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Gunning for Methane: Updates from the Environmental Protection Agency

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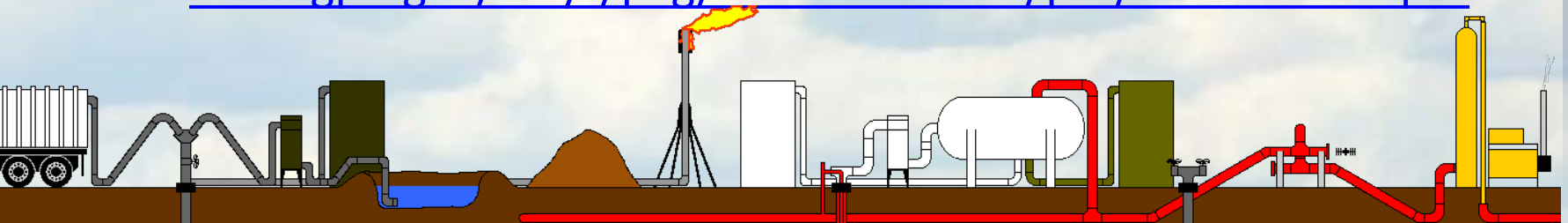
Overview: Environmental Actions 2015-16

- U.S. Environmental Protection Agency (EPA) proposed expanded methane leak detection requirements
- Ohio EPA proposed leak detection requirements in air permits
- U.S. EPA proposed reporting methane leaks in annual greenhouse gas (GHG) emissions report
- U.S. EPA proposed more stringent chemical accident prevention regulations
- Ohio State Emergency Response Commission (SERC) proposed rule to add facilities to community response plans
- U.S. EPA expanded protected waters in Clean Water Rule but U.S. Circuit Court stayed rule until after hearing

Methane: Federal Proposal (1)

Title 40 of the Code of Federal Regulations (40 CFR), Part 60, Subpart OOOOa (4-O-A) Proposal Summary

- Controls methane (CH_4) and volatile organic compounds (VOC - organic compounds except methane and ethane)
- Requires CH_4 and VOC monitoring and control equipment
- Applies to compressors, pneumatic controllers, pneumatic pumps, and storage vessels (tanks)
- Final rule expected by November
- Proposal published in Federal Register on Sept. 18, 2015
  - Applies to facilities constructed or modified after this date
  - Volume 80 of the Federal Register, Page 56593
  - www.gpo.gov/fdsys/pkg/FR-2015-09-18/pdf/2015-21023.pdf



Methane: Federal Proposal (2)

40 CFR, Part 60, Subpart OOOOa Control Requirements

Wet-Seal Centrifugal Compressors

- 95% CH_4/VOC reduction from wet seal fluid degassing system
  1. Vent exhaust to control device (flare);
  2. Vent exhaust to process (boiler); or
  3. Replace with a dry-seal compressor.

Reciprocating Compressors

- Control options:

1. Replace reciprocating compressor rod packing either:
   - Every 26,000 hours of operation (need a hour counter); or
   - Before 36 months from last change.
2. Vent to a control device (boiler, flare, carbon absorber, etc.).

Methane: Federal Proposal (3)

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40 CFR, Part 60, Subpart OOOOa Control Requirements

Pneumatic Pumps

1. Vent to a control device ***IF AVAILABLE***; or
2. Use compressed air instead of natural gas.

Pneumatic Controllers

1. Low bleed: rate of ≤6 standard cubic feet/hour natural gas; or
2. Use compressed air instead of natural gas.

Storage Vessels

- Condensate, liquids, and produced water storage tanks
- Vessels with ≥6 tpy uncontrolled VOC
  1. Reduce VOC by 95%; or
  2. Reduce uncontrolled VOC emissions to <4 tpy.

Methane: Federal Proposal (4)

40 CFR, Part 60, Subpart OOOOa Monitoring Requirements

Compressors

- Monitor all fugitive emissions components for methane
  - Valves, connectors, pressure relief devices, open-ended lines, access doors, flanges, vents, hatches, and seals
  - Not devices designed to vent gas normally (i.e., controllers)
- Develop a site-specific leak detection and repair (LDAR) plan
- Use optical gas imaging equipment for monitoring
- First monitoring: 30 days after compressor startup
- Second monitoring: at least 4 months after
- After 2 semi-annual surveys:
  - Quarter monitoring: >3.0% fugitive emissions detected
  - Annual monitoring: <1.0% fugitive emissions detected
  - Semi-annual monitoring: ≤3.0% and ≥1.0%

Methane: Federal Proposal (5)

40 CFR, Part 60, Subpart OOOOa Monitoring Requirements

Compressors, Pneumatic Pumps, and Storage Vessels

- Annual visual inspections of control device and ducting
- Continuous (hourly) monitoring and recording system for control device
- Emissions testing or control device demonstration
- LDAR (compressor stations and associated equipment only)
- Repair of leaking components

40 CFR, Part 60, Subpart OOOOa Reporting Requirements

- Annual Report
  - Compliance with limits, record keeping, and monitoring
  - Equipment exempted from regulation

Methane: Ohio Proposal

Ohio EPA issues air permits for equipment emitting air pollutants

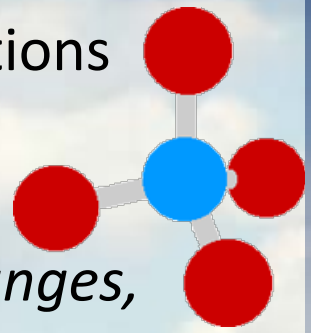
- Equipment examples: Compressors, engines, leaking equipment, glycol dehydrators, storage tanks, and loading and pigging operations
- 2 types of air permits:
  - Source-specific: written for individual facility
    - Submit permit application
    - 6 months for Ohio EPA to write custom permit
  - General: pre-written for any qualified facility
    - Submit qualification statement
    - Download permit from Ohio EPA website
- Proposed general air permit requires LDAR for CH_4 and VOC
  - www.epa.ohio.gov/dapc/genpermit/permitsec.aspx

Methane as an Ohio Air Pollutant (1)

Air Pollutant: an air contaminant for which the source is regulated under the Clean Air Act *[OAC Rule 3745-31-01(I)(2)]*

How Ohio will regulate methane:

- A source must emit an air pollutant to get an Ohio air permit
- Ohio only enforces Federal standards through an air permit
- Ohio has drafted a general air permit with methane LDAR
- Ohio will issue air permits with OOOOa CH_4 restrictions
  - Methane becomes an Ohio air pollutant



Ohio EPA issues permits for natural gas connectors, flanges, open-ended lines, pigging operations, valves, and vents at compressor stations. Is the distribution network next?

Methane as an Ohio Air Pollutant (2)

"Methane has been regulated for some time if it was emitted from landfills. For other sources of methane, we have not historically regulated it. However, as you have pointed out, since the courts have now said that it is clearly regulated under the [Clean Air Act], and our rule defines an air contaminant source as "regulated under the CAA", a legal analysis might tell us that it is regulated under other non-landfill sources. We have not yet tried to do the legal analysis to make this determination and we have not yet changed our approach to including methane in non-landfill permits. However, this could change in the future."

9/21/2015 email from:
Michael E. Hopkins, P.E. Assistant Chief Permitting
Ohio EPA Division of Air Pollution Control

Greenhouse Gas Reporting: Federal

40 CFR, Part 98, Subpart W: Natural Gas Systems

- Transmission and distribution networks report methane loss as a GHG to U.S. EPA
- Proposal to incorporate OOOOa monitoring into mandatory GHG reporting for natural gas systems (Subpart W)
  - Add optical gas imaging as a leak detection method
  - Report methane from monitored equipment leaks, instead of estimating leaking equipment
  - Report monitoring and LDAR information into Subpart W **AND** in annual OOOOa reports to EPA
  - Natural gas distribution would have to report any equipment subject to OOOOa

Chemical Accident / Risk Management (1)

Chemical Accident Prevention Provisions – 40 CFR, Part 68

A risk management program (RMP) is required for sites that store more than a threshold quantity of a regulated substance. An RMP is the plan for reducing accidents involving:

- Toxic materials; and/or
- Flammable materials.

There are 3 program levels of RMP requirements.

- Program 1: No accidental release and no offsite impacts
- Program 2: Offsite impact, but not subject to Program 3
- Program 3: Subject to Occupational Safety and Health Administration Process Safety Management Standard

Chemical Accident / Risk Management (2)

EPA proposes the following changes to the RMP program:

- Clarify catastrophic release definition
- Expand incident investigations to include root cause analysis
- Expand process hazard analysis (PHA) to include ALL incident investigations (i.e. from similar processes)
- Require incident investigation completion within 12 months
- Annual coordination with local emergency responders
- Require emergency response exercises and reports
- Expand publicly available information and public meetings

Proposal published in Federal Register on March 14, 2016

- Volume 81 of the Federal Register, Page 13638
- www.gpo.gov/fdsys/pkg/FR-2016-03-14/pdf/2016-05191.pdf

Chemical Accident / Risk Management (3)

Incident Investigation: analysis of factors contributing to an event could have **OR** which resulted in a catastrophic release

- *Catastrophic Release:* new term defined to include workplace (onsite) incident investigations as part of RMP
- Root cause analysis during investigation to find fundamental reasons why incident occurred
- Investigation findings and lessons learned used in future PHA and similar processes
- Incident investigations must be completed within 12 months, with an extension available at EPA discretion
  - *12 month incident investigation requirement already a part of Federal air regulations for petroleum refineries*
- Proposal is limited to RMP Programs **2 & 3**

Chemical Accident / Risk Management (4)

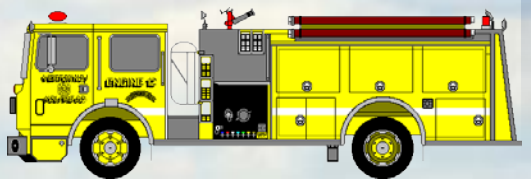
Public Information: Improve data-sharing efforts with public balanced with potential security risks

- Local Emergency Planning Committee (LEPC) and first responders want better chemical hazard and risk information
- Community informed on basic information regarding risks and incidents
- 1999 Chemical Safety Information, Site Security and Fuels Regulatory Relief Act modified public RMP information
  - Public RMP access restricted to Federal Reading Rooms
  - Public meetings required for existing sites within 180 days
- Proposal is limited to RMP Programs **2 & 3**

Chemical Accident / Risk Management (5)

Emergency Responders: required if local emergency personnel respond to accidents / emergencies

- LEPC (County Emergency Management Agency) determines site inclusion in the Community Emergency Response Plan
- Site must assess adequacy of local emergency responders
- Site must annually coordinate with local responders
  - Document coordination activities and communication
  - Flammable materials – coordinate with fire department
- Annual emergency response exercise (invite local responders)
  - Tabletop exercise and emergency notification test
- Field exercise (simulated release) every 5 years and within 1 year from accidental release at any RMP site
- Proposal is limited to RMP Programs **2 & 3**



Chemical Accident / Risk Management (6)

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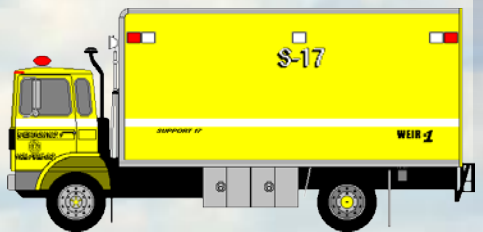
Emergency Response Exercise Report: report submitted to EPA and local emergency responders within 90 days of a tabletop or field emergency response exercise

- Description of the exercise scenario
- Name and association of each participant
- Evaluation of the exercise results
- Lessons learned
- Recommendations for improvement or revisions to RMP
- Schedule for implementing revisions
- Evaluate coordination with external responding agencies
- Maintained for 5 years
- Proposal is limited to RMP Programs **2 & 3**

Chemical Accident / Risk Management (7)

Emergency Responders Information: annually provide RMP information to LEPC and emergency responders

- Names and quantities of regulated substances above the threshold quantity *(Levels 1, 2, & 3)*
- Accident history *(Levels 1, 2, & 3)*
- Compliance audit reports *(Levels 2 & 3)*
- Incident investigation reports *(Levels 2 & 3)*
- Emergency response exercise reports *(Levels 2 & 3)*
- Confidential Business Information (CBI) can still be claimed but a sanitized version must be provided



Chemical Accident / Risk Management (8)

Public Proposal: annual public reports via website, government building, or publicly available at the site

- Names and quantities of regulated substances above the threshold quantity *(Levels 1, 2, & 3)*
- Safety Data Sheets - MSDS *(Levels 1, 2, & 3)*
- Accident history *(Levels 1, 2, & 3)*
- Site emergency response plan *(Levels 1, 2, & 3)*
- Emergency exercise reports *(Levels 2 & 3)*
- LEPC contact information *(Levels 1, 2, & 3)*

- Public meeting within 30 days of accident *(Levels 1, 2, & 3)*
  - Information regarding accident (incident investigation)
  - Post-accident operational or process changes

State Emergency Response Commission

Emergency Planning / Community Right-to-Know Act Reporting

- Ohio EPA & SERC proposed a new rule expanding chemical reporting (Tier II) requirements *[OAC Rule 3750-10-08]*
- Ohio EPA / SERC can order facility to submit a Tier II report
  - LEPC petitions Ohio EPA / SERC for order
  - Requires facilities to participate in the community emergency planning process
  - Must be "necessary and appropriate" to protect public health, public safety, or the environment
  - Applicable even if facility exempt from Tier II reporting
- Proposal: www.epa.ohio.gov/dapc/serc.aspx#122453394-rules

Protection of U.S. Waters: Federal

Clean Water Rule

- EPA modified the clean water rule to define protected waters of the U.S. (waters covered by clean water rule)
  - Expanded to protect waters next to jurisdictional waters
  - Expanded to include special water features
  - Excluded ditches not constructed in streams
  - Excluded ditches that flow only when it rains

- Rule effective on August 28, 2015
- U.S. Sixth Circuit Court of Appeals stayed changes to the rule on October 9, 2015
- Clean Water Rule reverts to case-by-case determinations until final decision on appeal
- More information: www.epa.gov/cleanwaterrule

Any Questions?

Thank You

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