

New Source Performance Standards for Oil and Natural Gas Sector, 40 CFR Part 60, Subpart 0000

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Overview

- Who's SBEAP?
- NSPS background
- 4O pollutants
- History of 4O
- Summary 4O amendments
- General 4O requirements
- Outline of 4O
- Specific 4O amendments
- Resources

Where is Kansas SBEAP?

Kansas State University

- College of Engineering
 - Engineering Extension
 - Pollution Prevention Institute (PPI)
 - Small Business Environmental Assistance Program (SBEAP)

Small Business Environmental Assistance Program

- Environmental compliance assistance
- Multimedia [air (mostly), waste, water, energy, GHG inventory and reporting, and EMS]
- Free to small- and medium-sized businesses (KDHE funded)
- Confidential
- Staff located throughout the state
- Contact information
 - Web site: www.sbeap.org
 - Hotline: 800-578-8898
 - E-mail: sbeap@ksu.edu



Upcoming Learning Opportunities

- Updating boilers to improve efficiency
- Tuesday, June 24, 2014, 9:00 am-9:50 am

Sign up at www.sbeap.org

NSPS Background

- NSPS – New Source Performance Standards
 - Applies to O/O of stationary source that contains an affected facility, the construction or modification of which commenced after a specified date.
- Definitions:
 - Affected facility – any apparatus to which a standard is applicable
 - Construction – fabrication, erection, or installation of an affected facility
 - Modification – 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.

Industrial Source Categories Affected

- 211111 – Crude petroleum and natural gas extraction
- 211112 – Natural gas liquid extraction
- 221210 – Natural gas distribution
- 486110 – Pipeline distribution of crude oil
- 486210 – Pipeline transportation of natural gas

40 Pollutants

- SO₂ and VOC
- Volatile organic compounds – all tanks subject to the NSPS must control VOC emissions by 95 percent or meet the alternative emissions limit.
- Updates intended to ensure tanks likely to have the highest emissions are controlled first, while providing tank owners and operators (O/O) time to purchase and install VOC controls.

History of 40

- August 23, 2011– [Proposed rule](#)
- Public hearings:
 - September 27, 2011, Pittsburgh, PA
 - September 28, 2011, Denver, CO
 - September 29, 2011, Arlington, TX
- October 28, 2011 – [Proposed rule extension](#)
- April 17, 2012 – Deadline for Final Oil and Gas Rule
- August 16, 2012 – [Final rule](#)
- April 12, 2013 – [Proposed update to 2012 performance standards](#)
- April 29, 2013 – Public hearing on proposed updates
- September 23, 2013 – [Final rule](#)
- [40 CFR Part 60, Subpart OOOO \(40 CFR 60.5360-60.5430\)](#)

NESHAP Regulation for Oil and Natural Gas Sector

- July 16, 1992 – Oil and natural gas production listed as a category source for NESHAP
- February 12, 1998 – EPA amended source category list to include Natural Gas Transmission as a major source
- June 17, 1999 – MACT standards for Oil and Natural Gas Production and Natural Gas Transmission and Storage
 - 40 CFR Part 63, Subpart HH – Oil and Natural Gas Production NESHAP
 - 40 CFR Part 63, Subpart HHH – Natural Gas Transmission and Storage NESHAP
- January 3, 2007 – NESHAP for Oil and Natural Gas Production for area sources

Summary of 40 Amendments

- Initial notification and compliance dates
- Group 1 and Group 2 storage vessel emission standards applicability
- Group 1 storage vessel affected facility control requirements
- Alternative 4-tpy uncontrolled actual VOC emission rate
- Definition of storage vessel
- Definition of storage vessel affected facility
- Streamlined compliance monitoring provisions
- Combustion control device manufacturer test protocol
- Annual report and compliance certification

Initial Notification and Compliance Dates

- Initial notification¹ for Group 1 storage vessels
- Compliance dates (emission standards)
 - Group 1 storage vessels² – April 15, 2015
 - Group 2 storage vessels³ – April 15, 2014 (or 60 days after start up, whichever is later)
- October 15, 2013 – deadline for calculating potential VOC emissions from Group 1 storage vessels (to determine affected facility status)

¹To be submitted with annual report due by January 15, 2014

²Construction, reconstruction, or modification began after August 23, 2011, and on or before April 12, 2013

³Construction, reconstruction, or modification began after April 12, 2013

Group 1 and Group 2 Storage Vessel Emission Standards Applicability

- 60.5395 amended to specify the NSPS requirements apply to Group 1 and Group 2 storage vessels *affected* facilities
 - Those with PTE of six or more tpy of VOC

Group 1 Storage Vessel Affected Facility Control Requirements

- Amendments require control of all storage vessel affected facilities constructed since the August 23, 2011, proposal date of the 2012 NSPS.
- Group 1 affected facilities must comply with emission standards by April 15, 2015.
- Group 2 affected facilities must comply with emission standards by April 15, 2014 (or 60 days after start up, whichever is later).

Alternative 4-tpy Uncontrolled Actual VOC Emission Rate

- O/O may comply with the uncontrolled actual VOC emission rate instead of the 95 percent control requirement where it can be demonstrated that, based on records of monthly determinations of actual emission rate for the 12 consecutive months immediately preceding the demonstration, the storage vessel affected facility uncontrolled actual VOC emissions for each month during that 12-month period have been below 4 tpy.

Definition of Storage Vessel

- Tank or other vessel that contains an accumulation of crude oil, condensate, intermediate hydrocarbon liquids, or produced water, and that is constructed primarily of nonearthen materials (such as wood, concrete, steel, fiberglass, or plastic) which provide structural report.
- Not “storage vessels”:
 - Vessels skid-mounted or permanently attached to something that is mobile (trucks, railcars, barges or ships) and intended to be located at a site for less than 180 consecutive days.*
 - Process vessels such as surge control vessels, bottoms receivers, or knockout vessels
 - Pressure vessels designed to operate in excess of 204.9 kilopascals and without emissions to the atmosphere

Definition of Storage Vessel Affected Facility

- Single storage vessel located in the oil and natural gas production segment, natural gas processing segment or natural gas transmission and storage segment, and has the potential for VOC emissions equal to or greater than 6 tpy by October 15, 2013 for Group 1 storage vessels and by April 15, 2014, or 30 days after startup (whichever is later) for Group 2 storage vessels.
- A storage vessel affected facility that later has its VOC PTE fall below 6 tpy remains an affected facility
- PTE determination may take into account requirements under a legally and practically enforceable limit in an operating permit or other requirement established under a Federal, State, local or tribal authority.

Streamlined Compliance Monitoring Provisions

- For storage vessels that install controls to meet the 95 percent VOC reduction standard, EPA has amended the 2012 NSPS to adopt streamlined compliance monitoring provisions:
 - Includes monthly (at least) inspections of covers, closed-vent systems, and control devices
- EPA will continue to evaluate the reconsideration issues raised concerning the compliance monitoring provisions; intends to complete its reconsideration by end of 2014.

Combustion Control Device Manufacturer Test Protocol

- Aligns the enclosed combustor manufacturer test protocol in the NSPS with a similar protocol in the Oil and Natural Gas NESHAP (40 CFR 63, subpart HH).

Annual Report and Compliance Certification

- Allows 90 days after the end of the compliance period for submittal of the annual report and compliance certification.
- Original proposal required the annual report and compliance certification only 30 days after the end of the compliance period.

General NSPS 40 Requirements

- Affected facilities, 40 CFR 60.5365 :
 - Each gas well, which is a single NG well
 - Each centrifugal compressor affected facility, which is a single centrifugal compressor using wet seals that is located between the wellhead and the point of custody transfer to the NG transmission and storage segment. A centrifugal compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility
 - Each reciprocating compressor affected facility (same as above)
 - Each pneumatic controller affected facility (for oil production; between the wellhead and point of custody transfer to an oil pipeline), which is a single continuous bleed NG-driven pneumatic controller operating at a NG bleed rate $>6\text{scfh}$
 - Each pneumatic controller affected facility (for NG production; same as above); not including NG processing plants
 - Each pneumatic controller affected facility, which is a single continuous bleed NG-driven pneumatic controller (for NG processing plants)
 - Each storage vessel affected facility, which is a single storage vessel located in the oil and NG production segment, NG processing segment or NG transmission and storage segment and has the PTE VOC emissions equal to or greater than 6 tpy

Centrifugal Compressor

- Reduce VOC emissions from wet seal fluid degassing system (WSFDS) by $\geq 95\%$.
- If using a control device, must equip the WSFDS with a cover connected through a closed vent system and conduct an initial performance test.
- Demonstrate initial and continuous compliance, notification, recordkeeping, and reporting.

Reciprocating Compressor

- Replace rod packing before the compressor has operated 26,000 hours or prior to 36 months from the date of the most recent rod packing replacement or 36 months from the date of startup.
- Demonstrate initial and continuous compliance, notification, recordkeeping, and reporting.

Pneumatic Controller

- Each pneumatic controller at a natural gas processing plant must have a bleed rate of zero and be tagged with the month and year of installation, reconstruction, or modification, and traceable identification.
- Each pneumatic controller between a wellhead and natural gas processing plant that is constructed, modified, or reconstructed on or after October 15, 2013 must have a bleed rate ≤ 6 scfh and be tagged with the month and year of installation, reconstruction, or modification, and traceable identification.
- All must demonstrate initial and continuous compliance, notification, recordkeeping, and reporting.

Storage Vessel

- Vessels subject to 40 CFR, Subpart Kb, or 40 CFR Part 63, Subparts G, CC, HH, WW or HHH are not subject.
- Comply by 10-15-13 for affected facilities constructed, modified or reconstructed after 8-23-11, with VOC emissions ≥ 6 tpy.
- Determine VOC PTE using generally accepted method. If > 6 tpy, reduce emissions by 95%.
- If using a control device, equip storage vessel with a cover connected through a closed vent system and conduct an initial performance test.
- If a floating cover is used, certain requirements of NSPS Kb must be met.
- Demonstrate initial and continuous compliance, notification, recordkeeping, and reporting.

Group of all Equipment

- Comply with requirements of NSPS VV.
- Some exceptions apply (see 40 CFR 60.5400 and 60.5401).

Sweetening Units

- Conduct an initial performance test for SO₂ reduction.
- Install monitoring equipment.

Initial and Continuous Compliance – Well Completions

- Submit notification to EPA within two days of commencing each well completion operation, listing the anticipated date of the operation.
- Submit initial annual report and subsequent annual reports.
- Maintain records, including digital photos identifying well locations.

Initial and Continuous Compliance – Centrifugal Compressors

- Reduce VOC emissions by 95%.
- Conduct initial performance test if using control equipment within 180 days of startup.
- Install continuous parameter monitoring system (CPMS) for continuous compliance.
- Conduct initial and annual inspections.
- Submit notifications, initial and subsequent annual reports.
- Maintain records.

Initial and Continuous Compliance – Reciprocating Compressors

- Continuously monitor hours or number of months since last rod packing replacement.
- Submit notifications and initial and subsequent annual reports.
- Maintain records.

Initial and Continuous Compliance – Pneumatic Controllers

- If bleed rate is > 6 scfh, maintain records to demonstrate it is required.
- Each pneumatic controller located at a natural gas processing plant must have a bleed rate of zero.
- Controller is in compliance if it is located between the wellhead and a natural gas processing plant and the manufacturer's design specifications indicate the bleed rate is ≤ 6 scfh.
- Tag each controller.
- Submit initial and subsequent annual reports.
- Maintain records.

Initial and Continuous Compliance – Storage Vessels

- Determine VOC PTE emission rate with 30 days of startup at well sites with no wells in production, and at startup at well sites with one or more wells in production.
- For facilities emitting > 6 tpy VOC, reduce emissions by 95%.
- If control equipment is used to meet reduction, conduct an initial performance test.
- Install CPMS for continuous compliance.
- Conduct initial and annual inspections.
- Submit notifications and initial and subsequent annual reports.
- Maintain records.

Initial and Continuous Compliance – Group of Equipment

- Initial compliance is demonstrated if in compliance with the applicable requirements of NSPS VVa.

Initial and Continuous Compliance – Sweetening Units

- Initial compliance with SO₂ emissions is demonstrated with an initial performance test.
- Submit initial and subsequent annual reports.
- Maintain records.

General Requirements

- Initial annual report is due 90 days after compliance period.
- Annual reports are due on same date for each year.
- If operating more than one affected facility, one annual report can be sent for all, provided the report contains all of the information required.
- Annual reports can coincide with Title V annual reports, as long as all of the required elements of the annual report are included.
- Meet notification, reporting, and recordkeeping requirements per 40 CFR 60.5420.

Resources

- <http://www.ipaa.org/government-relations/nsps-subpart-0000/> - Independent Petroleum Association of America
- http://www.kdheks.gov/air-permit/forms/oilgas/NSPS_0000_guidance.pdf - KDHE Standards of Performance for Crude Oil & Natural Gas Production, Transmission, and Distribution NSPS 0000
- <http://www.epa.gov/airquality/oilandgas/actions.html> - EPA Oil and Natural Gas Air Pollution Standards

Questions or comments?

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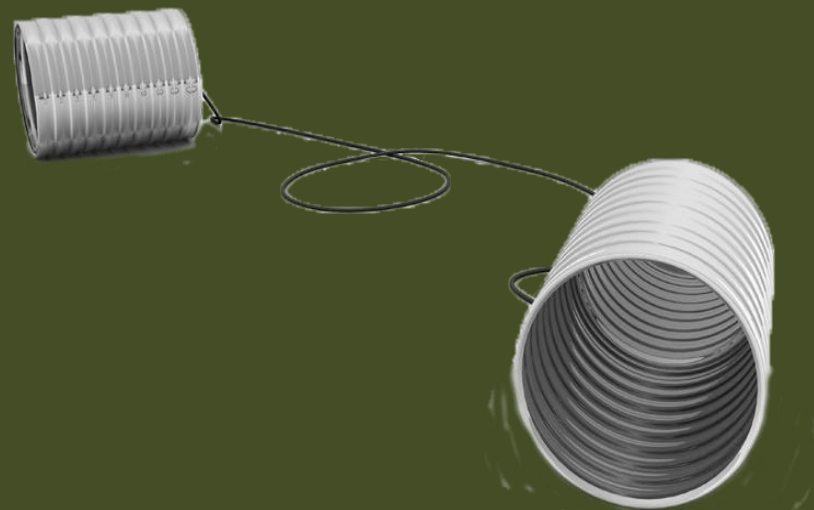
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Outline of 40, 40 CFR Part 60, Subpart 0000

- [60.5360](#) What is the purpose of this subpart?
- **60.5365** Am I subject to this subpart?
- 60.5370 When must I comply with this subpart?
- 60.5375 What standards apply to gas well affected facilities?
- **60.5380** What standards apply to centrifugal compressor affected facilities?
- 60.5385 What standards apply to reciprocating compressor affected facilities?
- **60.5390** What standards apply to pneumatic controller affected facilities?
- **60.5395** What standards apply to storage vessel affected facilities?

Outline of 40, 40 CFR Part 60, Subpart 0000

- 60.5400 What equipment leak standards apply to affected facilities at an onshore natural gas processing plant?
- 60.5401 What are the exceptions to the equipment leak standards for affected facilities at onshore natural gas processing plants?
- 60.5402 What are the alternative emission limitations for equipment leaks from onshore natural gas processing plants?
- 60.5405 What standards apply to sweetening units at onshore natural gas processing plants?

Outline of 40, 40 CFR Part 60, Subpart 0000

- 60.5406 What test methods and procedures must I use for my sweetening units affected facilities at onshore natural gas processing plants?
- 60.5407 What are the requirements for monitoring of emissions and operations from my sweetening unit affected facilities at onshore natural gas processing plants?
- 60.5408 What is an optional procedure for measuring hydrogen sulfide in acid gas – Tutwiler Procedure?

Note: red font indicates revision from previous rule

Outline of 40, 40 CFR Part 60, Subpart 0000

- **60.5410** How do I demonstrate initial compliance with the standards for my gas well affected facility, my centrifugal compressor affected facility, my reciprocating compressor affected facility, my pneumatic controller affected facility, my storage vessel affected facility, and my equipment leaks and sweetening unit affected facilities at onshore natural gas processing plants?
- **60.5411** What additional requirements must I meet to determine initial compliance for my covers and closed vent systems routing materials from storage vessels and centrifugal compressor wet seal degassing systems?

Note: red font indicates revision from previous rule

Outline of 40, 40 CFR Part 60, Subpart 0000

- **60.5412** What additional requirements must I meet to determine initial compliance with control devices used to comply with the emission standards for my storage vessel or centrifugal compressor affected facility?
- **60.5413** What are the performance testing procedures for control devices used to demonstrate compliance at my storage vessel or centrifugal compressor affected facility?
- **60.5415** How do I demonstrate continuous compliance with the standards for my gas well affected facility, my centrifugal compressor affected facility, my stationary reciprocating compressor affected facility, my pneumatic controller affected facility, my storage vessel affected facility, and my affected facilities at onshore natural gas processing plants?

Outline of 40, 40 CFR Part 60, Subpart 0000

- **60.5416** What are the initial and continuous cover and closed vent system inspection and monitoring requirements for my storage vessel and centrifugal compressor affected facility?
- **60.5417** What are the continuous control device monitoring requirements for my storage vessel or centrifugal compressor affected facility?
- **60.5420** What are my notification, reporting, and recordkeeping requirements?
- **60.5421** What are my additional recordkeeping requirements for my affected facility subject to VOC requirements for onshore natural gas processing plants?

Outline of 40, 40 CFR Part 60, Subpart 0000

- 60.5422 What are my additional reporting requirements for my affected facility subject to VOC requirements for onshore natural gas processing plants?
- 60.5423 What additional recordkeeping and reporting requirements apply to my sweetening unit affected facilities at onshore natural gas processing plants?
- 60.5425 What part of the General Provisions apply to me?
- **60.5430** What definitions apply to this subpart?
- 60.5431-60.5499 [Reserved]

Outline of 40, 40 CFR Part 60, Subpart 0000

- **Table 1 to Subpart 0000** – Required minimum Initial SO₂ Emission Reduction Efficiency (Z_i)
- **Table 2 to Subpart 0000** – Required Minimum SO₂ Emission Reduction Efficiency (Z_c)
- Table 3 to Subpart 0000 – Applicability of General Provisions to Subpart 0000

Specific Amendments

- 60.5365 (e) and (h)
- 60.5380 (a)(2), (b), and (c)
- 60.5390 introductory text, (a), and (c)
- 60.5395
- 60.5410 introductory text; (a)(3) and (4); (b)(2) through (5), (b)(7) and (8); (c)(2); (d), (d)(1), (d)(2), and (d)(4); (e); **(h)**; and, **(i)**
- 60.5411 section heading; (a), (a)(1), and (a)(3)(i)(A); (b), (b)(1), (b)(2)(iv), **(b)(3)**; and, **(c)**

Note: revisions in white font; additions in yellow font

Amendments (cont)

- 60.5412 (a), (a)(1), and (a)(2); (b); (c) and (c)(1); and, **(d)**
- 60.5413 introductory text; (a)(7); (d); and, **(e)**
- 60.5415 (b) and (b)(2); (e), (e)(1), (e)(2), and **(e)(3)**; and, (h)(1)
- 60.5416 introductory text; (a), (a)(1)(ii), (a)(2)(iii), and (a)(3)(ii); (b), (b)(9), and (b)(11); and **(c)**
- 60.5417 (a); (b); (c); (d)(1)(viii)(A) and (B), (d)(2); (f)(1)(iii); (g)(6)(ii); and, **(h)**

Note: revisions in white font; additions in yellow font

Amendments (cont)

- 60.5420 (a), (a)(1); (b), (b)(3)(iii), (b)(4)(i), (b)(5), (b)(5)(i), (b)(6), (b)(6)(i) and (ii), **(b)(6)(iv) through (vii)**, (b)(7), and **(b)(8)**; (c), (c)(1)(v), (c)(4)(ii), (c)(5), (c)(6) through (c)(11), and **(c)(12) and (13)**
- 60.5430
 - Added definitions of “Condensate,” “Group 1 storage vessel,” “Group 2 storage vessel,” “Intermediate hydrocarbon liquid,” and “Produced water”
 - Revised definitions of “Flow line” and “Storage vessel”

Note: revisions in white font; additions in yellow font