



**pennsylvania**  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Bureau of Air Quality

# **Control of VOC Emissions from Gasoline Dispensing Facilities (Stage I and II)**

## **Small Business Compliance Advisory Committee**

### **April 17, 2019**

### **Harrisburg, PA**

Tom Wolf, Governor

Patrick McDonnell, Secretary

# Overview

- Adds § 129.61a to describe requirements for system leak testing and monitoring options.
  - Requires gasoline dispensing facilities (GDFs) to complete annual leak testing.
  - Requires leak testing every 6 months if a test fails.
  - Allows GDFs to resume 12-month testing when two 6-month tests do not require a corrective action.
  - Offers option to GDFs to forego annual leak testing if a continuous pressure monitor is installed and operated.
- Requires Enhanced Hoses and Nozzles

# Overview

- Adds § 129.82a regarding decommissioning procedures.
  - Requires decommissioning of vacuum-assist Stage II systems by December 31, 2022. Until decommissioned, the system must meet current Stage II requirements.
  - Requires decommissioning to follow industry and EPA recognized standards in Petroleum Equipment Institute's procedures in PEI/RP300-09.
  - Requires a GDF owner to decommission to industry standard when a vapor balance system is removed.

# Changes Between Preliminary and Proposed

- Added Rotatable Adapter Test for Stage I systems equipped with rotatable adapters.
- Referenced UMX and UMI storage tank certified installer categories defined in Chapter 245.
- Referenced specific tests required to complete decommissioning.

# Three Types of Emissions

- Refilling – Emissions derived from a delivery truck making a fuel delivery (7.01 lb./1,000 gal. delivered)
- Breathing Loss – Emissions derived from pressure changes in the underground tanks (1.0 lb./1,000 gal. pumped)
- Refueling – Emissions derived from motorists filling vehicles (7.6 lb./1,000 gal. pumped)

# Emissions

- Examined three sizes of GDFs based on throughputs based in part on requirements in NESHAP CCCCCC:
  - < 120,000 gallons per year
  - $\geq$  120,000 gallons and < 1,200,000 gallons per year
  - $\geq$  1,200,000 gallons per year

# Emissions (continued)

Philadelphia Area (2019)	Number of GDFs	Percentage of Throughput
Throughput < 120,000	610	1.6%
120,000 ≤ Throughput < 1,200,000	589	26.8%
Throughput ≥ 1,200,000	364	71.6%

Pittsburgh Area (2019)	Number of GDFs	Percentage of Throughput
Throughput < 120,000	627	2.0%
120,000 ≤ Throughput < 1,200,000	525	33.1%
Throughput ≥ 1,200,000	250	64.9%

# Emissions (continued)

## 2021 Annual VOC Emissions\*

	Philadelphia		Pittsburgh	
	CCCCCC	129.61a	CCCCCC	129.61a
Throughput < 120,000	30 - 85	30 - 85	26 - 74	26 - 74
120,000 ≤ Throughput < 1,200,000	483 - 1379	200	422 - 1206	175
Throughput ≥ 1,200,000	1292	535	828	343

## 2024 Annual VOC Emissions\*

	Philadelphia		Pittsburgh	
	CCCCCC	129.61a	CCCCCC	129.61a
Throughput < 120,000	28 - 79	28 - 79	24 - 68	24 - 68
120,000 ≤ Throughput < 1,200,000	449 - 1284	186	387 - 1106	160
Throughput ≥ 1,200,000	1202	498	760	315

\*All emissions in tons per year without considering hoses and nozzles



# Emissions (continued)

## Gasoline Hose VOC Emissions \*

	GDFs	Hoses	Emissions	
			Enhanced Conventional	Conventional
Philadelphia Area				
120,000 ≤ Throughput < 1,200,000	589	5890	7	55
Throughput ≥ 1,200,000	364	5824	7	54
Pittsburgh Area				
120,000 ≤ Throughput < 1,200,000	525	5250	6	49
Throughput ≥ 1,200,000	250	4000	5	37

\*All emissions in tons per year

# Emissions (continued)

## Gasoline Nozzle VOC Emissions\*

	GDFs	Nozzles	Emissions (tons/year)	
			Enhanced Conventional	Conventional
Philadelphia Area				
120,000 ≤ Throughput < 1,200,000	589	5890	10	51
Throughput ≥ 1,200,000	364	5824	27	136
Pittsburgh Area				
120,000 ≤ Throughput < 1,200,000	525	5250	9	44
Throughput ≥ 1,200,000	250	4000	17	87

\*All emissions in tons per year

# Decommissioning Costs

## Philadelphia Area Costs\*

	Dispenser	Hose Kit	With ECO Nozzle	Adapter	Leak Testing	Fees
120,000 ≤ Throughput < 1,200,000	\$600	\$2,200	\$700	\$100	\$300	\$45
Throughput ≥ 1,200,000	\$575	\$2,200	\$700	\$100	\$200	\$30

## Pittsburgh Area Costs\*

	Dispenser	Hose Kit	With ECO Nozzle	Adapter	Leak Testing	Fees
120,000 ≤ Throughput < 1,200,000	\$500	\$2,000	\$630	\$100	\$275	\$40
Throughput ≥ 1,200,000	\$400	\$1,500	\$500	\$75	\$125	\$20

\*All costs are in thousands of dollars

# Annualized Costs

## Philadelphia Area Costs\*

	CCCCCC		129.61a		Gasoline Saved by 129.61a
	Testing	Repairs	Testing	Repairs	
120,000 ≤ Throughput < 1,200,000	\$0	\$0	\$442	\$862	\$297-\$1,014
Throughput ≥ 1,200,000	\$61	\$252	\$273	\$735	\$730

## Pittsburgh Area Costs\*

	CCCCCC		129.61a		Gasoline Saved by 129.61a
	Testing	Repairs	Testing	Repairs	
120,000 ≤ Throughput < 1,200,000	\$0	\$0	\$394	\$769	\$260-\$887
Throughput ≥ 1,200,000	\$42	\$173	\$188	\$505	\$474

\*All dollar amounts are in thousands of dollars

# Cost Effectiveness (129.61a vs. 6C)

## Philadelphia Area Costs Effectiveness (2021)

	Emission Reduction excluding Hoses and Nozzles (tons)	Costs excluding Hoses and Nozzles* (\$)	Cost Effectiveness excluding Hoses and Nozzles (\$/ton)	Emission Reduction including Hoses and Nozzles (tons)	Costs including Hoses and Nozzles (\$)	Cost Effectiveness including Hoses and Nozzles (\$/ton)
<b>Philadelphia</b>						
120,000 ≤ Throughput < 1,200,000	283-1,179	-184k - 534k	1,887 to Net Savings	371-1,268	290k – 1,000k	229 to 2,700
Throughput ≥ 1,200,000	756	-303k	Net Savings	912	110k	120
<b>Pittsburgh</b>						
120,000 ≤ Throughput < 1,200,000	247-1,031	-147k - 480k	1,943 to Net Savings	325-1109	275k - 902k	248 – 2,775
Throughput ≥ 1,200,000	485	-181k	Net Savings	592	103k	173

\*Negative number denotes cost benefit



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