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Common RCRA Subpart BB (LDAR) Compliance Issues

Missouri Hazardous Waste Seminar

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Nancy Liang, P.E.

nliang@trinityconsultants.com

Agenda

- National Compliance Initiatives
- RCRA BB LDAR Standards
- Common Compliance Issues

National Compliance Initiatives

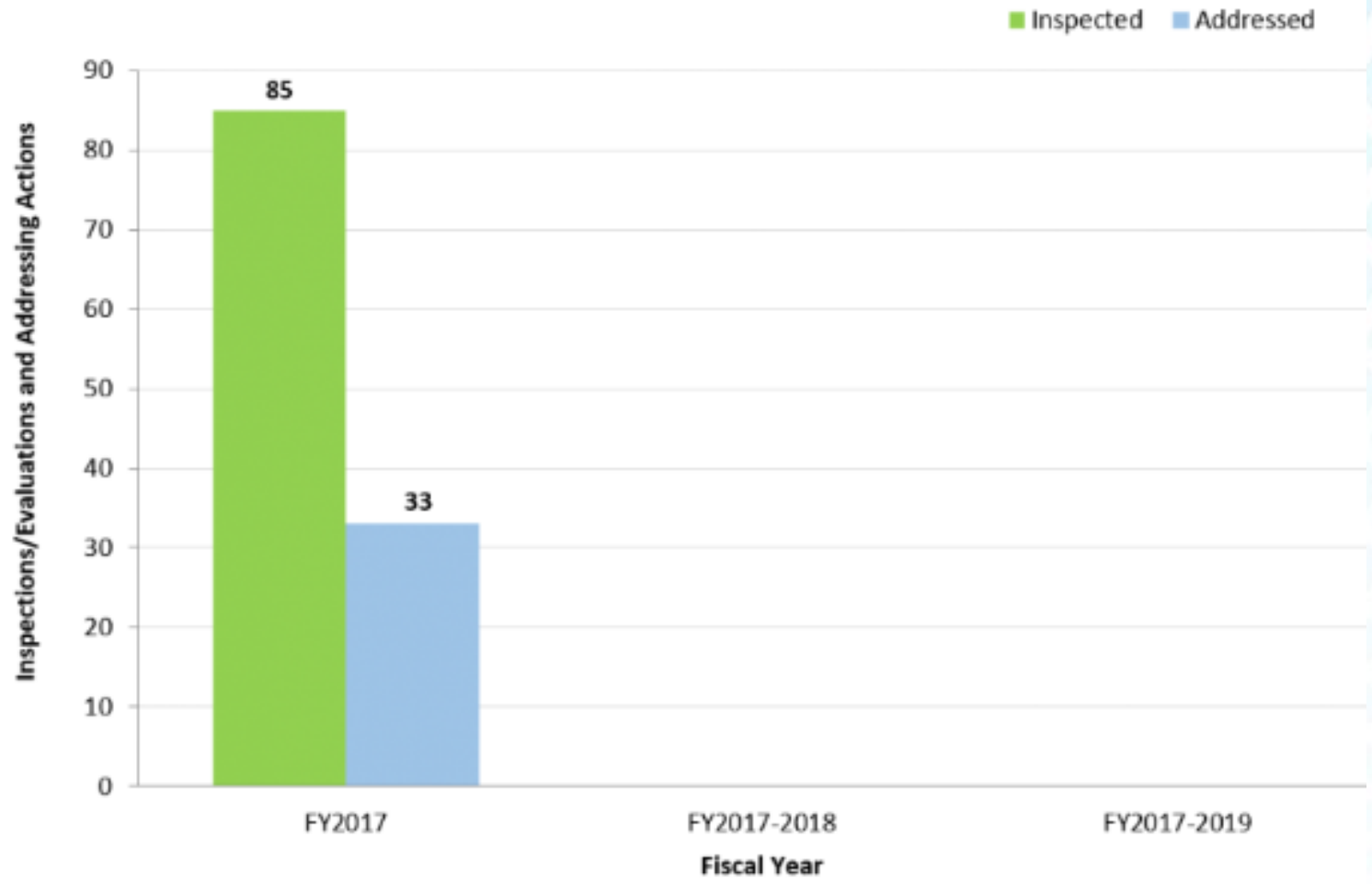
- Renamed from National Enforcement Initiatives
- Selected every 3 years
- Focus of EPA enforcement activities
- Current NCI (FY2017 – 2019)
  - Reducing Hazardous Air Emissions from Hazardous Waste Facilities

Reducing Hazardous Air Emissions from Hazardous Waste Facilities

- Goal
  - "EPA, in partnership with authorized states, will focus on identifying and addressing violations of ***leak detection and repair requirements for related hazardous waste treatment equipment***. This initiative will ensure a nationally consistent approach to returning facilities to compliance in order to reduce health and environmental exposure and ensure a level playing field for regulated industries."

RCRA Air Regulations

Cumulative Number of EPA Inspections and Addressing Actions at Facilities Subject to RCRA Air Regulations



*Addressed means that a facility is subject to an enforceable order (judicial or administrative) requiring compliance, or has been inspected and found to have no significant violations.

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RCRA Applicability

- Facilities permitted per 40 CFR 270 (Treatment, Storage & Disposal Facilities)
- Facilities that are Large Quantity Generators (LQGs), ≥ 1,000 kg/mo. (≥ 2200 lb/mo.) that store in containers or tanks
- Applies to hazardous waste streams

RCRA LDAR Standards

- Subpart BB, Air Emissions Standards for Equipment Leaks
  - Components that contain or contact hazardous wastes with organic concentrations of at least 10-percent by weight ***and***
  - Are managed in one of the following:
    - Unit subject to 40 CFR 270 (permitted), or
    - Unit (including hazardous waste recycling unit) that is not exempt from permitting under 40 CFR 262.34(a) (e.g., 90-day tank) and that is located at a facility otherwise subject to 40 CFR 270, or
    - Unit exempt under 40 CFR 262.34(a) (e.g., 90-day tank) and is not a recycling unit under 40 CFR 261.6

Common Compliance Issues

- Applicability Determination
- Monitoring Frequency
- Method 21 Monitoring

Applicability Determination

Applicability Determination

- Is it a hazardous waste?
  - RCRA waste characterization (Listed and/or Characteristic?)
- Organic concentration ≥ 10 wt%?
  - ASTM D2267-88 (GC), E169-87 (UV), E168-88 (IR), or E260-85 (GC), or
  - SW-846 9060A (TOC)
  - Documentation of generator knowledge
  - These are required only if exemption desired
- In operation >300 hours per year?

Monitoring Frequency

Equipment

- Pumps
- Valves
- Compressors
- Pressure relief devices
- Connectors
- Open-ended lines/valves
- Sampling connection systems
- Closed vent systems

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Service Types

- *In gas/vapor service* means that the piece of equipment contains or contacts a hazardous waste stream that is in the **gaseous state** at operating conditions.
- In light liquid service means that the piece of equipment contains or contacts a waste stream where
  - the vapor pressure of one or more of the organic components in the stream is greater than 0.3 kilopascals (kPa) at 20 °C
  - the total concentration of the pure organic components having a vapor pressure greater than 0.3 kilopascals (kPa) at 20 °C is equal to or greater than 20 percent by weight
  - the fluid is a liquid at operating conditions.
- In heavy liquid service means that the piece of equipment is not in gas/vapor service or in light liquid service.

Process Component	Service	RCRA, Subpart BB	
		Monitoring	**Definition of Leak**
Pumps	Light liquid	Monitor monthly	10,000 ppm
		Conduct weekly visual observations	Indications of liquids dripping from pump seal
	Heavy liquid	Monitoring of potential leaks within 5 calendar days of detection is required if there are visual, audible, olfactory, or other indications of a potential leak.	10,000 ppm

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Process Component	Service	RCRA, Subpart BB	
		Monitoring	**Definition of Leak**
Valves	Gas/Vapor	Monitor monthly After two consecutive months of no leaks detected for a given valve, monitor the valve the first month of every succeeding quarter. Revert to monthly monitoring once a leak is detected. There are alternative standards – skip periods.	10,000 ppm
	Light liquid		
	Heavy liquid	Monitoring of potential leaks within 5 calendar days of detection is required if there are visual, audible, olfactory, or other indications of a potential leak.	10,000 ppm

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Process Component	Service	RCRA, Subpart BB	
		Monitoring	**Definition of Leak**
Pressure relief devices	Gas/Vapor	After each pressure release for each device, return to no detectable emissions within 5 calendar days as indicated by monitoring	"No detectable emissions" - less than 500 ppm above background.
	Light liquid	Monitoring of potential leaks within 5 calendar days of detection is required if there are visual, audible, olfactory, or other indications of a potential leak.	10,000 ppm
	Heavy liquid		

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Method 21 Monitoring

Method 21

- Method 21 is the required test method for the determination of HAP/VOC leaks from process equipment
- A portable instrument is used to detect HAP/VOC leaks from equipment

Type of Monitors

- Catalytic Oxidation
  - Cosmos XP-316
- Flame Ionization
  - TVA-1000 series
- Photoionization
  - TVA-1000 Series
  - MiniRae 3000
- Infrared Absorption
  - Thermo Sapphire 205

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Method 21 Calibration

- Standard Calibration
  - Complete daily on monitoring days
  - Zero Gas – Air, less than 10 part per million by volume (ppmv) VOC
  - Calibration Gas – For each organic species that is to be measured during individual source surveys, obtain or prepare a known standard in air at a concentration approximately equal to applicable leak definition (500 / 10,000 ppm)

Method 21 Calibration

- Precision Calibration
  - Precision Calibration must be completed prior to placing the analyzer into service and at subsequent 3-month intervals or at the next use, whichever is later
  - Calibration Steps:
    - Make a total of 3 measurements by alternately using zero gas and the specified calibration gas
    - Record the meter readings
    - Calculate the algebraic difference between the meter readings and the known value
    - Divide this average difference by known calibration value and multiply by 100 to express the results as a percentage
    - Shall be ≤10% of the calibration gas value

Certificate of Analysis

- Required to be readily accessible with cylinder calibration gases
- Information includes:
  - Cal gas manufacturer
  - Date of manufacture
  - Expiration/use before date
  - Gas composition (e.g. methane/air)
  - Specification (e.g. 500 ppm balance +/- 5%)
  - Actual concentration of gas (e.g. 503 ppm)
  - Cylinder size, contents, pressure, and valve type.

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Oldsmar, FL 34677
(800) 910-0051
Fax: (866) 755-8920
www.gascogas.com

CERTIFICATE OF ANALYSIS

Date: December 29, 2017
Order Number: 4039
Lot Number: TMBH-150A-10000-4

Customer:

Use Before: 11/29/2021

Component	Specification (+/- 5%)	Analytical Result (+/- 2%)
Methane	10000 PPM	10060 PPM
Air	Balance	Balance

Cylinder Size: 3.7 Cu. Ft.
Contents: 105 Liter

Valve: 5/8"-18 UNF
Pressure: 1200 psig

The calibration gas prepared by Gasco is considered a certified standard. It is prepared by gravimetric, or partial pressure techniques. The calibration standard provided is certified against Gasco's G.M.I.S. (Gas Manufacturer's Intermediate Standard) which is either prepared by weights traceable to the National Institute of Standards and Technology (NIST) or by using NIST Standard Reference Materials where available.

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Questions?

Nancy Liang, P.E.
(913) 894-4500
nliang@trinityconsultants.com