while up-to-date when printed, is subject to change as regulatory authorities update forms, policies and regulations. You are encouraged to use this manual as an educational reference, but it is not a substitute for independent research and verification, and the application of sound professional judgment and analysis in real-time permitting and compliance situations.

Learning Objective

- > Understand New Source Performance Standard (NSPS) Subpart 0000 applicability and compliance

Life Has Changed for E&P

- > Air emissions and upstream E&P sources have historically been unregulated to a great extent
- > New source permitting has been catching some E&P sources for a few years
- > GHG reporting rule was the first federal air rule regulating sources
 - ❖ Reporting rule only
- > NSPS Subpart OOOO is the first significant rule impacting air emissions from the industry
 - ❖ Notifications, controls, recordkeeping, reporting, etc.
 - ❖ Potential enforcement risks are higher

New Source Performance Standards (NSPS) (40 CFR 60)

- > *Criteria Pollutants (CO, NO₂, VOC, PM, SO₂, and Pb)*
- > Designed to help maintain a nominal emissions level or control standard for new and modified equipment
- > Developed and listed by industry and equipment
- > Not technology forcing; rather, reflects the best standard practice at the time of rule development
- > Applicability must be evaluated for *new, modified, and reconstructed sources*
 - ❖ *Note that “existing” sources are not impacted until “modified” or “reconstructed”*

General Requirements

- > Notification
 - ❖ Applicability notification
 - ❖ Source test notification
- > Emission limits
 - ❖ Emissions per material throughput
 - ❖ Percent opacity
 - ❖ Percent reduction
 - ❖ Best practices
- > Source testing
- > Monitoring and Recordkeeping
- > Reporting

NSPS Applicability

- > **Step 1:** Review list of NSPS regulations for potentially applicable regulations
 - ❖ By industry, equipment size/type, material type and throughput, construction date, other factors
- > **Step 3:** Determine the definition of the potentially “affected facility”
 - ❖ Critical - regulatory definitions do not necessarily match industry definitions
- > **Step 3:** Determine whether your source is **new, modified, or reconstructed**
- > **Step 4:** Determine the applicable requirements

Modification Definition (40 CFR 60.14)

- > **Modification** means any physical change in, or change in the method of operation of, an existing facility which **increases the amount of any air pollutant (to which a standard applies)** emitted into the atmosphere by that facility or which **results in the emission of any air pollutant (to which a standard applies) into the atmosphere not previously emitted.** (40 CFR 60.2)

Dissection of Modification Definition

- > “increases the amount of any air pollutant”
 - ❖ Means an HOURLY emissions rate change (40 CFR 60.14(b))
 - ❖ Interpreted as increase in short-term potential emissions of a regulated pollutant

What is NOT a Modification?

- > Routine repair, maintenance, and replacement which does not constitute a reconstruction (40 CFR 60.14(e)(1))
 - ❖ Routine example: changing baghouse bags
 - ❖ Not considered routine: boiler retubing, burner replacement, steam drum replacement
(ADI Memo #PS24)

What is NOT a Modification?

- > An increase in production rate of an existing unit, if that increase can be accomplished without a **capital expenditure** on that facility (40 CFR 60.14(e)(2))
 - ❖ Note: Capital expenditure is a defined term tied to IRS publications
 - ❖ It is an allowed percentage of the original installed cost
 - ❖ NSPS Subparts KKK, VV, VVa, and OOOO are different

What is NOT a Modification?

- > The relocation or change in ownership of an existing facility. (40 CFR 60.14(e)(6))
- > Addition of control equipment to reduce air pollutants unless it involves removal or replacement of more environmentally beneficial equipment (40 CFR 60.14(e)(5))

Reconstruction Definition

- > Reconstruction means the replacement of components of an existing facility to such an extent that the fixed capital cost of the new components exceeds 50% of the fixed capital cost that would be required to construct a comparable entirely new facility, and it is technologically and economically feasible to meet applicable standards. (40 CFR 60.2)

Interpretation of Reconstruction Definition (40 CFR 60.15)

- > Unlike a modification, an existing unit upon reconstruction, becomes an affected facility, irrespective of any change in emission rate.
(40 CFR 60.15(a))
- > Costs for non-routine renovations must be aggregated over the life of the unit for comparison to the 50 percent level.
(ADI Memo #PS41)

NSPS Subpart A

- > Applies to all sources subject to an NSPS (unless a specific provision is excluded within the source NSPS)
- > Contains:
 - ❖ Definitions (60.2)
 - ❖ Notification requirements (60.7)
 - ◆ Construction notice - 30 days before
 - ◆ Initial startup notice - 15 days after
 - ◆ Modification notice - 60 days before, if possible
 - ◆ CMS demonstration - 30 days prior
 - ◆ Opacity measurement - 30 days prior
 - ◆ Reconstruction - 60 days prior

NSPS Subpart A

- > Recordkeeping and Reporting (60.7)
 - ❖ Occurrence and duration of any startup, shutdown, or malfunction (SSM) of the affected unit, control device, or CMS
 - ❖ Semi-annual excess emission reports and CMS performance reports within 30 days of the end of the period
 - ◆ Note: More frequent (e.g., quarterly) excess emission reports may be required by a specific Subpart or the Operating Permit

NSPS Subpart A

- > Semi-annual Excess Emissions Report:
 - ❖ Magnitude and duration of excess emissions
 - ❖ Identification of source of the emissions (i.e., SSM)
 - ❖ Identify when CMS was not operative and why
 - ❖ If no excess emissions and no CMS down time, still must send in report stating this
- > Retain all records for two years, or five years if subject to Title V Operating Permits or otherwise indicated in an individual NSPS subpart

NSPS Subpart A

- > Source Testing (60.8, 60.11)
 - ❖ Perform and submit within 60 days of reaching maximum production, but no later than 180 days after startup
 - ❖ Provide State with 30 days notice prior to performance tests
 - ◆ Seven days prior notice for a delay in scheduled test date

NSPS Subpart A

- > Continuous Monitoring (60.13)
 - ❖ Must be operational for the initial source tests
 - ❖ COMs must be certified prior to initial source testing if relied upon for initial opacity compliance demonstration
 - ◆ Provide certification to State 10 days prior to compliance test
 - ◆ Daily checks of zero and upscale calibration drifts
 - ❖ Rule outlines the number of data points required for valid readings (60.13(h))

NSPS Subpart A

- > Control Device Requirements (60.18)
 - ❖ Requirements for control devices used to comply with applicable NSPS
 - ❖ Applies to facilities covered by subparts referring to this section
 - ❖ Flares
 - ❖ Alternative work practice for monitoring equipment leaks

NSPS Subpart 0000 Highlights

NSPS Subpart 0000 Affected Facilities

- > Each natural gas well
- > Each centrifugal compressor using wet seals
- > Each reciprocating compressor
- > Each continuous bleed natural-gas driven pneumatic controller
- > Each storage vessel
- > Group of equipment (pump, pressure relief device, open-ended valve or line, valve, and flange or other connector in VOC or wet gas service), within a process unit located at onshore natural gas processing plants
- > Sweetening units located at onshore natural gas processing plants (NSPS LLL)

NSPS Subpart 0000 Exceptions

- > Pneumatic controllers with a natural gas bleed rate ≤ 6 scfh not at gas processing plant are not affected facilities
- > Intermittent pneumatic controllers are not affected facilities
- > Centrifugal compressors using dry seals are not affected facilities
- > Centrifugal and reciprocating compressors located at a well site or after custody transfer to the transmission segment are not affected facilities

EPA's Breakdown of Oil and Gas

Production & Processing

1. Drilling and Well Completion
2. Producing Wells
 - a. Onshore Wells
 - b. Offshore Wells
3. Gathering and Boosting (not covered by Subpart W)
4. Gas Processing Plant

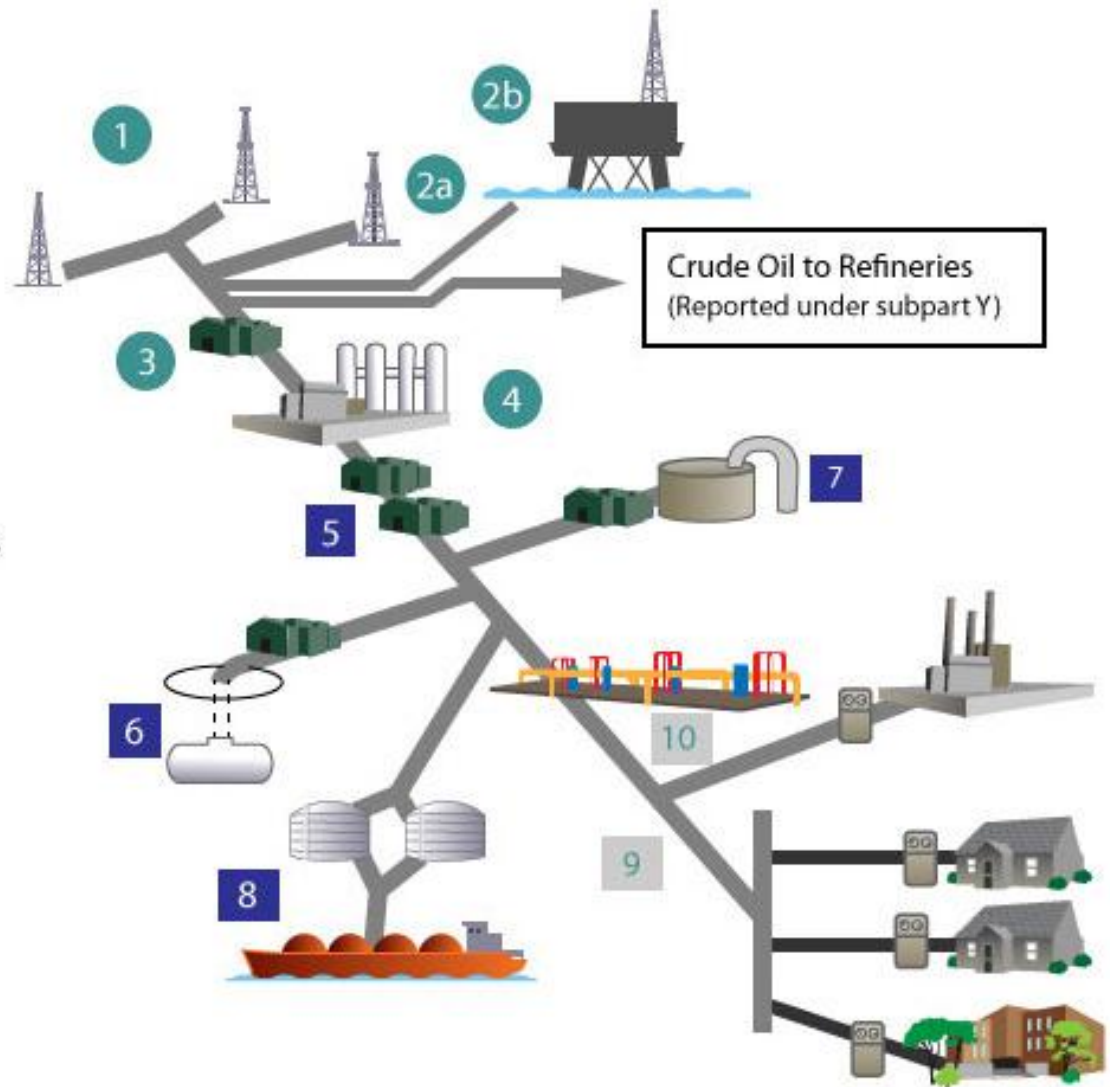
Natural Gas

Transmission & Storage

5. Transmission Compressor Stations
6. Underground Storage
7. LNG Storage
8. LNG Import-Export Equipment

Distribution

9. Distribution Mains/Services
10. Regulators and Meters



NSPS Subpart 0000 Applicability

NSPS 0000 Affected Facility	Production (Well Site)	Gathering	Gas Processing	Transmission
Gas Well	X			
Centrifugal Compressors		X	X	
Reciprocating Compressors		X	X	
Pneumatic Controller	X	X	X	
Storage Vessels	X	X	X	X
Equipment Leaks			X	
Sweetening Units			X	

NSPS Subpart 0000 Compliance

- > Standards apply to affected facilities that commence construction, reconstruction or modification after 8/23/11 (date of proposed rule), but the compliance date depends on the type of emission source
- > Standards apply at all times (i.e., no exemption during periods of startup, shutdown, or malfunction)

Gas Wellheads

\$60.5375

- > Gas wellhead requirements and compliance timelines are broken into categories:
 - ❖ Hydraulically fractured wildcat and delineation wells
 - ❖ Hydraulically fractured low pressure wells
 - ❖ All other hydraulically fractured wells
- > *Low pressure well*: a well with reservoir pressure and vertical well depth such that 0.445 times the reservoir pressure (in psia) minus 0.038 times the vertical well depth (in feet) minus 67.578 psia is less than the flow line pressure at the sales meter

Standards for Gas Wellheads

§60.5375

- > Control requirements for well completions include the following options applicable by well type:
 1. Reduced emissions completion (REC)/green completions
 2. All salable quality gas must be routed to the gas flow line as soon as practicable
 3. Capture and direct flowback emissions that cannot be directed to the flow line to a completion combustion device unless there is risk of fire or explosion
 4. General duty to safely maximize resource recovery and minimize releases to atmosphere during flowback and recovery

Standards for Gas Wellheads

§60.5375

Hydraulically Fractured Well Operation	Control Option 1	Control Option 2	Control Option 3	Control Option 4
Wildcat and Delineation			X	X
Low Pressure non-wildcat and non-delineation			X	X
Other gas wells before 1/1/2015			X	X
Other gas wells after 1/1/2015	X	X	X (if 1 infeasible)	X

Hydraulically Refractured Gas Wellheads

§60.5365(h)

- > Existing gas wells that conduct completion operations following hydraulic fracturing are not affected provided the requirements of § 60.5375 are met.
- > Refracturing does not affect the modification status of other equipment located on the well site
- > Sources initially constructed after August 23, 2011 are affected sources regardless

Standards for Compressors

§60.5380 and 60.5385

- > Centrifugal compressors equipped with wet seals:
 - ❖ Reduce VOC emissions from each wet seal fluid degassing system by ≥ 95.0 percent
 - ❖ If using a control device, equip with cover meeting § 60.5411(b) and connect through a closed vent system meeting § 60.5411(a) to a control device
 - ❖ Initial performance test and ongoing monitoring are required
- > Reciprocating compressors:
 - ❖ Replace rod packing every 26,000 hours and continuously monitor hours of operation or
 - ❖ Replace within 36 months of startup or most recent replacement

Standards for Pneumatic Controllers

§60.5390

- > Each affected continuous bleed pneumatic controller at natural gas processing plants must have a bleed rate of zero
- > Each affected continuous bleed pneumatic controller between the wellhead and a natural gas processing plant must have a bleed rate of ≤ 6 scfh
 - ❖ 1 year phase in period
 - ❖ Existing units already in stock and ordered before August 23, 2011 can be used

Standards for Pneumatic Controllers

§60.5390

- > Each pneumatic controller affected facility must be tagged with the month and year of installation and identification information for required recordkeeping
- > Pneumatic controllers required to have a bleed greater due to functional needs (positive actuation, safety, and response time) are exempt from the < 6 scfh limitation

Standards for Storage Vessels

§60.5395

- > Storage vessels with emissions equal to or greater than 6 tpy:
 - ❖ Reduce VOC emissions by ≥ 95.0 percent through use of a control device or floating roof
 - ❖ If using a control device, equip with cover meeting § 60.5411(b) and connect through a closed vent system meeting § 60.5411(a) to a control device
 - ❖ Initial performance test required
- > Storage vessels at well sites without wells in production have 30 days from startup to calculate emissions and 60 days from startup to meet control requirements
- > One year phase in period for control requirements (October 15, 2013)

NSPS Subpart 0000 Proposal

- > Changes to NSPS Subpart 0000 proposed March 28, 2013 and published in the Federal Register April 12, 2013.
- > Proposal would significantly affect the storage tank provisions
- > Proposal would also correct technical errors that were inadvertently included by EPA in the August 16, 2012 final rule

Storage Tank Proposal

- > Group 1 - those tanks constructed, modified, or reconstructed between August 23, 2011 (the original proposal date of NSPS Subpart 0000) and April 12, 2013
- > Group 2 - those tanks constructed, modified, or reconstructed after April 12, 2013

Group 1 Storage Tank Proposal

- > If VOC PTE is ≥ 6 T/yr, the proposal would require an initial notification by October 15, 2013
- > If after April 12, 2013, an event occurs that results in an emission increase (regardless of whether or not there is a capital expenditure involved), the proposal would require emission controls would be required by April 15, 2014 or 30 days after startup, whichever is later
- > If no event occurs that would increase emissions, the proposed changes do not appear to otherwise require emission controls for Group 1 storage tanks

Group 2 Storage Tank Proposal

- > Group 2 storage tanks constructed, modified, or reconstructed after April 12, 2013, but before April 15, 2014, the proposal would require emissions to be determined by April 15, 2014 or within 30 days after startup, whichever is later
- > For those storage tanks with a PTE ≥ 6 T/yr VOC, the emissions would have to be reduced by at least 95 percent by April 15, 2014 or within 60 days of startup, whichever is later

Group 2 Storage Tank Proposal

- > For Group 2 storage tanks constructed, modified, or reconstructed after April 15, 2014, the proposal would require the determination of VOC emission rate within 30 days of startup
- > For those tanks with a PTE ≥ 6 T/yr VOC, the emissions would have to be reduced by at least 95 percent within 60 days of startup

Proposal to Remove Tank Controls

- > EPA has also proposed that once uncontrolled PTE declines to <4 T/yr VOC, emission controls can be removed from a storage tank
- > This must be demonstrated by calculating PTE for each of the preceding 12 consecutive months as if the emission controls were not present
- > The monthly VOC PTE would then be summed and compared to 4 T/yr
- > For uncontrolled PTE less than 4 T/yr VOC, the storage tank would remain subject to NSPS Subpart 0000, but emission controls could be removed until any point in time when VOC PTE from the storage tank reached 4 T/yr

Standards for VOC Leaks (updated NSPS KKK) §60.5400, §60.5401, §60.5402

- > Applies to equipment, except compressors, in VOC or wet gas service within a process unit
 - ❖ *Process unit* means components assembled for the extraction of natural gas liquids from field gas, the fractionation of the liquids into natural gas products, or other operations associated with the processing of natural gas products
 - ❖ Comply with NSPS Subpart VVa (lower leak definitions and additional monitoring required)

Standards for Sweetening Units (updated NSPS LLL)

§60.5405

- > Applies to each onshore sweetening unit at a natural gas processing plant:
 - ❖ Emission limits remain the same as proposed rule (comply with percent reduction requirements based on sulfur feed rate and hydrogen sulfide [H₂S] content of acid gas)
 - ❖ Initial performance test required
 - ❖ Monitoring of sulfur product accumulation, H₂S content, and acid gas flow rate
- > Facilities with design capacities less than 2 long tons per day of H₂S in the acid gas are subject to recordkeeping and reporting only

NSPS Subpart 0000 Compliance Schedule

NSPS 0000 Affected Facility	Standard	Compliance Date
Hydraulically fractured wildcat and delineation wells	Completion combustion	60 days from FR publication
Hydraulically fractured low pressure non-wildcat and non-delineation wells	Completion combustion	60 days from FR publication
Other hydraulically fractured wells	Completion combustion	Before 1/1/2015
Other hydraulically fractured wells	REC and completion combustion	After 1/1/2015
Centrifugal compressors with wet seals	95% reduction	60 days from FR publication
Reciprocating compressors	Change rod packing	60 days from FR publication
Pneumatic controllers at NG processing plants	Zero bleed rate	60 days from FR publication
Pneumatic controllers between wellhead and NG processing plants	6 scfh bleed rate	1 year from FR publication
Storage Vessels	95% reduction	1 year from FR publication
Equipment Leaks	LDAR program	60 days from FR publication
Sweetening Units	Reduce SO ₂ as calculated	60 days from FR publication

Continuous Compliance Demonstrations

Gas Wellheads

\$60.5410

- > Maintain records of all completions
- > For gas wellheads subject to both REC and completion combustion equipment, a digital photograph must be taken that contains:
 - ❖ Date of photograph
 - ❖ Longitude and latitude of the well site embedded within or stored with the photograph (or separate GIS device visible in frame)
 - ❖ Picture of equipment for storing or re-injecting recovered liquid, equipment for routing recovered gas to gas flow line, and the completion combustion device connected to and operating at each completion operation

Storage Vessels and Centrifugal Compressors Compliance

§60.5412, §60.5413 and §60.5415

- > For storage vessels and centrifugal compressors with wet seals using control devices:
 - ❖ Initial performance test and periodic performance tests
 - ❖ Manufacturer tests can be used to replace on-site initial and periodic performance tests
 - ❖ Design analyses are allowed in lieu of a performance test for certain control devices (e.g., condensers, carbon adsorbers)

Storage Vessels and Centrifugal Compressors Compliance

§60.5415 - §60.5417

- > Maintain daily average control device parameters above (or below) the minimum (or maximum) level established during the performance test
- > Prepare site-specific monitoring plan for continuous monitoring system
- > Conduct initial and annual inspections of covers and closed vent systems for leaks or defects

Continuous Compliance Demonstrations

§60.5415

- > For reciprocating compressors, monitor number of hours or months since last packing change and replace as required
- > For sweetening units, maintain the required emission reduction efficiency calculated based on throughput and H₂S concentration
- > Implement LDAR program as applicable

Notification Requirements

§60.5420

- > Applicable for affected facilities except gas wells, pneumatic controllers, and storage vessels
 - ❖ Notification of date construction commenced within 30 days of such date
 - ❖ Notification of actual date of initial startup within 15 days of such date
 - ❖ Notification of change that may increase emissions of pollutants to which a standard applies 60 days or as soon as practicable before implementing the change

Notification Requirements

§60.5420

- > Gas well notification (no later than 2 days prior to commencement of well completion):
 - ❖ Anticipated date of well completion operation
 - ❖ Contact information for the owner or operator
 - ❖ API well number
 - ❖ Latitude and longitude coordinates for each well to five decimals of a degree in NAD83
 - ❖ Planned date of the beginning of flowback
- > Can be submitted in written or electronic format
- > If state regulations require advance notification of well completions, those notifications can meet these requirements

Reporting Requirements

§60.5420

- > Annual reports are due 30 days after end of initial compliance period referenced in § 60.5410 for each affected facility (up to one year from startup or final rule publication in FR)
- > Subsequent reports due on the same date as initial report
- > Can combine reports for multiple affected facilities
- > Semiannual reports are required for equipment leaks (Subpart VVa)
- > Electronic reporting of stack tests within 60 days of completion

Annual Report Requirements

§60.5420

- > Annual Report shall contain:
 - ❖ Name, address, affected facility, reporting dates, and responsible official certification
 - ❖ Records of well completion operations and deviations from requirements that occurred during the reporting period
 - ❖ Identification of each centrifugal compressor using wet seal constructed, modified, or reconstructed during period
 - ❖ Number of hours (or months) of operation for reciprocating compressors since initial startup, final rule publication, or last rod packing replacement
 - ❖ Excess emissions from sweetening units

Annual Report Requirements

§60.5420

- > Annual Report shall contain:
 - ❖ Identification of each pneumatic controller constructed, modified, or reconstructed during period
 - ❖ Documentation that a bleed rate higher than 6 scfh is required, if applicable
 - ❖ Identification of each storage vessel with VOC emissions greater than 6 tpy constructed, modified, or reconstructed during period
 - ❖ Documentation that VOC emission rate is less than 6 tpy
 - ❖ Deviations from operating limits
 - ❖ Closed vent and cover inspection records

Recordkeeping Requirements

§60.5420

- > Information required in annual reports
- > For gas wellheads: location, API well number, duration (hrs) of flowback, duration (hrs) of recovery to the flow line, duration (hrs) of combustion, duration (hrs) of venting, specific reasons for venting, documentation for exception from control/recovery, digital photographs (if applicable)
- > Date, location, and manufacturer's specifications for pneumatic controllers
- > Documentation of emission calculations for storage vessels
- > Records of number of days a skid mounted or mobile source mounted is located on site

What can be Done?

- > Rules are not likely going away; but they will continue to change - stay tuned
 - ❖ Stay plugged into your trade groups, such as IPANM who are monitoring changes
- > EPA has recognized the need to improve emission factors for this industry
 - ❖ There may be opportunities companies to participate
 - ❖ The only way to voice concerns about the science is through participation
- > Expect continued focus by EPA on the energy extraction industry under the "National Enforcement Initiative" through FY2016, and continued local agency funding for state-level inspections

**Any Remaining Questions,
Discussion, or Examples?**



For Further Information

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