NSPS 0000a Fugitive Emissions Requirements

International Petroleum Environmental Conference

November 10, 2016

New Orleans, LA



Margo D. Moss

Margo.moss@lmenviro.com

Lee J. Lemond

Lee.lemond@Imenviro.com

About Us

- **▶** Founders of L&M Environmental Response
- ▶ Compliance Consulting & Emergency Response Services
- ► Former Regulators at the Louisiana Department of Environmental Quality





Presentation Overview

- ► EPA's National Enforcement Initiative
 - ▶ Leak Detection & Repair (LDAR)
- ► Compliance with New NSPS OOOOa Fugitive Emissions Rules
 - ▶ LDAR Program for Natural Gas Processing
 - ► Fugitive Inspections for Affected Cover & Closed Vent Systems
 - ► Fugitive Emissions Program for Well Sites & Compressor Stations



National Enforcement Initiative

► LDAR Programs are included under the 10/1/17 expanded NEI through 2019 aimed at cutting Hazardous Air Pollutants (HAPs), which began in 2004.

EPA has worked to identify and address illegal and excess emissions of toxic air pollutants from leaks and flares at facilities that have a significant impact on air quality and health in communities since this initiative began in 2004.

-EPA, website

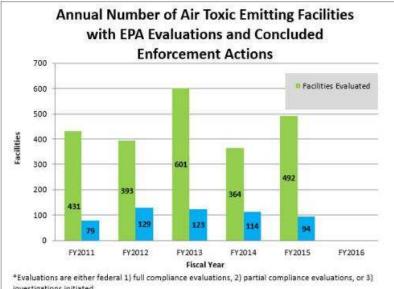
This enforcement action is part of EPA's national initiative to reduce emissions of HAPs by enforcing compliance with the Clean Air Act's "leak detection and repair" (LDAR) regulations. EPA has determined that leaking equipment such as valves, pumps and connectors are the largest source of emissions of hazardous air emissions from chemical manufacturers and petroleum refineries.

-DOJ, Settlement Press Release



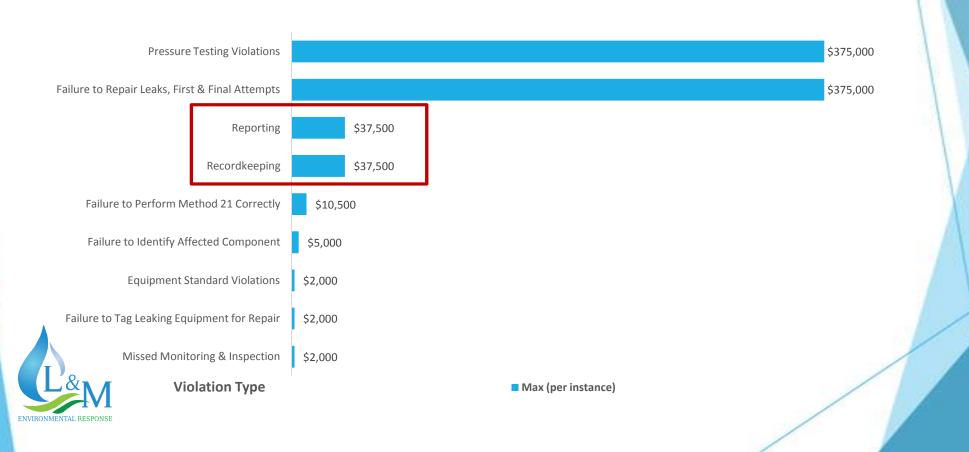
Nationwide Focus on Inspection & Enforcement





^{*}Some facilities were the subject of more than one enforcement action; those facilities are counted only

EPA LDAR Penalties



Recent LDAR Related Settlements

Facility ^a	Date	Violation Type	Total Cost	\$ Fine	Capital Exp.	SEP	Enhanced LDAR	Criminal
Refineries (6)	2016	LDAR & Various	\$425 Million	✓	✓	✓	✓	
Chemical (1)	2016	LDAR	\$3.5 Million	✓		1		✓
Refinery (1)	2016	LDAR & Emissions Limit	\$249,000	✓				
Nat. Gas Processing (1)	2015	LDAR	\$885,000	✓		✓		
Chemical (1)	2014	LDAR & Various	\$2.7 Million	✓	✓	1	✓	
Chemical (1)	2013	LDAR	\$800,000	✓	✓		✓	
Chemical (2)	2012	LDAR & Control Emissions	\$6.3 Million	✓	✓	✓	✓	
Refinery (1)	2011	LDAR & Various	\$710 Million	✓	✓	1	✓	

^a Number of facilities included in settlement.

NSPS 0000a Overview

- ▶ Affects: New, modified and reconstructed sources after September 18, 2015.
- **Effective:** August 2, 2016.
- Initial Compliance Period:
 - Begins: August 2, 2016 or startup
 - ► Ends: August 2, 2017
- ▶ Augments: NSPS OOOO (New or modified after August 23, 2011).
 - ▶ Adds fugitive requirements for well sites and compressor stations.
 - ▶ Includes new requirements for affected wells, storage vessels and pumps.

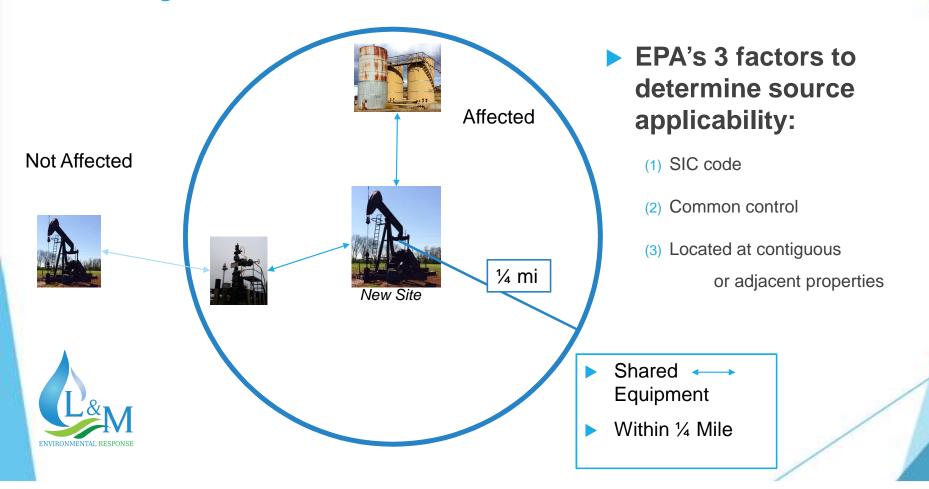
Affected Sources & Facilities

NAICS Code	Name
211111	Crude Petroleum and Natural Gas Extraction.
211112	Natural Gas Liquid Extraction.
221210	Natural Gas Distribution.
486110	Pipeline Distribution of Crude Oil.
486210	Pipeline Transportation of Natural Gas.

Affected Facility	Location
Well Completions (for hydraulically fractured wells)	All
Wet seal centrifugal compressors	All (excludes well sites)
Reciprocating compressors	All (excludes well sites)
Pneumatic controllers	All
Natural gas driven pumps	At NG processing plants and well sites
Storage Vessels	All
Collection of fugitive emissions components	Well sites and compressor stations
Equipment Leaks at NG processing plants	All NG processing plants
Sweetening units at NG processing plants	All NG processing plants



Adjacent Facilities Definition



Fugitive & LDAR Requirements in OOOOa

- ► LDAR for Onshore Natural Gas Processing Plants (§60.5421a & VVa)
- ► Fugitive Inspections for Covers & Closed Vent Systems (§60.5416a)
- Fugitive Program for Well Sites and Compressor Stations (§60.5397a)

LDAR Natural Gas Processing

- Existing VVa requirements.
- ▶ 0000 Specific Requirements
 - ➤ Assume each piece of equipment is in VOC or wet gas service unless documented otherwise.
 - ► Additional Recordkeeping for Pressure Relief Devices:
 - List of equipment ID numbers and certification of no detectable emissions.
 - ▶ Leak Tag weatherproof & readily visible w/equipment ID.
 - ▶ Leak Records must be kept in a log for 2 years.



Example Repair Log



Natural Gas Processing LDAR - Repair Log

Initial Leak Required Information First Repair Attempt					mpt	Additio	ditional Repair Attempt Delay of Repair Required Information								Repaired				
Component ID	Leak Tag ID	Date of Leak	Monitoring Instrument ID	Monitoring Technician ID	(1) Leak Statement	(1) Date First Repair attempt	(1) Repair Method	(2) Leak Statement	(2) Date Repair attempt	(2) Repair Method	Date DOR Determined	Max Reading Placed DOR	"Repair Delayed"	Reason for DOR	Signature of Operator making Determination	Estimated Date for Repair	Unit Shutdown Dates	Repair Date	Max Reading Post-Repai
PRV-124	15	09/01/16	TVA-0768	L.Lemond	Above 500 ppm	9/2/16	tighten	NA	NA	NA	9/2/16	650 ppm	Repair Delayed	Shutdown required	MDM	5/2017			
												11		R Leak Definitio					
												onent	P44441-10441-14	Leak Definition					
											PRD		G/V, LL	500 ppm	Above 50	A17 - 124 -			
											PRD*		LL, HL	10,000 ppm	Above 10,0	COLD BUILDING			
											Pumps - polyn		LL	5000 ppm	Above 500				
											Pumps - Othe	r	LL	2000 ppm	Above 200				
											Connectors		G/V, LL	500 ppm	Above 50	0 ppm			
											Compressors		Any	500 ppm	Above 50	0 ppm			
`											Valves		G/V, LL	500 ppm	Above 50	100 Mark 2000			
A .											Pumps, Valve	s, Connectors*	HL	10,000 ppm	Above 10,0	000 ppm			
											Closed Vent S Control Device		NA	500 ppm	Above 50	0 ppm			
\mathbb{L}_{8}	ZN Л																		

Fugitive Inspections for Covers & Closed Vent Systems

- On Affected Storage Tanks
 - Monthly Inspection Visual, olfactory, auditory
- On Affected Centrifugal Compressors, Reciprocating Compressors & Pneumatic Pumps
 - ► Closed Vent System Semi-Permanently or Permanently Sealed (ex. joint, seam, welded connections)
 - Initial Inspection Method 21
 - ► Annual Inspections Visual
 - Closed Vent System Other Components (ex. hoses, sampling ports, open ended)
 - Initial Inspection Method 21
 - Annual Inspection Method 21
 - Annual Inspection Visual
 - Covers
 - ▶ Initial Inspection Visual
 - Annual Inspection Visual
 - Bypass
 - Monthly Inspection Visual



Fugitive Inspections for Covers & Closed Vent Systems Summary

Components *	Initial Visual	Initial M21	Monthly Visual	Annual Visual	Annual M21
Closed Vent - Sealed		✓		✓	
Closed Vent -Other		✓		✓	✓
Covers	✓			✓	
Bypass			✓		

*On Affected Centrifugal Compressors, Reciprocating Compressors & Pneumatic Pumps

Fugitive Program for Well Sites & Compressor Stations

- Fugitive Emissions Plan
- Fugitive Emissions Monitoring
- Reporting & Recordkeeping



Fugitive Emissions Monitoring Plan

- Frequency
- Procedures & Timeframe repairing leaks & verifying repairs.
- Recordkeeping
- Monitoring Method & Equipment
 - ▶ OGI Specifics trainings, wind speeds, daily check, calibration & survey procedures.
 - Method 21 Specifics calibrations, detection limits & background reading.
- Sitemap with defined observation path.
- ▶ Component List with method to determine location (M21 only).
- > Plan for "difficult-to-monitor" & "unsafe-to-monitor" components.

Fugitive Emissions Monitoring Survey

- Method 21 & OGI is the most effective.
 - OGI for identifying.
 - Good screening tool, saves time, helps identify leaks from any sources including UTM, DTM & non-tagged.
 - Specialized training, difficulty quantifying, visual interference, cannot be used for certain annual inspections,
 - Method 21 for quantifying.
 - ▶ Industry standard, readily available, easy to calculate emissions from leaks.
 - ▶ Time consuming, missed leaks, human error including performance & recordkeeping

Leak Definition:

- OGI No visible emission
- ► M21 < 500ppm



Fugitive Emissions Report

- Initial Monitoring Report.
 - ▶ Due 90 days after startup or end of initial compliance period.
- Annual Monitoring Reports.
 - Due annually by the date of initial report.
- Can combine reports for multiple facilities.
- State specific reporting requirements.

Example Fugitive Emissions Report

	nformation					4	July 1, 2017 to <u>Septe</u>	mber 30, 2017	
Company Nam	e:	Well ID:		0/ / TD	IV. Monitorir	g Survey Results			
Site Name:		Well ID:		State ID:		rvey Totals			
Address/ Description:					Component Typ	Normal-to-Moni Monitored	tor Difficult-to- Monito		nsafe-to-Monitor Monitored
Latitude:			Longitude:		Valves				
II. Monitorir	ng Period				Connectors				
	•	1, 2017 to	September 30, 2	017	PRD				
			-		Open-ended lines				
	formation				Compressors				
Survey Date:		urt Time:	S	top Time:		rvey Leak & Delay of Re	anie Tatale		*
Technician Name:		chnician aining*			Component Typ		Placed on DOR		
A. Fi	eld Data				Valves				
Ambient	Max Win	d	Sky		Connectors				
Temperature:	Speed:		Conditions	:	PRD				
B. In	strument Information (C	alibration docu	ments kent sen	arately)	Open-ended lines				
Method Type	Monitoring Instrument	Serial Nun		Calibration/ Verificati	Compressors				
**					V. Repair In				
							aired in 30 days (or 2 year	ars for DTM)	
			-		Component Typ	Normal-to-Monitor	Difficult-to-Monitor	Unsafe-to-Monitor	
	onitoring Plan Complian				Valves				1
Did dev	iations from site-specific	monitoring pl	an occur? Y	ES NO	Connectors				
If yes, ex	xplain:				PRD				
					<u> </u>		-		1
						lay of Repair			
					Type	Explanation for I	OOR Repaired Date	Resurvey Date	Resurvey Instrument II

Fugitive Emissions Recordkeeping

Additionally maintain onsite or at the nearest field office for

5 years:

- ► Fugitive Emissions Monitoring Plan.
- ▶ OGI photos/videos of survey run.
- ► Emissions level (ppm).
- Component ID.
- Repair methods.
- Number of tagged components (leaking).



Data Management Systems

- Recordkeeping proves compliance!
- Challenges
 - Extensive information.
 - OOOOa affected facilities are decentralized.
- Data Management System
 - Addresses challenges.
 - Allows for quick access to accurate records.
 - Assists in compliance by automating workflows & integrating regulatory limits

Data Management System Options

- Paper
- LeakDAS
- Proprietary Data Management Systems
- ► NVIRO leaks



Questions?

www.lmenviro.com

Office: 504-534-8563

24/7 Emergency Response: 504-517-5637



Lee J Lemond

Margo.moss@Imenviro.com

Lee.lemond@Imenviro.com

