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*EPA 's New Methane and VOC NSPS
and Source Determination Rules for the Oil and Gas Industry*

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Our Economy
Our Environment
Our Future } **TEXAS OIL &
NATURAL GAS**

Agenda

- Administration Methane Strategy
- Key Elements and Takeaways of NSPS Proposal
- Key Elements and Takeaways of Source Determination Proposal



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President Methane Strategy

- **March 2014**: President Obama issues strategy to reduce methane emissions pursuant to his June 2013 climate action plan.

The Methane Strategy:

- summarizes the sources of methane and trends in emissions;
- sets forth a plan to reduce both domestic and international methane emissions through incentive-based programs and the Administration's existing authorities;
- outlines the Administration's efforts to improve measurement of these emissions; and
- highlights examples of technologies and industry-led best practices that are already helping to cut methane emissions.



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President Methane Strategy

- ❖ **Oil and Gas**: Building on the success of voluntary programs and targeted regulations in reducing methane emissions from the oil and gas sector, the Administration will take new actions to encourage additional cost-effective reductions.



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President Methane Strategy

➤ Climate Action Plan:

- Curbing “emissions of methane is critical to our overall effort to address global climate change”.
- Methane currently accounts for roughly 9 percent of domestic greenhouse gas emissions and has a global warming potential that is more than 20 times greater than carbon dioxide. *Climate Action Plan at 10.*

➤ Interagency methane strategy, with EPA and the Departments of Agriculture, Energy, Interior, Labor, and Transportation, which would focus on:

- assessing current emissions data,
- addressing data gaps,
- identifying technologies and best practices for reducing emissions, and
- identifying existing authorities and incentive-based opportunities to reduce methane emissions.



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Presidential Methane Strategy

- Pursue a “collaborative approach” to reducing emissions, stating that “there are multiple sectors in which methane emissions can be reduced, from coal mines and landfills to agriculture and oil and gas development.” *Id.*



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Presidential Methane Strategy

- **January 2015**: White House and EPA Announce Strategy to Reduce Methane and Ozone-Forming VOC Emissions from Oil and Natural Gas Sector.
 - As part of President Obama's Climate Action Plan, the White House and the EPA announced plans to reduce methane emissions from the oil and natural gas sector by 40 – 45 percent below 2012 levels by 2025.
 - In addition, EPA announced it will take additional steps to reduce ozone forming volatile organic compounds (VOCs) in areas that do not meet federal ozone health standards.



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Presidential Methane Strategy

- **August 18, 2015**: EPA released a suite of proposed actions that it claims will combat climate change, reduce air pollution that harms public health, and provide greater certainty about CAA permitting requirements for the oil and natural gas industry.



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Oil & Gas Sector Methane Proposals

- 1. NSPS – New and Modified:** EPA, *Oil and Natural Gas Sector: Emission Standards for New and Modified Sources; Proposed Rule*, 80 Fed. Reg. 56,593 (Sept. 18, 2015) (Oil and Gas NSPS Proposed Rule);
- 2. CTG – Existing:** EPA, *Release of Draft Control Techniques Guidelines for the Oil and Natural Gas Industry; Notice of Availability*, 80 Fed. Reg. 56,577 (Sept. 18, 2015) (Oil and Gas Draft CTG);



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Oil & Gas Sector Methane Proposals

- 3. Aggregation:** EPA, *Source Determination for Certain Emission Units in the Oil and Natural Gas Sector; Proposed rule*, 80 Fed. Reg. 56,579 (Sept. 18, 2015) (Source Determination Proposed Rule).
- 4. FIP – Minor NSR:** EPA, *Review of New Sources and Modifications in Indian Country: Federal Implementation Plan for Managing Air Emissions from True Minor Sources Engaged in Oil and Natural Gas Production in Indian Country; Proposed Rule*, 80 Fed. Reg. 56,554 (Sept. 18, 2015) (Proposed FIP).

Comments were due December 4, 2015.



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NSPS for New and Modified Sources

- **Overview**



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Oil and Natural Gas Production

Proposed regulation would:

- Extend reduced emission completion (REC or “Green” Completion) requirements to hydraulically fractured (unconventional) oil wells.
 - Unconventional gas wells are currently covered under the 2012 NSPS, but oil wells are not; this closes that gap.
 - This requirement (for both gas and oil wells) only applies to the flowback stage.



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Natural Gas Processing

EPA regulated SO₂ and VOC from processing plants in 1985. See 50 Fed. Reg. 26,122 (VOC) and 50 Fed. Reg. 40,158 (SO₂).

The 2012 NSPS further regulated VOC, imposing LDAR requirements (frequency depends on the equipment, see 40 CFR 60.5400(a)). The standards for compressors and pneumatic controllers also apply.



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Natural Gas Processing

The recent proposal extends those same requirements to apply for methane emissions.

Same industry concern re: need/benefits of regs



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Natural Gas Transmission and Storage

Proposed regulations would:

- Extend 2012 NSPS requirements for compressors and pneumatic controllers to the transmission and storage segment.
- Pneumatic Controllers – must install low-bleed equivalent. Previously only applied to production/processing.
- Compressors – require 95% destruction efficiency (centrifugal compressors) and rod packing replacement every 26,000 hours/36 months (reciprocating compressors).



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Natural Gas Transmission and Storage

Proposed regulations would:

- Reciprocating compressors would also have an option to “route to a process” which essentially means capture and send to a beneficial use.
- NOTE: Compressors at the well site are still exempted.
- Pneumatic Pumps
 - New requirement, but only at processing plants (continuous bleed pumps must be zero bleed).
 - Also must control at other locations, but only if a control device is already available onsite.



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Leak Detection and Repair (LDAR)

Proposed regulation would:

- Set new leak detection and repair (LDAR) requirements at well sites and compressor stations.
 - Initial frequency would be semi-annual. If during each of the first two inspections, number of leaking pieces of equipment is above 3%, frequency would increase to quarterly; however, if number of leaking pieces of equipment is below 1%, frequency would decrease to annual.
- Well Sites: An existing well pad will be subject to these new source LDAR standards if a new well is drilled (conventional or unconventional), or an existing well is fractured or re-fractured.

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Leak Detection and Repair (LDAR)

Proposed regulation would:

- Compressor Stations: existing compressor station would be subject to the new source LDAR standards if a new compressor is constructed, or the compressing capacity is otherwise expanded.
- The percentage-based step-up and step-down in monitoring frequency drives very rigorous component tagging and tracking requirements as proposed.



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Concerns with Proposed LDAR

- Relies on dated AP-42 emission factors, from few facilities with no LDAR programs; over-estimates fugitives, potential benefits, especially for new and modified sources.
- Relies on poorly-supported estimates that did not reflect data on reduced fugitives from annual LDAR.
- Does not allow focus on high emitters (DI&M), vol. programs.



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Concerns with Proposed LDAR

- Agency bias toward OGI/IR camera technology, which is not intrinsically safe and stifles innovation and other methods.
- Tagging/tracking of components for step-up, step-down monitoring is extremely burdensome.
- Annual monitoring is much more cost-effective.
- Changes definition of “fugitive emissions.”
- Inadequate time for repairs; compliance date too soon.



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Proposed NSPS v. 2012 NSPS

Sources covered by the 2012 NSPS for VOCs and the 2015 Proposed NSPS for Methane and VOCs, by site

Location and Equipment/Process Covered	Required to Reduce Emissions Under EPA Rules	Rules that Apply		
		2012 NSPS for VOCs*	2015 proposed NSPS for methane	2015 proposed NSPS for VOCs
Natural Gas Well Sites				
Completions of hydraulically wells	✓	✓	✓	
Compressors	Not covered			
Equipment leaks	✓		✓	✓
Pneumatic controllers	✓	✓	✓	
Pneumatic pumps	✓		✓	✓
Storage tanks	✓	✓		
Oil Well Sites				
Completions of hydraulically fractured wells	✓		✓	✓
Compressors	Not covered			
Equipment leaks	✓		✓	✓
Pneumatic controllers	✓	✓	✓	
Pneumatic pumps	✓		✓	✓
Storage tanks	✓	✓		
Production Gathering and Boosting Stations				
Compressors	✓	✓	✓	
Equipment leaks	✓		✓	✓
Pneumatic controllers	✓	✓	✓	
Pneumatic pumps	✓		✓	✓
Storage tanks	✓	✓		

Proposed NSPS v. 2012 NSPS

Location and Equipment/Process Covered	Required to Reduce Emissions Under EPA Rules	Rules that Apply		
		2012 NSPS for VOCs*	2015 proposed NSPS for methane	2015 proposed NSPS for VOCs
Natural Gas Processing Plants				
Compressors	✓	✓	✓	
Equipment leaks	✓	✓	✓	
Pneumatic controllers	✓	✓	✓	
Pneumatic pumps	✓		✓	✓
Storage tanks	✓	✓		
Natural Gas Compressor Stations (Transmission & Storage)				
Compressors	✓		✓	✓
Equipment leaks	✓		✓	✓
Pneumatic controllers	✓		✓	✓
Pneumatic pumps	✓		✓	✓
Storage tanks	✓	✓		

* Note: Sources already subject to the 2012 NSPS requirements for VOC reductions that also would be covered by the proposed 2015 methane requirements would not have to install additional controls, because the controls to reduce VOCs reduce both pollutants

Estimated Costs

- According to EPA estimates,
 - The total capital cost of the proposed NSPS will be \$170 to \$180 million in 2020 and \$280 to \$330 million in 2025.
 - The total annualized engineering costs of the proposed NSPS is \$180 to \$200 million in 2020 and \$370 to \$500 million in 2025 when using a 7 percent discount rate.



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Estimated Costs

- According to EPA estimates,
 - When estimated revenues from additional natural gas are included, the annualized engineering costs of the proposed NSPS are estimated to be \$150 to \$170 million in 2020 and \$320 to \$420 million in 2025, assuming a wellhead natural gas price of \$4/thousand cubic feet (Mcf).
 - These compliance cost estimates include revenues from recovered natural gas as EPA estimates that about 8 billion cubic feet in 2020 and 16 to 19 billion cubic feet in 2025 of natural gas will be recovered by implementing the NSPS.



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Estimated Benefits

- According to EPA:
 - Actions taken to comply with the proposed NSPS are anticipated to prevent significant new emissions, including 170,000 to 180,000 tons of methane, 120,000 tons of VOC and 310 to 400 tons of hazardous air pollutants (HAP) in 2020.
 - The emission reductions are 340,000 to 400,000 tons of methane, 170,000 to 180,000 tons of VOC, and 1,900 to 2,500 tons of HAP in 2025.
 - The methane-related monetized climate benefits are estimated to be \$200 to \$210 million in 2020 and \$460 to \$550 million in 2025 using a 3 percent discount rate (model average).



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EPA's Stated Rationale for Regulation

- Oil and natural gas sector considered one of largest sources of methane.
 - Methane Global Warming Potential > 80 x as powerful as CO₂ on a 20 year timeframe.
- Oil and gas sources also emit other pollutants, including smog-forming volatile organic compounds and benzene.

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EPA's Stated Rationale for Regulation

- According to most recent GHG Inventory (which estimates emissions from 2013), methane emissions from the O&G sector account for 148 MMT of CO₂e, using a GWP of 25. 80 Fed. Reg. at 56,607.
 - Adding in the emissions from oil well completions, EPA states that this number rises to 151 MMT. 80 Fed. Reg. at 56,607.
- According to the Greenhouse Gas Inventory, this contribution accounts for nearly 30 percent of all U.S. methane emissions, and 3% of the total U.S. GHG CO₂e. 2015 GHGI at Table ES-2.
- EPA estimates that methane emissions from the oil and gas sector will grow by 25% by 2025 in the absence of abatement.



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Concerns with EPA's Rationale

- The oil and natural gas sector is far from the largest contributor of methane, and emissions from the sector have gone down significantly, even with record increases in production
- Entire O&G Sector methane emissions down 12% from 2011-2013
- HAP and criteria pollutants should be the focus of cost-effective NSPS/NESHAPs, not methane



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Concerns with EPA's Rationale

- Increased production \neq increased emissions, especially post-Quad O and with improvements in wellhead emissions control
- Pre-Quad Oa estimate of 151 MMT of CO₂e from sector methane is meaningless in a vacuum. Even using highest EPA estimates, the rule would provide a reduction of just 0.0057% methane globally,
- EPA's math doesn't work; promised benefits of Quad Oa already delivered by Quad O methane co-benefits, voluntary programs, etc.



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Need for Direct Regulation of Methane? No.

- CH₄ emissions have fallen in recent years.
- States/companies are acting. No need for federal regs.
- Natural gas is solution to climate change, not the problem.
Discouraging gas production counterproductive.
- Concern that burdensome nature of proposed regs puts small producers at risk.
- O&G methane small contributor to overall GHG emissions.
- Methane co-benefits of Quad O are the same/no climate benefits



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Takeaways

- Direct regulation of methane via Quad Oa is a political goal with no measurable climate benefits.
- Promulgating NSPS for methane is a mere pretext for regulating methane from existing sources via CAA 111(d)



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Takeaways

- EPA's estimated benefits are overstated.
 - Reliance on EPA's own policy documents (Social Cost of Methane) is impermissible.
- Rejection of voluntary program flexibility to focus on high emitters = lost opportunity
 - Bodes poorly for larger sources of methane (agriculture, transp., power).
- Focus on VOCs and HAPs, with methane co-benefits.



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Proposed Source Determination Rule

Background

- **2007 “Wehrum Memo”**: Emissions from interconnected facilities aggregated if under “common control” and “adjacent” – defined as within a quarter mile.
- **2009 “McCarthy Memo”**: Wehrum memo reversed, single source determination based on case-by-case analysis.



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Proposed Source Determination Rule

Background

- ***Summit Petroleum Corp. v. EPA* (6th Cir. 2014):** EPA cannot base adjacency in source determinations other than on proximity.
 - EPA memo says it will only apply this standard in the 6th Circuit.

- ***NEDA/CAP v. EPA* (D.C. Cir. 2014):** Court ruled memo violated EPA's own regional consistency policy.

- **Regional Consistency Policy:** On August 5, EPA proposed revisions to its regional consistency policy to make an exception “where Federal court decisions concerning the CAA have regional or local applicability.”



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Option 1 (EPA's Preferred Option) – Define Source Based on Proximity

- “Source” for oil and natural gas sector activities is presumed to be limited to the emitting activities at the surface site, and other emitting activities will be considered “adjacent” if they are proximate.
 - Proximate = ¼ mile.
- How Option 1 Works: Single source if:
 - Same SIC Code
 - Common control
 - Within ¼ mile



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Option 1 (EPA's Preferred Option) – Define Source Based on Proximity

- Comment requested on:
 - Distance (1/2 mile?)
 - Daisy chaining

- Other aspects of Option 1:
 - Owner/operator would not be required, and would not be allowed, to include additional emitting activities in a permit beyond those in the source as defined.
 - More permits – but more likely to be minor.
 - Netting



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Option 2 – Define Source to Include Exclusively Functionally Interrelated Equipment

- “Source” for the oil and natural gas sector includes all of the interrelated equipment that is:
 - Under common control,
 - Same two-digit SIC (Code 13 Oil and Gas Extraction), and
 - On contiguous or adjacent property,
 - where EPA would presume that equipment in an oil and gas field is “adjacent” if:
 - it is proximate (see Option 1) or
 - if it is exclusively functionally interrelated...
 - EPA and states would make a determination of adjacency based on a consideration of the interrelatedness of emitting activities in addition to the distance between them. 80 Fed. Reg. at 56,587.

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Option 2 – Define Source to Include Exclusively Functionally Interrelated Equipment

- Under this option, activities will be considered adjacent if one of the following circumstances apply:
 - the pollutant-emitting activities are separated by a distance of $\frac{1}{4}$ mile or more and there is an exclusive functional interrelatedness; or
 - the pollutant-emitting activities are separated by a distance of less than $\frac{1}{4}$ mile.



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Source Determination Proposed Rule

- Proposed rulemaking to clarify the meaning of “adjacent,” in the stationary source definition.
- Option 1: sources within ¼ mile deemed “adjacent,” similar to some states’ rules (LA, OK, TX)
 - EPA’s preferred option
 - Unclear if presumptive or dispositive



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Source Determination Proposed Rule

- Option 2: sources beyond some distance, e.g., ¼ mile, evaluated for “exclusive functional interrelatedness”
 - EPA asserts this is its historical practice
 - This approach rejected in *Summit Petroleum v. EPA*
- Would not change “adjacent” for other sectors



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Concerns with SD Rule

- Broad-based industry opposition to Option 2 as impermissible after *Summit Petroleum*, inconsistent with 1980 PSD Rules and *Alabama Power*:
 - Common sense notion of a plant.
 - Exclusive functional interrelatedness not defined.



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Concerns with SD Rule

- No “daisy-chaining” of sources, clarify measurement.
- Industry request to respect state rules and historic determinations.



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