



Technical Services Group
Environmental Department

Emissions Basics and the Climate Change Initiative

GCA Exposition

March – 2016





Areas of Focus

Emissions Basics

- ❖ Applicable Federal Rules in Oil & Gas Compression
 - *The what's and how's of regulations*
- ❖ Awareness of State Rules & Permitting Correlations
 - *Why are these important?*

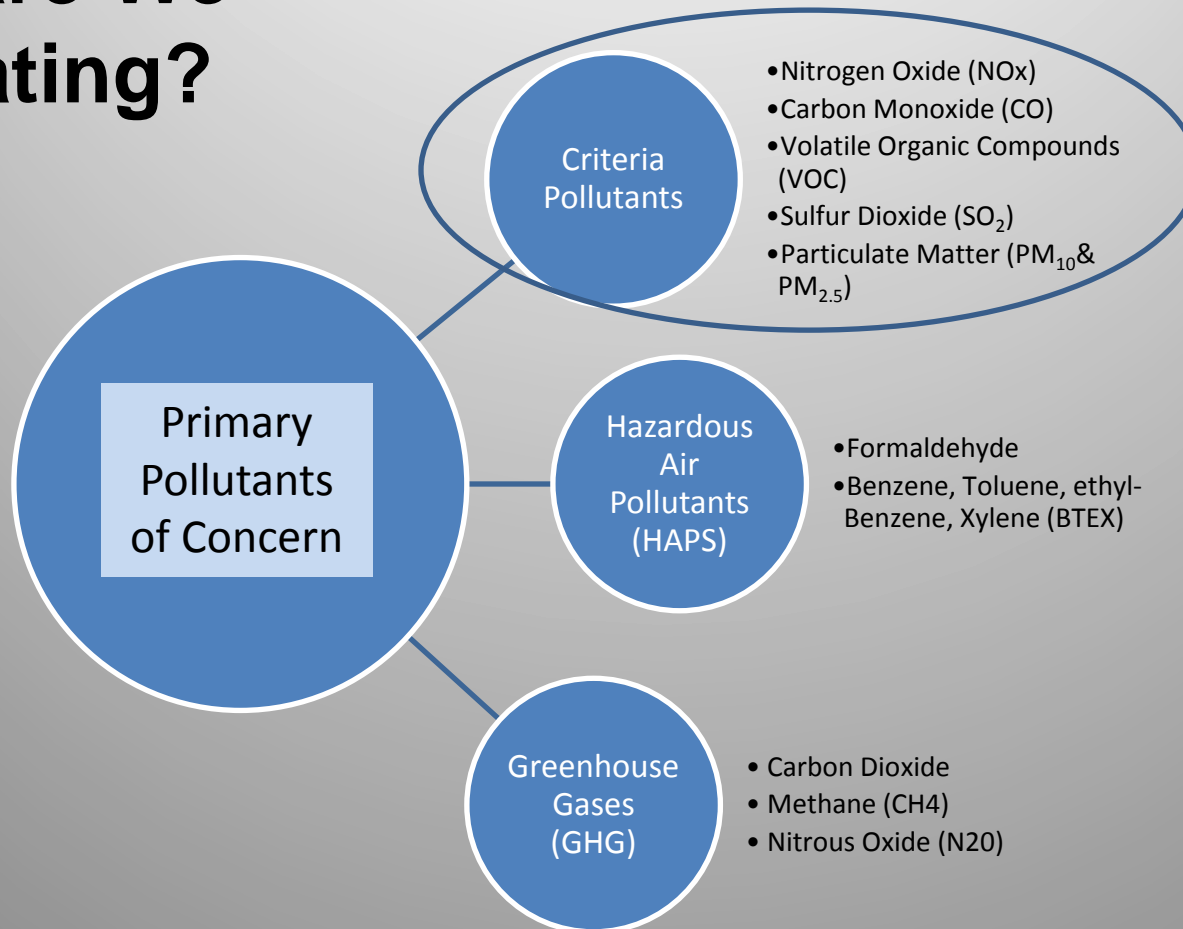
Climate Change Initiative

- ❖ Methane and VOC's
 - *What is the goal?*
 - *NSPS OOOOa*
 - *NAAQS*





What are We Regulating?





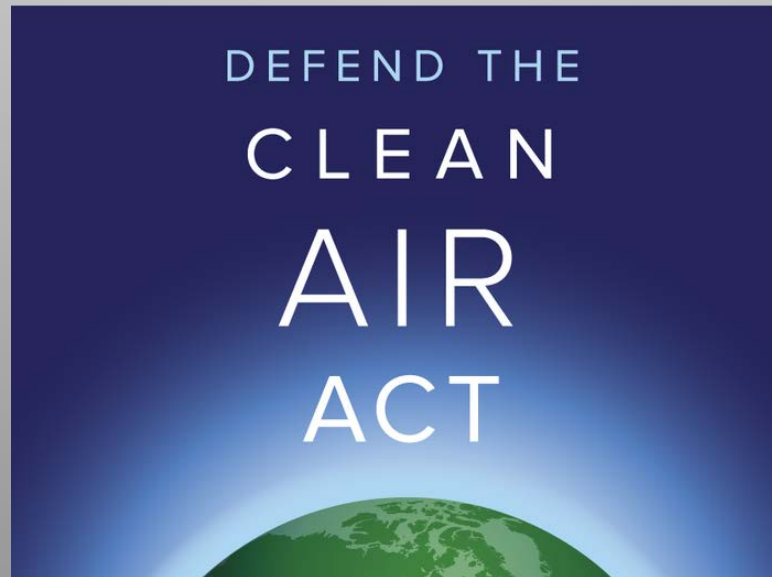
Emission Sources Emitting Air Pollutants

- Combustion Sources
 - Engines
 - Turbines
 - Heaters/Boilers
 - Flares
- Fugitives Sources
 - Compressors
 - Connectors
 - Flanges
 - Pumps
 - Valves
- Vented Sources
 - Blowdown Stacks
 - Dehydrators / Amine Treaters
 - Still Vent
 - Flash Tank
 - Storage Tanks
 - Condensate/Crude Oil
 - Produced Water
 - Methanol



How Are We Regulating All These Emission Sources?

Federally Promulgated Rules
Enforced by State Government





EPA Clean Air Act Regulations Affecting the Gas Compression Industry

- NSPS – New Source Performance Standards (40 CFR 60)
 - Engines – Subparts IIII and JJJJ
 - Turbines – Subparts GG and KKKK
 - Pneumatic Controllers and Reciprocating & Centrifugal Compressors – Subpart OOOO
 - Onshore Natural Gas Processing – Subparts KKK, LLL, OOOO
 - Storage Tanks – Subparts Kb and OOOO
- NAAQS - National Ambient Air Quality Standards (40 CFR 50)
 - Approval and Promulgation of Implementation Plans (40 CFR 52)
 - Non-Attainment New Source Review (NNSR) / Prevention of Significant Deterioration (PSD)
- Greenhouse Gas Mandatory Reporting Rule (40 CFR 98)
 - Subpart C – Combustion sources
 - Subpart W - Fugitive and vented emissions
- NESHAP –National Emissions Standards for Hazardous Air Pollutants (40 CFR 63)
 - Engines – Subpart ZZZZ
 - Dehydration Units – Subpart HH, HHH
- CAM – Compliance Assurance Monitoring (40 CFR 64)
 - Engines
 - Dehydration Units
- State Operating Permit Programs (40 CFR 70)
 - Title V Operating Permits

**KEEP
CALM
and
FOLLOW
THE RULES**



What Do All The Rules Require?

Monitoring & Recordkeeping
Executed by Permits





Categories of Compliance

NSPS

- Testing
- Maintenance Practices & Plans
- g/hp-hr Limitations
- Leak Detection

NAAQS

- Testing
- Emission Controls
- Regional or State Operating Limitations

GHG

- Reporting
- Leak Monitoring
- CO2 Controls

NESHAP

- Testing
- Maintenance Practices & Plans
- CPMS/Monitoring

What Does Every Regulation Have In Common?

In order to verify compliance all records of each requirement must be kept for at least 5 years, in some instances longer.



Air Permitting – How Permitting Requirements Play a Role

MINOR SOURCE PERMITS

- General Permits – State Adopted EPA Rules (Dual Permitting System)
Initial permits require prior notice and follow-up paperwork – start construction after prior notice.
- Permits by Rule (PBRs) – Texas only
Start anytime, permit application must be filed within 10 days of construction.
- State Specific Permits – State Published Rules (Dual Permitting System)
True Minor Source vs. Synthetic Minor Source
~3-6 months



Air Permitting – How Permitting Requirements Play a Role

MAJOR SOURCE PERMITS

- TITLE V General Permits
4-6+ months
- TITLE V Operating Permits
4-6+ months
Required 30 day public notices and 45-day EPA review after permit is drafted.
- PSD PERMITS (for construction only)
Evaluate on past ACTUAL emissions vs. future POTENTIAL emissions to determine increases over a 5 year contemporaneous period (netting exercise).
May be able to look at unrelated projects separately (EPA guidance).
Cannot phase project to avoid PSD review.
Dispersion modeling.
18-24 months currently
Timing unknown for PSD permits addressing GHGs.



Air Permitting – How Permitting Requirements Play a Role

Helpful Hints for All States

- Definition of Construction Can Be Ground Disturbance
- Gas Samples – Fuel Analysis, Extended Samples, Composite Samples, and Emission Testing
- Compression – How Important is it in Permitting? (Midstream vs. E&P)
- Expiration of Construction Permits (18 Months – 2 Years)





Federal Regulatory Updates

In-depth Analysis





Climate Change Initiative

As part of the Obama Administration's climate change initiative, the EPA developed a series of steps to address methane and smog-forming VOC emissions from the oil and gas industry, known as the "white papers." The goal was to create commonsense measures to help combat climate change.

Suite of Commonsense Measures –

- Reduction of GHG emissions, specifically methane
- Reduction of air pollution that harms public health
- Reduction of emissions of smog-forming VOCs





Climate Change Initiative – Proposed Actions

2012 New Source Performance Standards

- Updates that would set methane and VOC requirements for additional new and modified sources in the oil and gas industry

VOC emissions

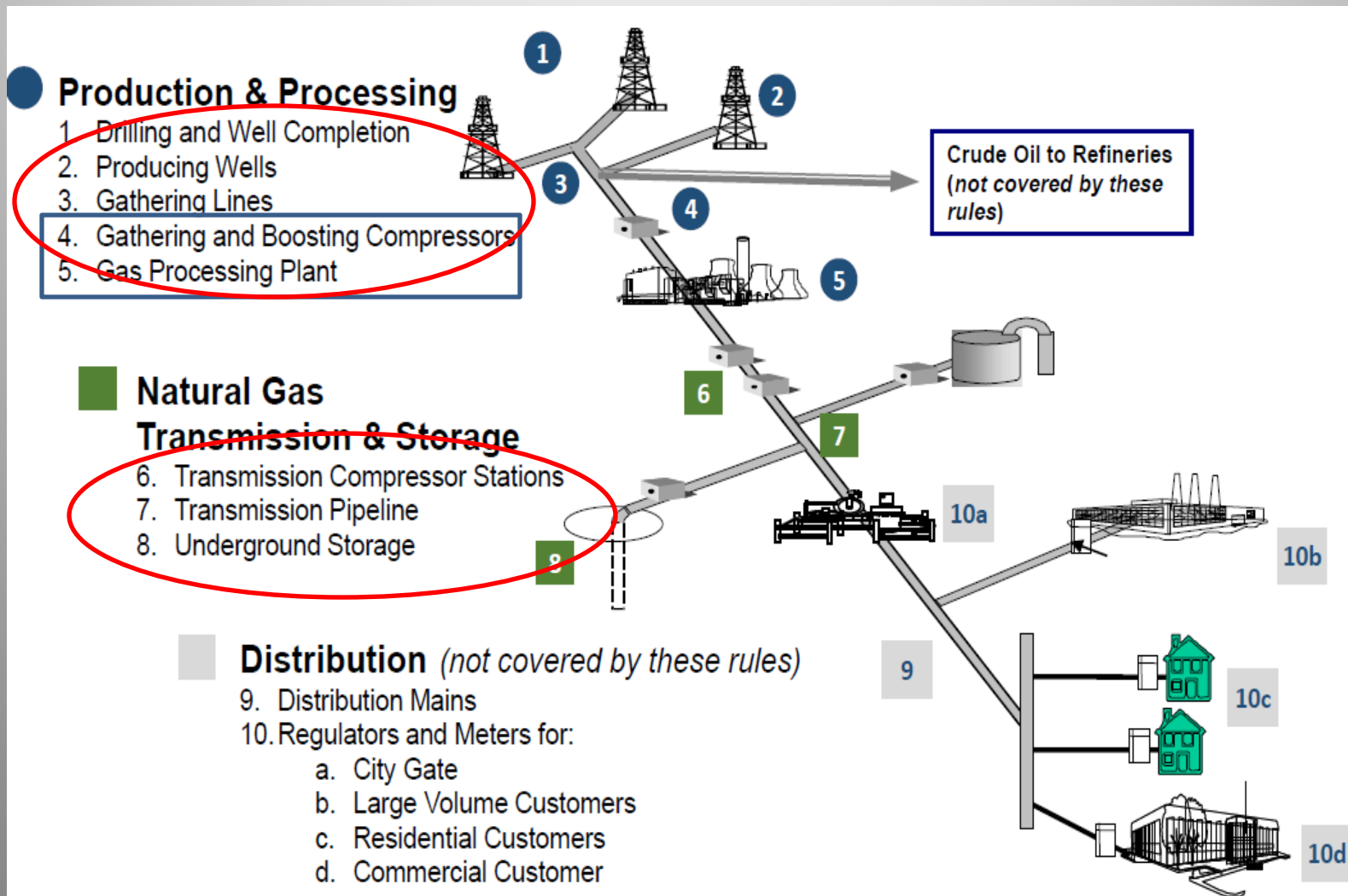
- Draft Control Technique Guidelines (CTG) for reducing emissions from existing oil and gas sources in certain ozone nonattainment areas and in the Ozone Transport Region

Air permitting rules

- Proposed updates to clarify agency's air rules as they apply to the oil and natural gas industry



Climate Change Initiative



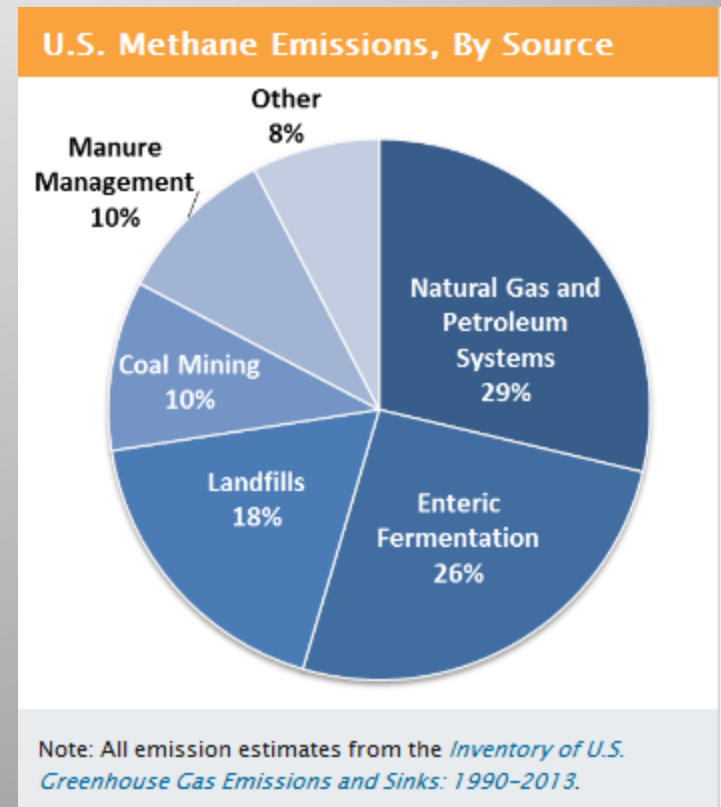
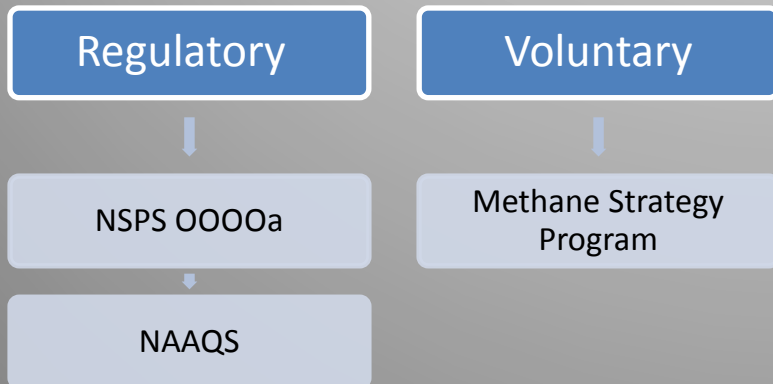


Climate Change Initiative – Methane Reduction

Methane is one of the most potent GHG with a global warming potential (GWP) more than 25 times greater than CO₂

Specifically it is the second most prevalent GHG emitted in the U.S. and nearly 30% of those emissions come from the Oil & Gas Industry.

In order to reduce Methane emissions the EPA is proposing a two fold process:





Climate Change Initiative – Methane Reduction

Building on the 2012 NSPS for VOC emissions, the proposed updates would:

- Require the industry to reduce methane by adding emissions reduction requirements for sources not covered in the original 2012 rules. These include requirements that owners/ operators:
 - Capture natural gas from the completion of hydraulically fractured wells
 - Find and repair leaks (fugitive emissions)
 - Limit emissions from new and modified pneumatic pumps
 - Expand coverage to limit emissions from several types of equipment used at natural gas transmission compressor stations and gas storage facilities

Positive Note: Sources already subject to the 2012 NSPS requirements for VOC reductions that are also covered by the 2015 methane requirements would NOT have to install additional controls, because the controls to reduce VOC already reduce both pollutants. (Ex: Storage tanks w/ PTE > 6 scfh routed to a VRU/ Flare)



Climate Change Initiative – Methane Reduction

- Natural Gas STAR expanded to include Methane Challenge
 - Companies make general commitments to track progress on reduction of methane
 - Specific tracking programs and methodology submitted
 - Transparent reporting through Subpart W of the GHG Reporting Program (GHGRP)
- Two commitment options:
 1. Best Management Practice (BPM) Commitment
 2. One Future Emission Intensity Commitment
- Companies can select the option that is most in line with corporate priorities
- Program only covers onshore oil production and whole value chain through distribution.





Climate Change Initiative – VOC Emissions & Ozone

In order to reduce VOC emissions from existing equipment and processes in the Oil and Gas Industry the EPA proposed the Draft Control Techniques Guidelines (CTG)

- CTG provides recommendations for state air agencies to assist them in determining reasonably available control technology (RACT)
 - These recommendations are NOT regulations and do not impose legal requirements on sources
 - States may adopt different methodology to meet RACT with EPA approval
- RACT applies in ozone nonattainment areas classified as “Moderate” and above, and throughout the Ozone Transport Region
- The CTG provides EPA’s RACT recommendations for equipment affected by NSPS 0000a
- The CTG includes assessment on cost of available controls to meet RACT for affected sources and model rule language.



Climate Change Initiative – Air Permitting Rules

EPA is issuing two proposals to clarify permitting requirements in the states and on Indian land.

1. Source Determination Rule: Pursuing industry/ public feedback for determining when multiple pieces of equipment and activities must be considered a single source.
 - Potential Permitting Impactions –
 - Prevention of Significant Deterioration (PSD)
 - Nonattainment New Source Review (NSR)
 - Title V Operating Permits
 - Proposes two options for the term “adjacent:”
 - Proximity based – equipment or activities would be considered adjacent if they are located on the same site or are on sites within ¼ mile of each other
 - Proximity or function based – equipment or activities would be considered adjacent if they are near each other (1/4 mile) or related by function (pipeline connection)
 - Only applies to onshore operations and sources engaged in oil and gas extraction/ production



Climate Change Initiative – Benefits & Costs

Proposed Regulatory Impact Analysis Illustration by 2025

1. Reduce between 340,000 to 400,000 short tons of methane
(the equivalent of reducing between 7.7 to 9 million metric tons of carbon dioxide, using 25 GWP factor)
2. Climate benefits of \$460 million to \$550 million
3. Estimated net climate benefit of \$120 to \$150 million
4. Also expected to reduce 170,000 to 180,000 tons of ozone-forming VOC's, along with 1,900 to 2,500 tons of air toxics (BTEX)



Climate Change Initiative – Timeline Summary

March 2014:	The President's Climate Action Plan directed to the EPA
April 2014:	EPA issues white papers
January 2015:	EPA & Administrator announce strategy to reduce methane and VOCs from the oil and gas sector
Spring 2015:	Sought input from state and local government
August 18, 2015	Proposed standards (NSPS OOOOA), FIP, and CTG announced
September 2015:	Public hearings in Denver, Dallas, and Pittsburgh on Air Permitting
? 2016:	Issuance of final rules and CTG



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National Ambient Air Quality Standards Final Update for Ozone – 2015





National Ambient Air Quality Standards Final Update for Ozone – 2015

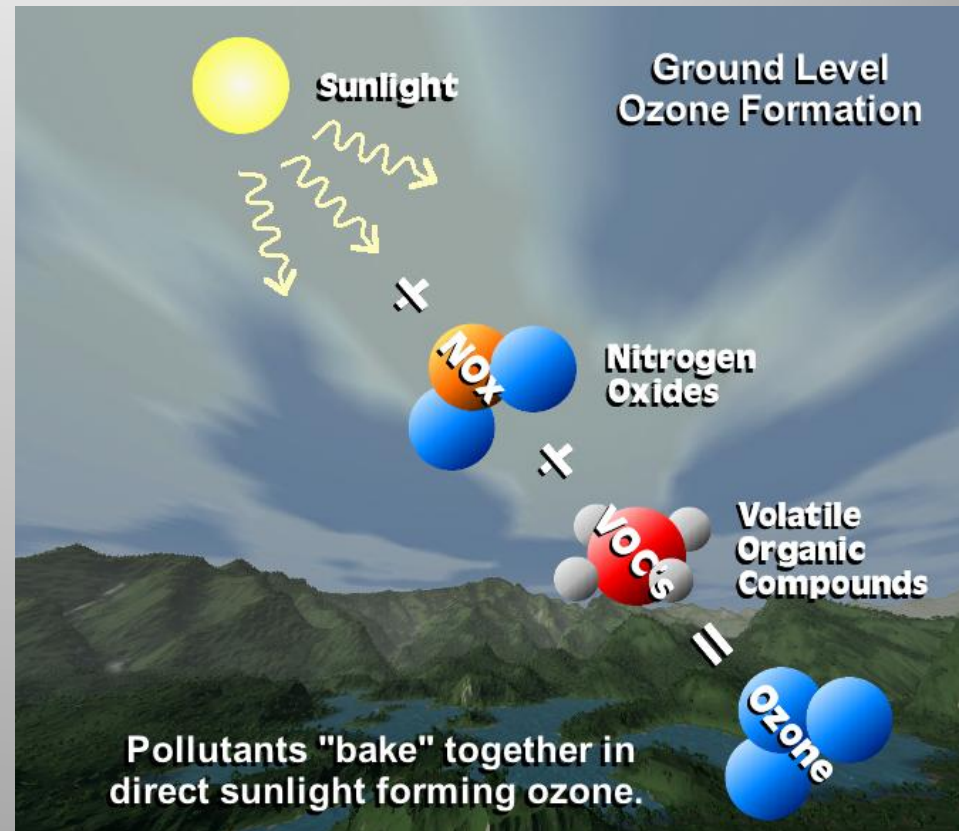
Relevant definitions –

- NAAQS – National Ambient Air Quality Standards established by the EPA under the Clean Air Act.
- State Implementation Plan (SIP) – A plan developed to comply with NAAQS for certain pollutants. A SIP consists of narrative, sample rule language, technical studies and methodology.
- Primary NAAQS – NAAQS that affects the public health.
- Secondary NAAQS – NAAQS that affects public welfare, basically the environment.



What is Ozone?

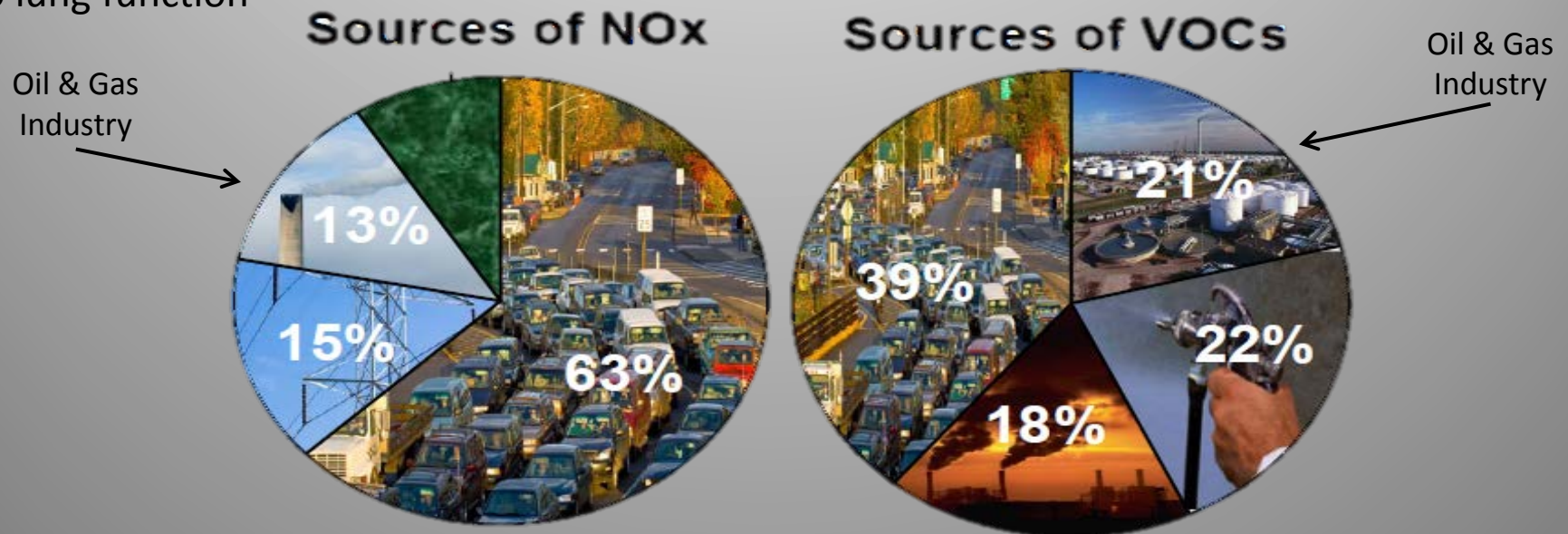
- Forms in the atmosphere from NO_x and VOCs.
- Most commonly elevated in the warmer months and warmer areas of the United States because it usually takes heat for the reaction to occur. There have been places (Northern United States) where snow has been on the ground and ground level ozone formation was monitored.
- Why is this relevant?
 - Ozone Monitoring Seasons vary depending on the location and severity of ozone formation monitored.





About Ozone

- Ozone is not just a city pollutant – Ozone and ozone forming pollutants can travel long distances.
 - Mexico & South Texas
 - Pennsylvania
- Ozone can cause harm to the lungs and exacerbate asthma and other lung related sicknesses. Repeated ozone damage to developing lungs can cause permanent reduction to lung function





Updates to Primary and Secondary Standards

- 70 ppb vs. 60 ppb – What happened? Primary Standards are developed to protect public health with an adequate margin of safety.
 - New clinical studies post 2008 provided evidence that ozone exposure at 72 ppb was dangerous to healthy, exercising adults.
 - However, the same study also proved that ozone exposure at 60 ppb provided little to no harmful results.
 - It was determined by the EPA Administrator that the clinical studies coupled with recommendations provided by the Clean Air Scientific Advisory Committee (CASAC) proved 70 ppb to be an adequate margin of safety.
 - 70 ppb eliminates health risk by protecting 99.5% of children from damage caused by even a single exposure.



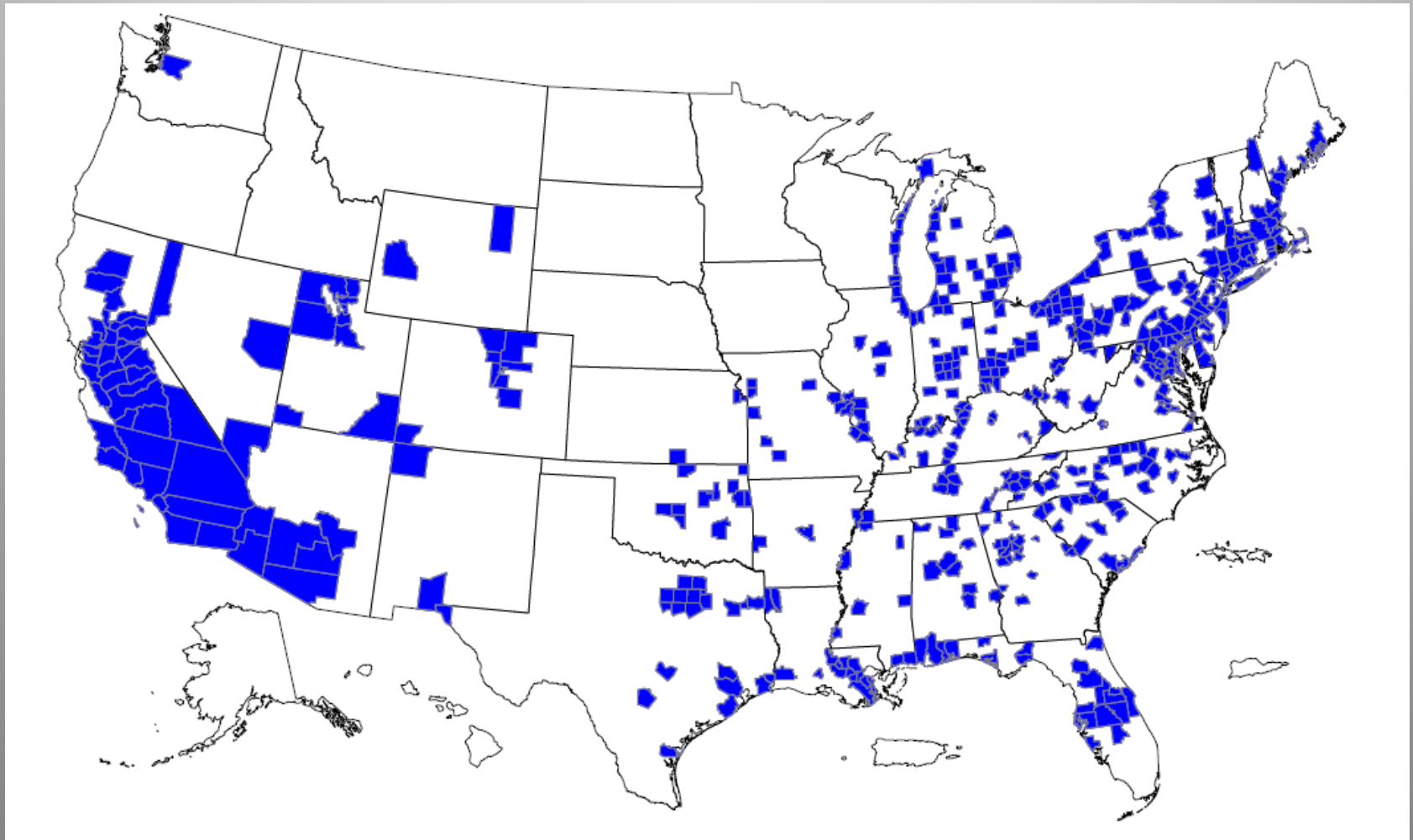
Updates to Primary and Secondary Standards

- EPA also strengthened the secondary standard level to 70 ppb to provide requisite public welfare protection or anticipated adverse effects.
 - New Environmental Impact Statements (EIS) reported evidence that repeated exposure to ozone reduces growth and pollination of saplings as well as other plants.
 - Studies have shown that ozone has significantly damaged hive development resulting in a decrease of cross pollination in various plants.
 - Based on modeling studies ozone at a level higher than 70 ppb has the potential to cause mass deforestation with minimal regrowth potential.



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Updates to Primary and Secondary Standards





Relevant Monitoring Updates

- Photochemical Assessment Monitoring Stations (PAMS) – PAMS are multi-pollutant monitoring sites designed to measure ozone development and record meteorological data used for modeling of future NAAQS standards.
 - Monitors older than 20 years will be replaced
 - New PAMS will be installed in areas with populations of 1 million plus regardless of NAAQS attainment status.
- Federal Reference Method (FRM) – FRM update for ozone allows for an additional method to incorporate future technological development and current PAMS.
 - States are not required to replace current monitors not triggering PAM updates.
 - States with a current FRM or equivalent monitor already approved by the EPA will not be effected.



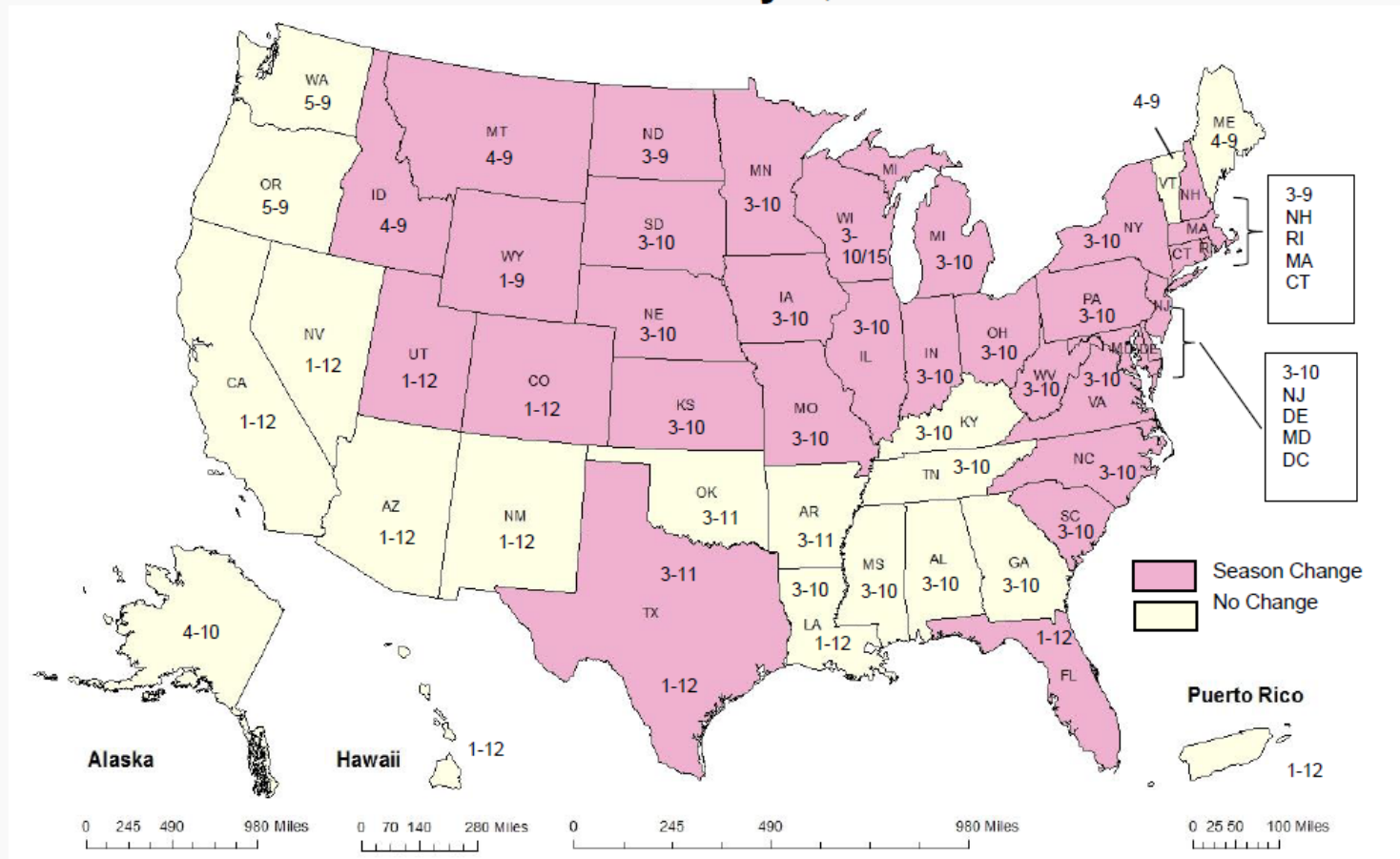
Relevant Monitoring Updates

- Ozone Monitoring Season – Final rule extends ozone monitoring season for 32 states and D.C.
 - One month extension for 22 states and D.C.;
 - Two to Seven month extensions for 10 states, including states where ozone can be elevated during the winter;
 - Year-round seasons for all PAM sites.
- Does not affect the trading program ozone season (remains May 1 – Sept 1).
- Significant changes to data collected and design value determination possible in states with already defined non-attainment zones.



Ozone Monitoring Seasons Update

Effective January 1, 2017





Monitoring Determinations

- Data Requirement Rule -- Guidance given to the states by the EPA to achieve new NAAQS.
 - The rule includes criteria for determining sources that must be evaluated with the NAAQS through either modeling or monitoring.
 - The threshold is set at 2,000 tons per year for ozone forming pollutants.
 - There is an option to establish enforceable limits <2,000 tons per year.
 - A source could be an existing monitored area.





Monitoring Determinations

Data Requirement Rule Time Table

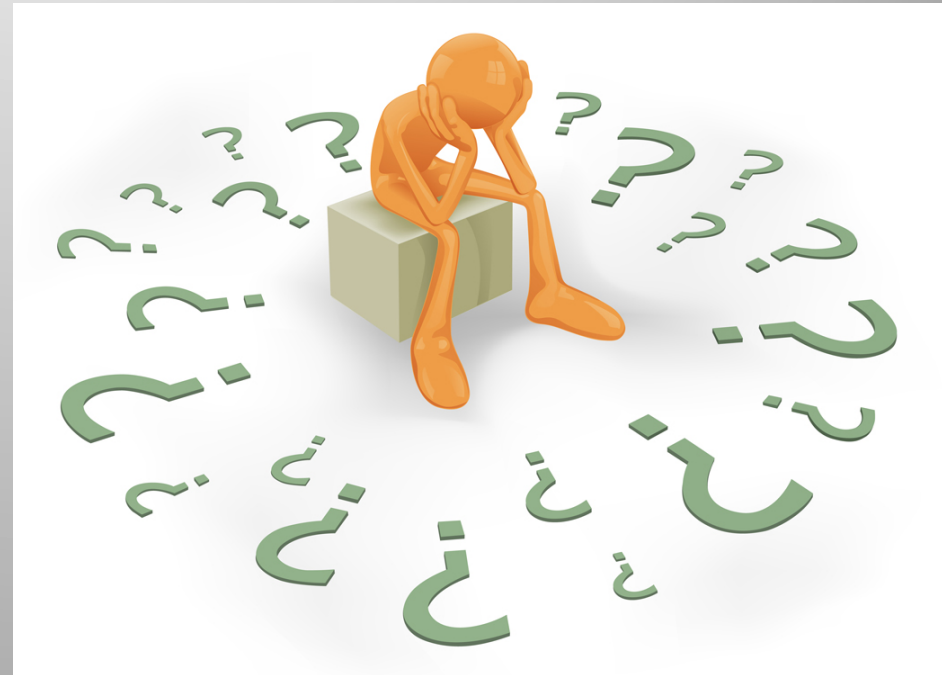
- State must submit a list of sources meeting rule criteria to EPA – January 15, 2016
- State must submit a list of current monitors requiring replacement (PAM 20 year requirement) and modeled sources to the EPA – July 1, 2016
- New monitors scheduled to be operational – January 1, 2017
- Analyses for modeled sources due to EPA – January 13, 2017
- Third year of data used to calculate design values for new monitors due to EPA – May 2020





Design Values

- The design value for a county or area is the maximum design value from all of the monitors located within that county or area, commonly converted from TPY, talked about in ppb, and classified in ppm.
- In order to determine the design value mathematically the fourth highest eight-hour daily peak per year at each monitor must be identified.
- Average those fourth highest values from the most recent three years; do this for each monitor. This is the design value for your monitor.





Design Values – Calculation Example

1. Monitor A has three years of complete data:

Eight-Hour Ozone	2013	2014	2015
Maximum Peak	87	85	86
2 nd Highest Peak	85	83	80
3 rd Highest Peak	70	78	75
4th Highest Peak	69	73	72

2. Mean of the 4th highest peak from each year

$$\frac{69 + 73 + 72}{3} = 71.334$$

3. Round the average

$$71.3344 = 71 \text{ ppb}$$



Design Values

What the Classification Ranges Will Look Like

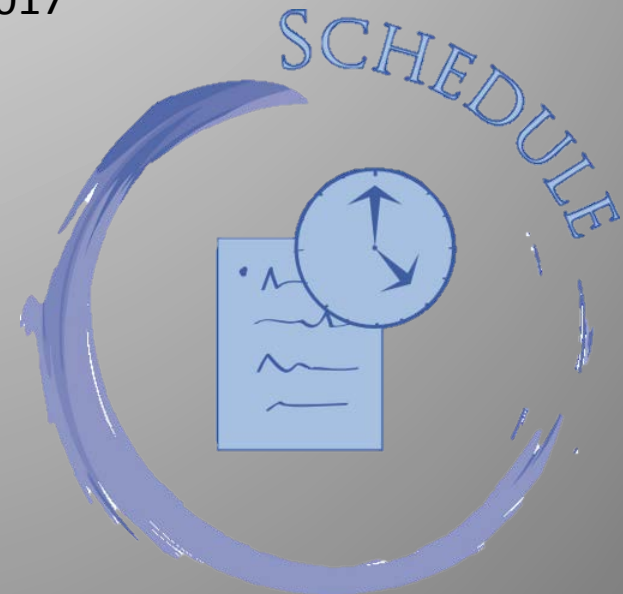
Thresholds Based on Percent-Above-Standard Approach at 0.070 ppm

Marginal	0.071 up to 0.081 ppm
Moderate	0.081 up to 0.093 ppm
Serious	0.093 up to 0.105 ppm
Severe	0.105 up to 0.111 ppm
Severe	0.111 up to 0.163 ppm
Extreme	0.163 ppm or more



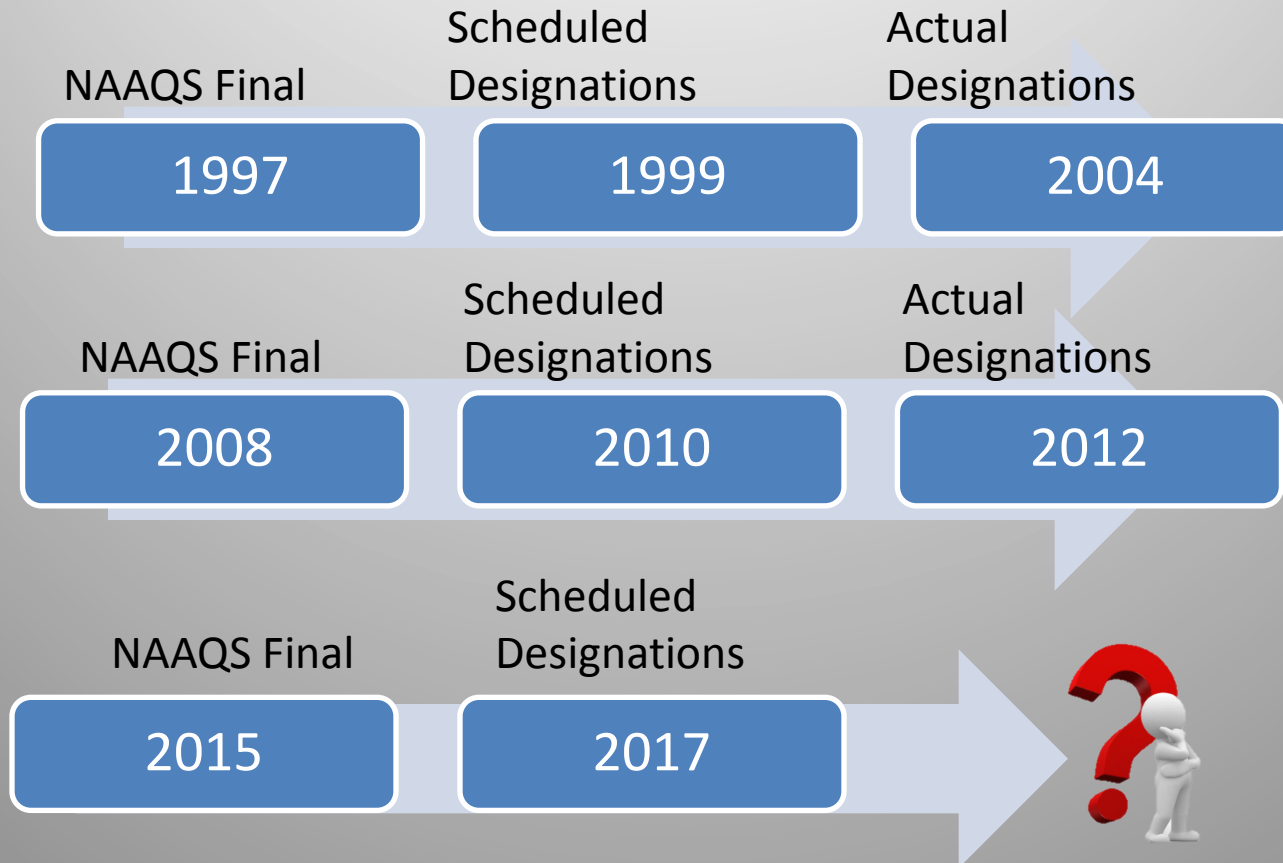
Designations Schedule

- Final Rule – October 1, 2015
- State Nonattainment Area Recommendations due to the EPA – October 1, 2016
- EPA Response to State Recommendations – June 1, 2017
- EPA Final Nonattainment Area Designations – October 1, 2017
- Infrastructure and Transport Plans Due – October 2018
- Emissions Inventories Due – October 2019
- Attainment Plans Due – 2020 or 2021
- Attainment Deadlines – 2020 to 2037





Designations Schedule – Historical View





NAAQS Final Update Summary

- Primary and Secondary standards have been sent to 70 ppb.
- Some existing monitors will be replaced and 2008 NAAQS non-attainment area results could be impacted.
- More areas will be monitored with stricter methodology, possibly causing an imbalance in the amount of ozone causing pollutants found in the Oil & Industry.
- Designation classification for the Oil & Gas Industry are still unknown.
- Potential controls and rule implementation to the Oil and Gas Industry have yet to be defined.





NSPS Subpart 0000 –Historical Look

Applicable Sources

New, reconstructed, or modified COMPRESSORS after
August 23, 2011

Pneumatic controllers

Reciprocating compressors – NOT AT A WELL SITE

Centrifugal compressor

Storage vessels

Fugitive Equipment Leaks @ gas processing plants

Sulfur recovery units

Hydraulically fractured gas wells





NSPS Subpart OOOO – What is a Well Site

So Am I subject to this subpart? §60.5365(C)

Each reciprocating compressor affected facility, which is a single reciprocating compressor located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. A reciprocating compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this subpart.

So What is.....

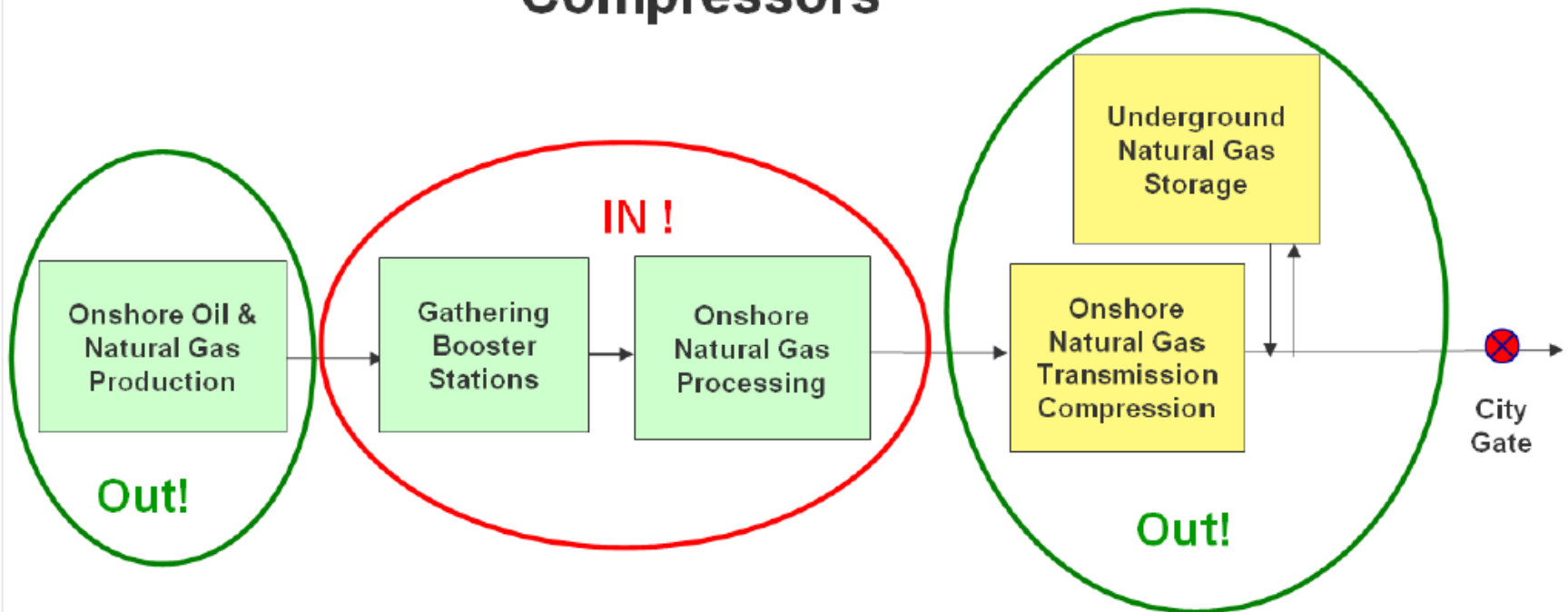
- An Affected Facility ? Any compressor that is new, reconstructed, or modified after August 23, 2011
- A Well Site ? Well site means one or more areas that are directly disturbed during the drilling and subsequent operation of, or affected by, production facilities directly associated with any oil well, gas well, or injection well and its associated well pad.
- RULE OF THUMB – A WELL IN THE FENCE LINE





NSPS Subpart 0000

Compressors





NSPS Subpart 0000



Affected Facility

Each reciprocating compressor

Applicability Criteria

- After production and prior to transmission and storage
- Trigger is installation date (except relocation)

Control Requirements

- Replace rod packing before the compressor has operated for 26,000 hours; or
- Prior to 36 months from last rod packing replacement, or startup for a new unit

Key Compliance Provisions

- Continuously monitor compressor hours or months since the last rod packing replacement
- Records of date & time of each rod packing replacement

Compliance Dates

Monitor hours or months upon initial startup, or October 15, 2012; or date of last rod packing replacement, whichever is later



NSPS Subpart 0000a –What It Looks Like Now

Updates To The Following Source Types

- Fugitives
- Pneumatic Pumps (Chemical & Diaphragm)
- Pneumatic Controllers
- Centrifugal Compressors
- Reciprocating Compressors
- Flares (controlling centrifugal compressors, pneumatic pumps, & storage tanks)
- Gas Well Completions
- Storage Vessels





NSPS Subpart 0000a –Fugitives

Applicability – All onshore oil & gas facilities (**New or Modified After 9/18/2015**)

Exemptions

1. Wells less than 15 BOPD (**At Startup – 30 Day Average**)
2. Sites with only wellheads;
3. Sites with LDAR already in place.

Compliance Date – **60 days after final rule or upon startup whichever is later**

Monitoring

1. Must develop a corporate monitoring plan.
2. Develop site specific monitoring plan, (with site map, walking path, etc.)
3. Must begin monitoring within 30 days of 1st Well completion, startup of compressor station, or defined modification.
4. Shall observe each fugitive component at least semi-annually (at least 4 months apart.) Percentage Leaking Component Variable
5. Repair/replace component within 15 days or as soon as practical and resurvey within 15 days of the fix.

Recordkeeping Citations – 60.5397a(k); 60.5420(a)(c)(15)

Reporting – **Submit an annual report.**



NSPS Subpart 0000a –Pneumatic Pumps

Applicability – Natural gas driven pumps or diaphragm pumps.

Exemptions –Pumps without control device present do not have to install controls just for pumps.

Compliance Date – 60 days after final rule or upon startup whichever is later

Monitoring

1. Must tag all pumps (month and year) and control by 95% or re-use at site
2. If no control device is installed, must submit certification in accordance with 60.5420(b)(8)(i)

Recordkeeping Citations – 60.5420(a)(c)

Reporting – Submit an initial annual report (ALL pumps with or without flare present).





NSPS Subpart 0000a –Pneumatic Controllers

Applicability – Newly installed, modified, or reconstructed pneumatic controllers between wellhead and the point where gas enters the transmission pipeline.

Exemptions – If the bleed rate >6 scfh in order to maintain function or safety related applicability determination can be made.

Compliance Date – 60 days after final rule or upon startup whichever is later

Monitoring

1. Must tag with month and year of install along with an ID number.
2. Must have a bleed rate <6 scfh.

Recordkeeping Citations – 60.5420(a)(c)

Reporting – Submit an initial annual report, 60.5420a(b)(5)



NSPS Subpart 0000a –Centrifugal Compressors

Exemptions

1. Compressors located at a wellsite or servicing more than 1 well at the site. (Microturbine – Electric)
2. Dry seal systems are exempt.

Compliance Date – 60 days after final rule or upon startup whichever is later

Monitoring

1. Must reduce methane/ VOC from wet seal degassing by 95%.
2. Conduct initial performance test within 180 days of initial startup or 60 days after final rule whichever is later.
3. Conduct initial inspections, 60.5416a.
4. Install and operate continuous parameter monitoring system, 60.5417a(a)(b).

Recordkeeping Citations – 60.5420(a)(c)(2)

Reporting – Submit an initial annual report, 60.5420a(b)(3)



NSPS Subpart 0000a Reciprocating Compressors

Exemptions

1. Compressors located at a wellsite or servicing more than 1 well at the site.

Compliance Date – 60 days after final rule or upon startup whichever is later

Monitoring

1. Replace rod packing every 26,000 operating hours or 36 months.
2. Rod packing emissions must be under negative pressure and closed vent/collection system.
3. Must keep record of number of months since last rod packing replacement.

Recordkeeping Citations – 60.5420(a)(c)(3)

Reporting – Submit an initial annual report, 60.5420a(b)(4)





NSPS Subpart 0000a Flares

Applicability – Control devices that control affected centrifugal compressors, pneumatic pumps, and storage tanks, (60.5417a).

Exemptions –Boilers used as control devices.

Compliance Date – 60 days after final rule or upon startup whichever is later

Monitoring

1. Prepare site specific monitoring plan addressing system design, data collection, and many different QA/QC elements.
2. Must install and check CPMS once a year, (unofficial RATA).
3. Conduct performance evaluation.
4. Install device equipped with continuous recorder to measure values of operating parameters (PLC & Software).
5. Flares controlling affected tanks, must conduct inspections monthly, (60.5417a(h)).
6. Install flow indicators with alarms for streams that bypass control device, (60.5411a(a)(A)).
7. Keep records of each time alarm is activated, complete with downtime requirements.

Recordkeeping Citations – Maintain records for date of purchase, make/model/serial number, copy of purchase order, lat./long., and inlet gas flow rate. 60.5420(a)(c)(5)(v)

Reporting – Submit an initial annual report, 60.5420a(b)(4)



NSPS Subpart 0000a – Gas Well Completions

Applicability – Hydraulically fractured or refractured well

Exemptions

1. Wildcat and Delineation Wells
2. Wells with GOR <300.

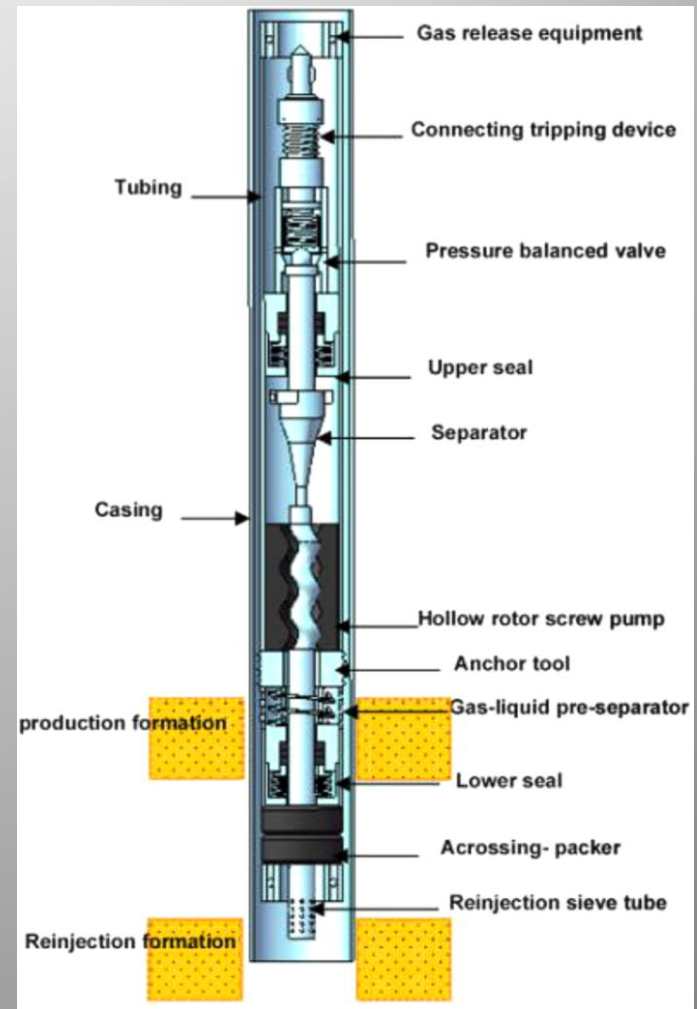
Compliance Date – 60 days after final rule or upon startup
whichever is later

Monitoring

1. Maintain/ Submit a log for each well completion.
2. Separation Flow back Stage – Collect/ combust all gas. No direct venting of gas.

Recordkeeping – Record each completion and deviation.

Reporting – Notify administrator no later than 2 days prior to commencement of well completion, 60.5420a(2).





NSPS Subpart 0000a – Storage Vessels

Applicability – Single storage vessel with VOC PTE > 6 TPY

This includes controls (i.e. flare) if controls are federally enforceable through a permit.

Compliance Date – 60 days after final rule or upon startup whichever is later

Monitoring

1. Must determine PTE within 30 days of startup if no permitting requirement present.
2. Reduce VOC emissions by 95% within 60 days of startup.
3. Equip control device through a closed vent system and conduct and initial performance test within 180 days of initial start up. (VRU/VRT).
4. Thief hatch must remain closed except for repair, sampling, etc.

Recordkeeping – Maintain records for control device requirements (design specs), deviations, and VOC determination methodology.

Reporting – Notify administrator no later than 2 days prior to commencement of well completion, 60.5420a(b)(6).





NSPS Subpart OOOOa – Important Notes

- Refracturing a well is considered a mod for fugitives and will kick in fugitives requirements, but if you do green completion the well won't be "affected".
- Refracturing does not affect other equipment.
- All new wells after 9/18/15 are affected if hydraulic refractured.
- Pneumatic pumps – If a flare is installed, you have 30 days to route pump to flare (60.5393(b)(2)(ii)).
- Control devices have very complicated requirements unless you have a "OOOO flare"(60.5412a).
- Optical gas imaging – if showing visible emissions it's considered a leak.
- A compressor station is considered modified if one or more compressors are added or a physical change has occurred that **increases the compressor capacity**.





SUPPORT and RESOURCES

- All GCA Expo presentations can be found at <http://www.gascompressor.org/environmental-membership-tools>
- Methane & Climate Change Initiative
<http://www3.epa.gov/airquality/oilandgas/actions.html>
<https://www.whitehouse.gov/blog/2014/03/28/strategy-cut-methane-emissions>
- Natural Gas STAR Methane Challenge Program
<http://www.epa.gov/gasstar/methanechallenge/index.html>
Contact Carey Bylin at (202) 343-9669 or by email at bylin.carey@epa.gov
- NAAQS Final 2015 Update
http://www.epa.gov/ttn/naaqs/standards/ozone/s_o3_index.html
- NSPS 0000a
http://www3.epa.gov/airquality/oilandgas/pdfs/og_ctg_draft_081815.pdf
http://www3.epa.gov/airquality/oilandgas/pdfs/og_prop_ria_081815.pdf



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Questions

