

2015 GAS/ELECTRIC PARTNERSHIP

CONFERENCE XXIII SINCE 1994

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# Infrastructure & Equipment Advances for Unconventional Gas/Light Tight Oil & Offshore Developments

**February 17-19, 2015**

Conference: February 18-19  
Compression Tutorial: February 17

**Northwest Forest Conference Center  
12715 Telge Road  
Cypress (Houston), Texas**

## Federal Air Regulatory Overview

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2015 Gas/Electric Partnership  
February 18<sup>th</sup>, 2015**

# Disclaimer

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This information does not represent opinions or positions. The information is intended to be an overview of the current air quality regulatory environment, for educational use only.

# Significant Air Quality Rules 2014-2015

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Ozone NAAQS

Greenhouse Gas

White House EPA Methane Strategy

Oil and Gas Rule (Subpart OOOO)

- Reconsideration
- Upcoming impacts

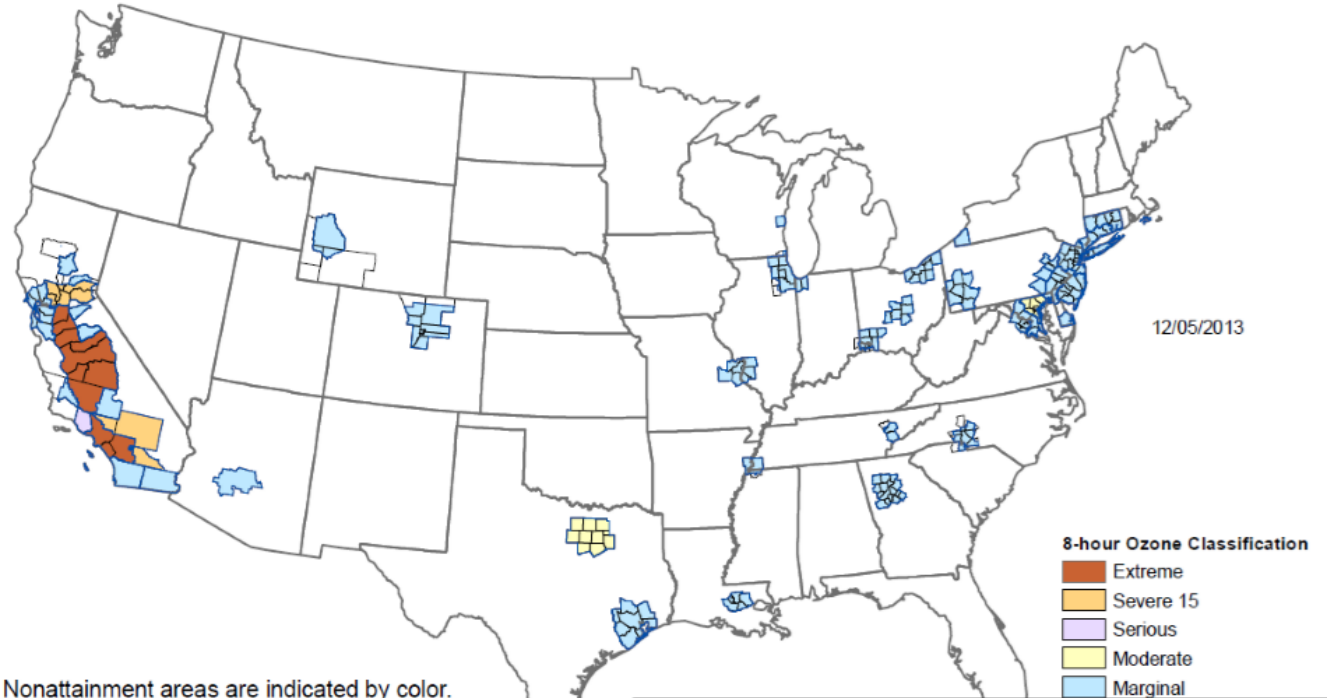
API Pneumatic Standard

# Ozone Standard

Current Standard: 0.075 ppm

Source: US EPA

## 8-Hour Ozone Nonattainment Areas (2008 Standard)



Nonattainment areas are indicated by color. When only a portion of a county is shown in color, it indicates that only that part of the county is within a nonattainment area boundary.

**Source:**  
**US Environmental Protection Agency**

### 2008 8-Hour Ozone Classifications

Extreme	Area has a design value of 0.175 ppm and above.
Severe 17	Area has a design value of 0.119 up to but not including 0.175 ppm
Severe 15	Area has a design value of 0.113 up to but not including 0.119 ppm
Serious	Area has a design value of 0.100 up to but not including 0.113 ppm.
Moderate	Area has a design value of 0.086 up to but not including 0.100 ppm.
Marginal	Area has a design value of 0.076 up to but not including 0.086 ppm.

# National Ambient Air Quality Standards (NAAQS)

Each Pollutant has a standard

Reviewed periodically, revised as necessary

Protect Public

Protect Environment

Pollutant [final rule cite]	Primary/ Secondary	Averaging Time	Level	Form
<a href="#">Carbon Monoxide</a> [76 FR 54294, Aug 31, 2011]	primary	8-hour	9 ppm	Not to be exceeded more than once per year
		1-hour	35 ppm	
<a href="#">Lead</a> [73 FR 66964, Nov 12, 2008]	primary and secondary	Rolling 3 month average	0.15 µg/m <sup>3</sup> (1)	Not to be exceeded
<a href="#">Nitrogen Dioxide</a> [75 FR 6474, Feb 9, 2010] [61 FR 52852, Oct 8, 1996]	primary	1-hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	primary and secondary	Annual	53 ppb (2)	Annual Mean
<a href="#">Ozone</a> [73 FR 16436, Mar 27, 2008]	primary and secondary	8-hour	0.075 ppm (3)	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
<a href="#">Particle Pollution</a> Dec 14, 2012	PM <sub>2.5</sub>	primary	12 µg/m <sup>3</sup>	annual mean, averaged over 3 years
		secondary	15 µg/m <sup>3</sup>	annual mean, averaged over 3 years
		primary and secondary	24-hour	35 µg/m <sup>3</sup>
	PM <sub>10</sub>	primary and secondary	24-hour	150 µg/m <sup>3</sup>
<a href="#">Sulfur Dioxide</a> [75 FR 35520, Jun 22, 2010] [38 FR 25678, Sept 14, 1973]	primary	1-hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

as of October 2011

Source: US EPA : <http://www.epa.gov/air/criteria.html>

# US EPA PROPOSED Ozone Standard 65 – 70 PPB

## Timeline

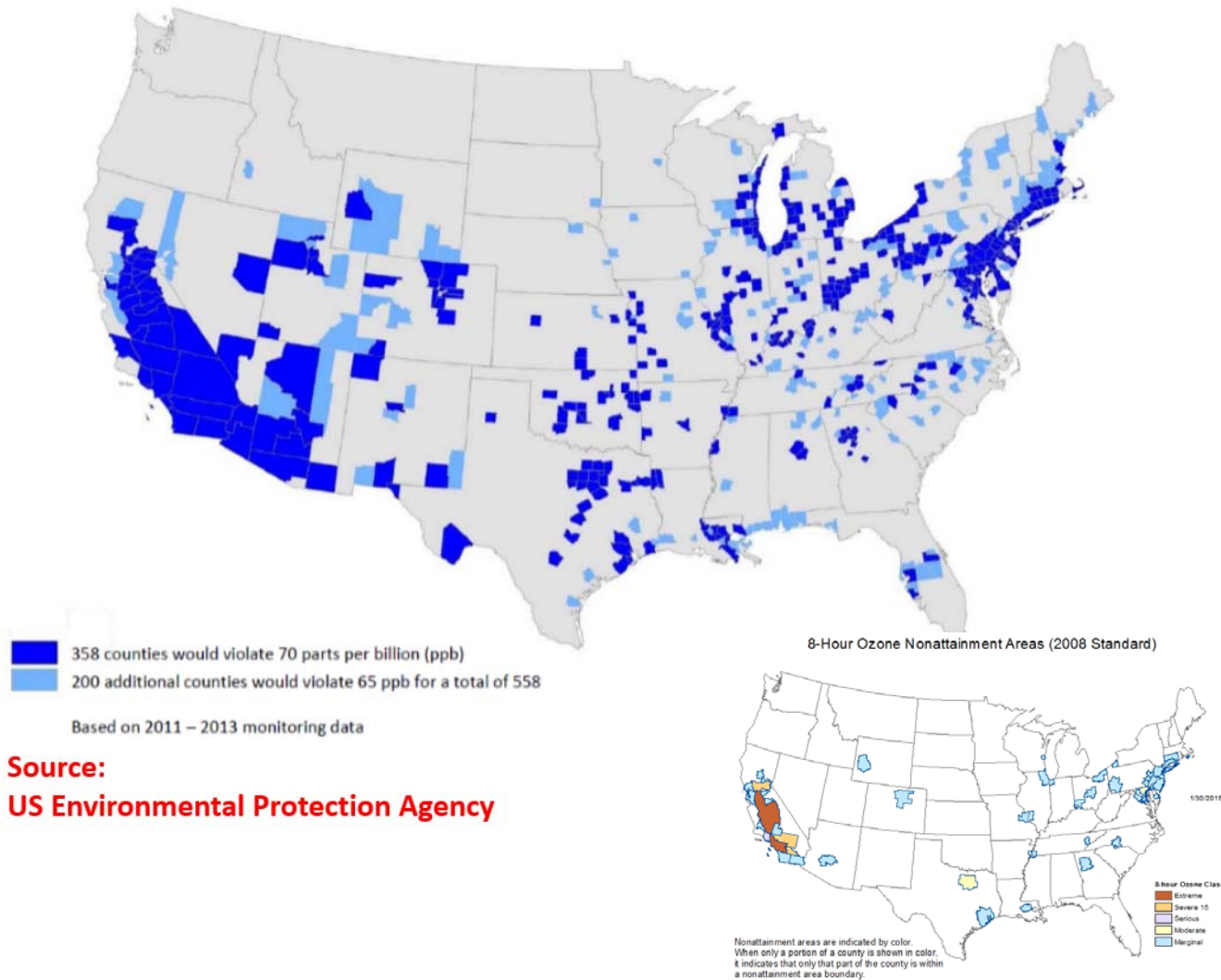
Final Rule Expected (Federal Register) by  
**October 2015**

## Impacts

- Increase in areas of “non-attainment”
- Increased Control Requirements
- Increased Operational Costs
- New Permitting Requirements

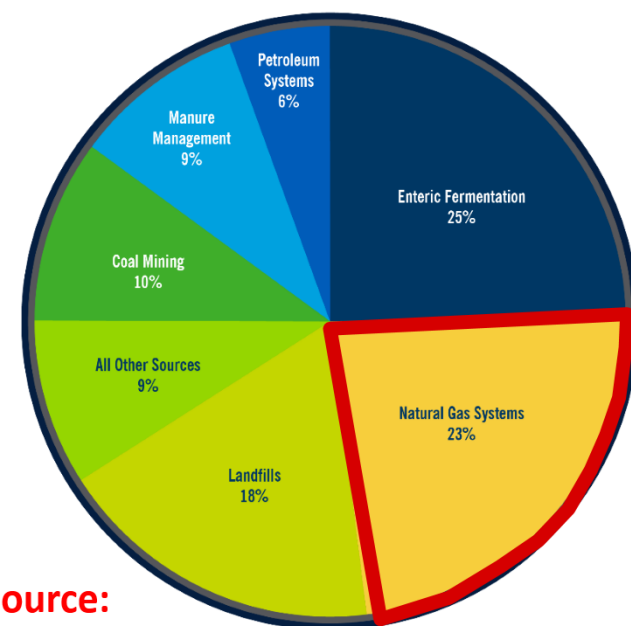
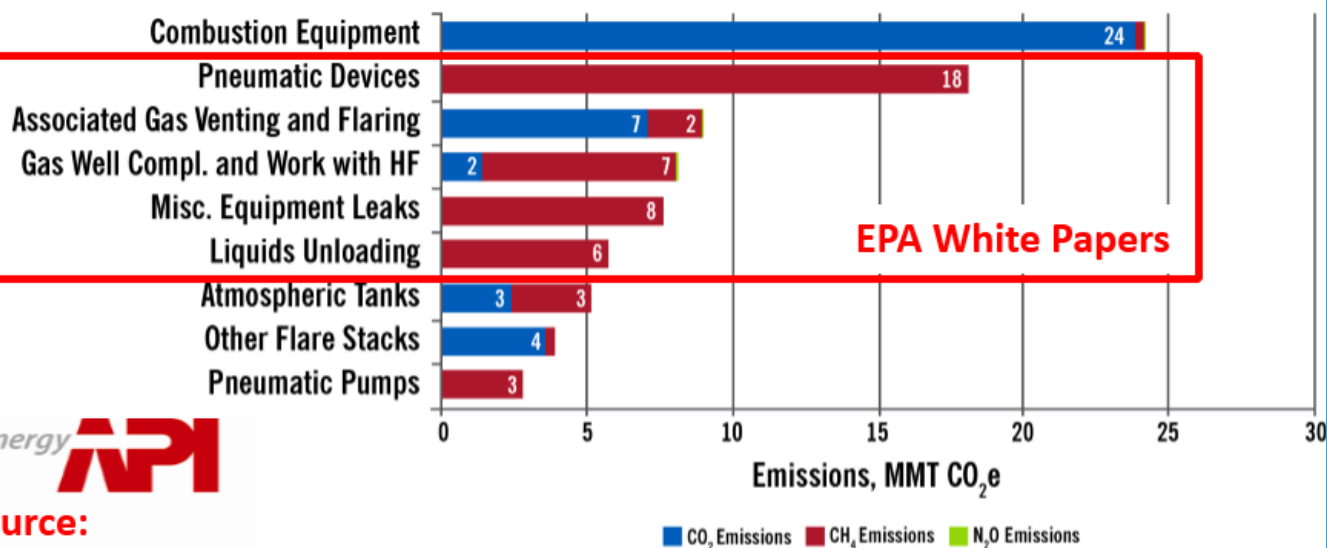
Non-attainment = measured ozone levels which exceed the standard

## Counties Where Measured Ozone is Above Proposed Range of Standards (65 – 70 parts per billion)

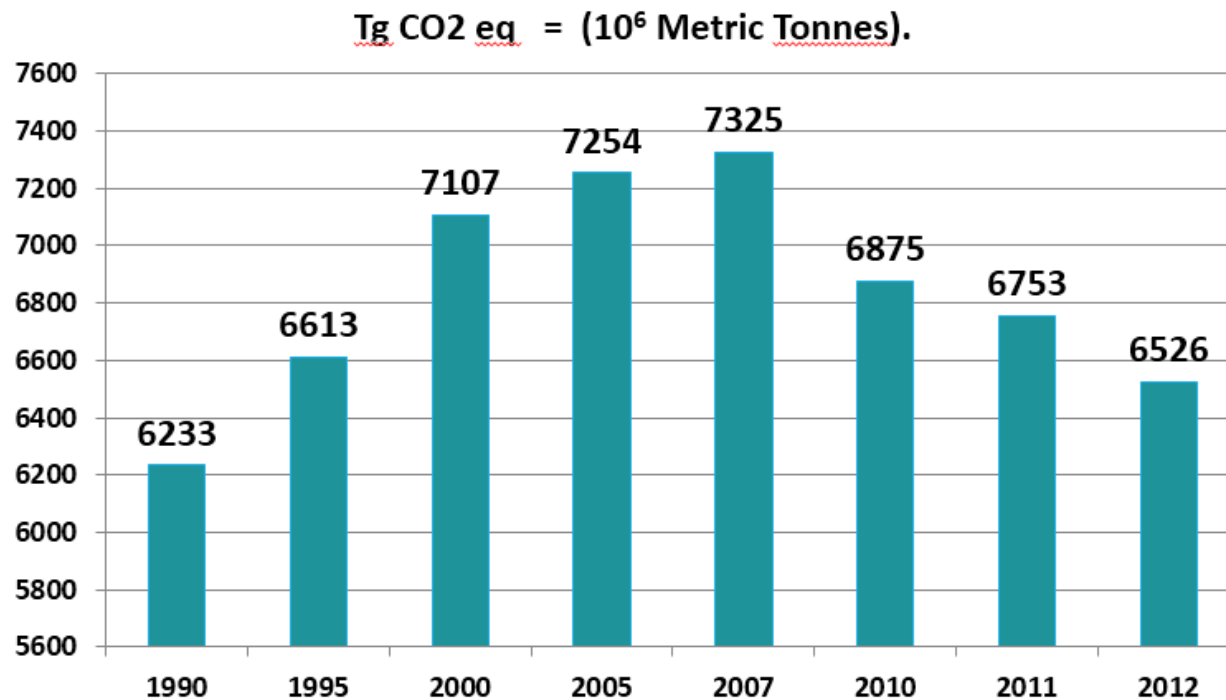


# Methane Emission Sources

2012 Onshore Production: Top Reported Emission Sources



# Greenhouse Gas Emission from Oil and Gas Industry



Source: US EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2012*



# Methane Strategy

## White House and US EPA

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**Source: January 14<sup>th</sup>, 2015 Press Releases**

Goal: Reduce Oil and Gas Sector Methane Emissions 40 – 45%

New and Modified Sources (Subpart OOOO)

- Proposed by Summer of 2015 (Final 2016)
- Methane and Ozone forming emission reductions
  - White Paper Sources: **HF oil wells, Pneumatic Pumps, Leaks**

Guidelines in Ozone transport regions

- Existing Sources in Non-attainment Areas
  - Co-benefit: Methane Reductions
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# Oil and Gas Rule (Subpart 0000)

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Hydraulically Fractured Gas Wells

Reciprocating Compressors

Continuous Bleed Pneumatic Controllers

Storage Vessels

# Hydraulically Fractured Gas Well Requirements

## Two stages for flowback

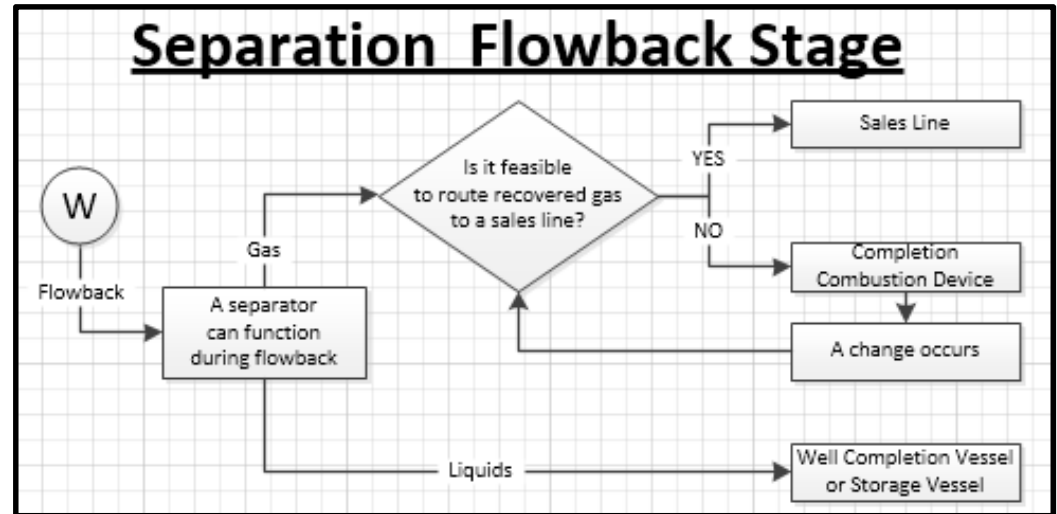
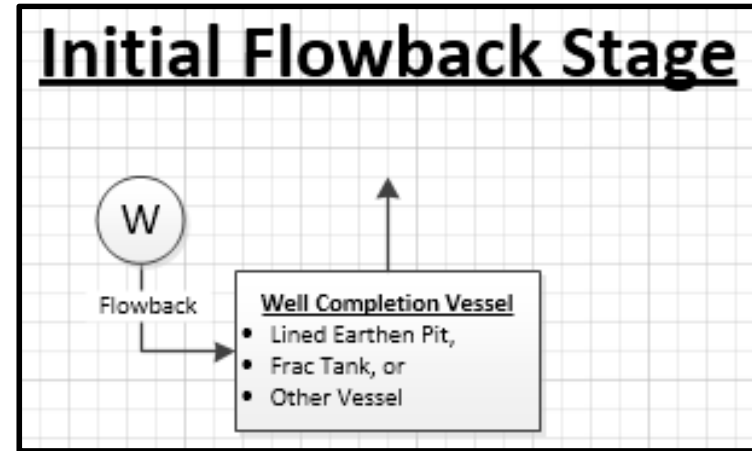
Initial Flowback Stage (liquid only requirements)

Separation Flowback Stage (gas and liquid req's)

## Well Completion Vessels

Defined as: frac tanks, pits, and temporary storage vessels

## Recordkeeping Requirements



# Flowback Requirements

Range	Date	Well Class <sup>1</sup>	Compliance (Gas)	Compliance (Oil)	Compliance (Water)
Range 1	10/15/2012-12/31/2014	Class 1,2,3	Venting is Deviation Flaring is Compliance Sales is Compliance	Liquids must be routed to a well completion vessel	
Range 2	On and after 1/1/2015	Class 1 "Wildcat"	Venting is Deviation Flaring is Compliance Sales is Compliance	Liquids must be routed to a well completion vessel	
		Class 2 "Low Pressure"	Venting is Deviation Flaring is Compliance Sales is Compliance		
		Class 3 "Development"	Venting is Deviation Flaring is Deviation <sup>2</sup> Sales is Compliance		

Notes:

<sup>1</sup> Class 1 Well – Wildcat or Delineation Well

Class 2 Well – Non-Wildcat Wells, Non-Delineation Wells, Low Pressure Wells (Low pressure gas well means 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.  $(0.445 * X) - (0.038 * Y) - 67.578 < Z$ )

Class 3 Well – Non-Wildcat Wells, Non-Delineation Wells

<sup>2</sup> Flaring is a deviation if it is feasible to sale gas.

# Continuous Bleed Pneumatic Controllers

## Natural Gas Processing Plants

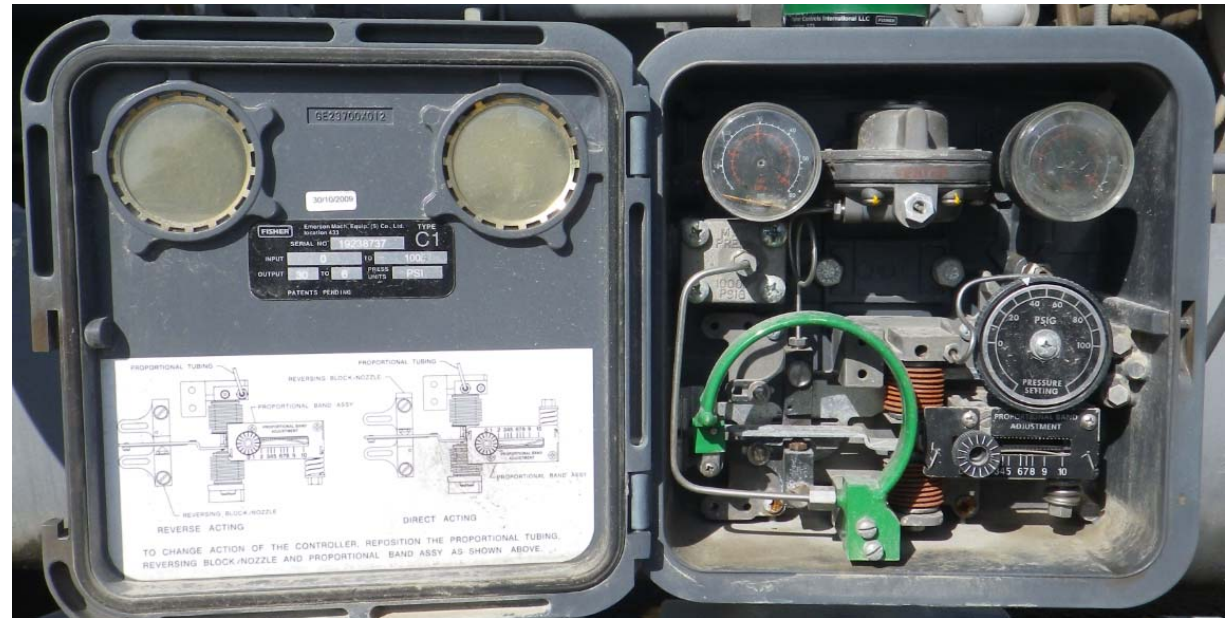
Natural Gas Bleed, not allowed (use instrument air)

## Production and Gathering Facilities

>6scfh (**after 10/15/2013**) must be tagged and reported – Recordkeeping  
Required to have a functional need [60.5390(a)]

<6scfh (low bleed) maintain manufactures documentation

Only affects “new” – Constructed after 8/23/2011



2014 OOOO: Gas Wells, Reciprocating, **Pneumatic Controllers**, Tanks

# Affected Storage Vessels - Requirements

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## 2012 Final Rule

- 95% Control
- Performance Testing
- Flow Monitoring
- Cover and CVS Requirements

## 2013 Reconsideration

- 95% Control
- Periodic Inspections
- Cover and CVS Requirements

## 2014 Requirements

- Tanks requirements when removed and placed back into service.

## 2015?

# API Pneumatic Controller Standard


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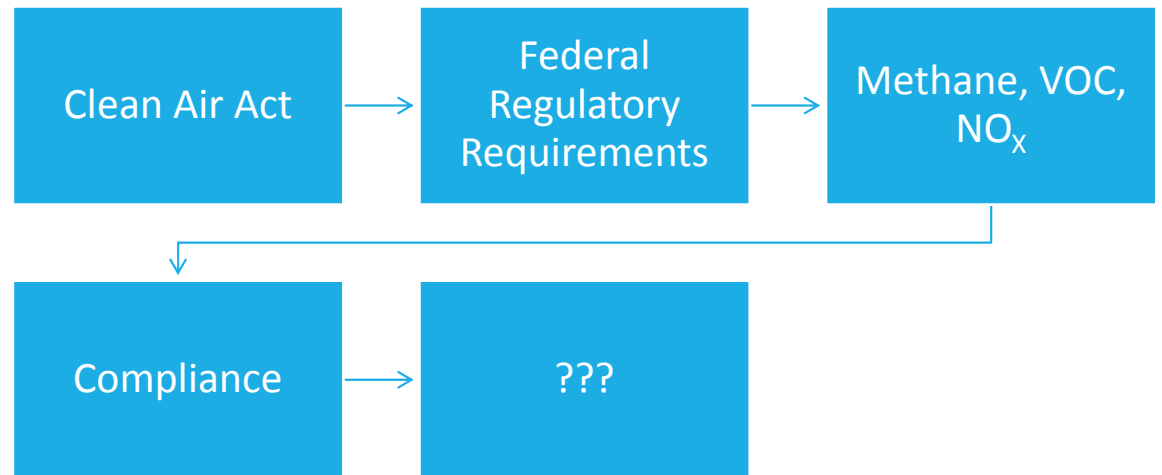
## Pneumatic Controllers in the Oil and Gas Industry

### Three Objectives

- Standardize Classification
- Emissions Determination
- Manufacturer's Documentation
  - Data Characterization
  - Rate determination methods

Process is Open to **both** API members and Non-API entities (volunteered contributions)

- Industry Companies
  - Manufacturers
  - e-NGOs
  - EPA
  - Academia
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# Questions?

Discussion