

**ALLEGHENY COUNTY HEALTH DEPARTMENT
AIR QUALITY PROGRAM**

October 28, 2014

SUBJECT: **The Lane Construction Corporation,
Springdale Asphalt Plant**
1000 Sherosky Way
Springdale Borough, PA 15144
Allegheny County

Minor Source Operating Permit No. 0072

TO: Sandra L. Etzel
 Chief Engineer

FROM: Michael Dorman
 Air Quality Engineer

FACILITY DESCRIPTION:

The Lane Construction Corporation Springdale Plant (Lane - Springdale) contains a 385 ton per hour counter flow hot mix asphalt plant, a liquid asphalt heater, two (2) 25,000 gallon liquid asphalt tanks, one (1) 8,000 gallon diesel fuel tank, three (3) 200 ton, electrically heated asphalt silos with a drag conveyor, one (1) 700 barrel dust silo that collects baghouse dust for recycling and aggregate stockpiles.

This facility is a synthetic minor source of nitrogen oxides (NO_x) and carbon monoxide (CO) and a minor source of particulate matter (PM), particulate matter < 10 microns in diameter (PM-10), particulate matter < 2.5 microns in diameter (PM-2.5), sulfur dioxide (SO₂), volatile organic compounds (VOCs) and hazardous air pollutants (HAPs) as defined in §2101.20 of Article XXI.

PERMIT APPLICATION COMPONENTS:

1. Operating Permit application No. 0072, dated August 19, 2013
2. Revised Operating Permit application No. 0072, dated September 12, 2013
3. E-mail received September 3, 2013.
4. Telephone conversation October 13, 2013.
5. E-mail sent October 15, 2013
6. E-mail received October 16, 2013
7. Comments received October 22, 2014

EMISSION SOURCES:

Emissions Sources

I.D.	SOURCE DESCRIPTION	CONTROL DEVICE(S)	MAXIMUM CAPACITY	FUEL/RAW MATERIAL	STACK I.D.
P001	CMI PVM 10x Drum Dryer with Hawk Burner	Baghouse	385 tons/hr	Asphalt Materials	S001
P002	Two (2) Liquid Asphalt Tanks with Tank Heater	None	25,000 gal	Natural Gas and No.2 Fuel Oil	S002
P003	Three (3) Asphalt Silos with Drag Conveyor	Covers on Conveyors	200 tons each	Asphalt	None
P004	Aggregate Stockpiles	Watering	231,000 tons	Aggregate and Recycled Asphalt	None
D001	No. 2 Fuel Oil Tank	None	8,000 gal	No. 2 Fuel Oil	None
D002	Dust Silo	None	700 Bbl	Baghouse Dust	None
F005	Roads and Vehicles	Watering	NA	NA	None

METHOD OF DEMONSTRATING COMPLIANCE:

Compliance with the emission standards set forth in this permit will be demonstrated by performance testing for PM, PM-10, PM-2.5, SO₂, NO_x, CO, VOCs and HAPs. See Synthetic Minor Source Operating Permit No. 0072 for the specific conditions for determining compliance with the applicable requirements. Compliance with the short-term (lb/hr) limits must be maintained at all times, including startup and shutdown. Any emissions due to startup, shutdown, or malfunction are included in facility's total annual emissions.

REGULATORY APPLICABILITY:

1. **Article XXI Requirements for Issuance:**

The requirements of Article XXI, Part C for the issuance of operating permits have been met for this facility. Article XXI, Part D, Part E and Part H will have the necessary sections addressed individually.

2. **BACT Analysis:**

Operating Permit Application No. 0072 does not contain a BACT analysis because none is required for an operating permit.

3. **Testing Requirements:**

The permittee shall conduct testing of the facility for PM, PM-10, PM-2.5, NO_x, CO and VOCs at least once every 5 years. The Department reserves the right to require additional testing if necessary in the future to assure compliance with the terms and conditions of this Synthetic Minor Source Operating Permit.

4. **Applicable New Source Performance Standards (NSPS):**

The installation is subject to 40 CFR Part 60 Subpart I - *Standards of Performance for Hot Mix Asphalt Facilities*. The requirements for this Part and Subpart are included in the Synthetic Minor Operating Permit.

5. **Non-Applicable New Source Performance Standards (NSPS):**

No storage tanks at this site meet the applicability requirements of 40 CFR Part 60, Subpart Kb – *Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction, or Modification Commenced After July 23, 1984*. The fuel tank on

site has a capacity below the applicability threshold of 75 cubic meters (19,812.9 gal).

The installation is not subject to 40 CFR Part 60 Subpart OOO - *Standards of Performance for Nonmetallic Mineral Processing Plants*. The basis for this exemption is 40 CFR §60.670(b) which exempts this facility from 40 CFR Part 60 Subpart OOO because it is subject to 40 CFR Part 60 Subpart I.

6. **Applicable NESHAP and MACT Standards:**

No NESHAP or MACT Standards are applicable to this facility.

7. **New Source Review/Prevention of Significant Deterioration (NSR/PSD):**

Neither New Source Review nor Prevention of Significant Deterioration (NSR/PSD) applies to this facility because it is a synthetic minor source.

8. **Risk Management Plan; CAA Section 112(r):**

The facility is not required to have a risk management plan at this time because there are no regulated chemicals exceeding the thresholds in the regulation.

9. **Greenhouse Gas Reporting (40 CFR Part 98):**

Greenhouse gases (GHGs) from this facility come from the combustion units. Only two (2) of the six GHG categories apply: CO₂, and CH₄ (methane). Based on the calculation methodology in 40 CFR Part 98, §98.33(a)(1), potential emissions of CO₂e are 18,299.55 tpy. This is less than the 100,000 tpy major source threshold; therefore the facility is not considered a major source of GHG emissions. See below. CO₂e emissions are based on the emission factor for CO₂ found in AP-42.

Drum Plant:

CO₂: $(33 \text{ lb/ton} \times 385 \text{ tons/hr} \times 2880 \text{ hr/yr}) \div 2000 \text{ lb/ton} = 18,295.20 \text{ tons/yr CO}_2$

Methane: $(0.012 \text{ lb/ton} \times 385 \text{ tons/hr} \times 2880 \text{ hr/yr}) \div 2000 \text{ lb/ton} = 6.6528 \text{ tons/yr methane}$

$6.6528 \text{ ton/yr methane} \times 21 \text{ global warming potential} = 139.71 \text{ tons CO}_2\text{e}$

Asphalt Cement Tank Heater:

CO₂: $(120,000 \text{ lbs/1,000,000 cf} \times 952.38 \text{ cf/hr} \times 2880 \text{ hr/yr}) \div 2000 \text{ lb/ton} = 164.57 \text{ tons/yr}$

Methane: $(2.3 \text{ lbs/1,000,000 cf} \times 952.38 \text{ cf/hr} \times 2880 \text{ hr/yr}) \div 2000 = 0.003154 \text{ tons/yr methane}$

$0.003154 \text{ ton/yr methane} \times 21 \text{ global warming potential} = 0.07 \text{ tons CO}_2\text{e}$

$18295.2 \text{ tons/yr} + 139.71 \text{ tons/yr} + 164.57 \text{ tons/yr} + 0.07 \text{ tons/yr} = 18,299.55 \text{ tons/yr CO}_2$

The potential CO₂e emissions, from this source, are under the 25,000 metric ton applicability threshold for the reporting rule. Should the facility exceed 25,000 metric tons of CO₂e in any 12-month period, the facility would have to submit reports in accordance with 40 CFR Part 98.

EMISSION CALCULATIONS

COUNTER FLOW ASPHALT DRUM MIX PLANT WITH HAUCK BURNER

PM calculations are based on a baghouse emission limit of 0.01 grains per dscf. A 139,000 Btu/gal heat capacity was used for the diesel fuel calculations. Other calculations are based on emission factors found in AP-42 Section 11.1. Note: 15 percent was added to the emissions rates calculated using AP-42 emission factors to account for the variance therein. The permittee has accepted an operational limit of 2,880 hours per 12 month period.

PM/PM10/PM2.5:

$0.01 \text{ gr/cf} \times 54,000 \text{ cf/min} \times 60 \text{ min/hr} \times 1 \text{ lb/7,000 gr} = 4.62857 \text{ lb/hr round to } \mathbf{4.63 \text{ lb/hr}}$

$(4.63 \text{ lb/hr} \times 2880 \text{ hr/yr}) \div 2000 \text{ lb/ton} = \mathbf{6.67 \text{ tons/yr}}$

SO₂:

NG $0.0034 \text{ lb/ton} \times 385 \text{ tons/hr} = 1.31 \text{ lb/hr}$

$1.31 \text{ lb/hr} \times 1.15 = \mathbf{1.51 \text{ lb/hr}}$
 $(1.51 \text{ lb/hr} \times 2880 \text{ hr/yr}) \div 2000 \text{ lb/ton} = \mathbf{2.17 \text{ tons/yr}}$
Diesel $0.011 \text{ lb/ton} \times 385 \text{ tons/hr} = 4.24 \text{ lb/hr}$
 $4.24 \text{ lb/hr} \times 1.15 = \mathbf{4.88 \text{ lb/hr}}$
 $(4.88 \text{ lb/hr} \times 2880 \text{ hr/yr}) \div 2000 \text{ lb/ton} = \mathbf{7.03 \text{ tons/yr}}$

NO_x:

NG $0.026 \text{ lb/ton} \times 385 \text{ tons/hr} = 10.01 \text{ lb/hr}$
 $10.01 \text{ lb/hr} \times 1.15 = \mathbf{11.51 \text{ lb/hr}}$
 $(11.51 \text{ lb/hr} \times 2880 \text{ hr/yr}) \div 2000 \text{ lb/ton} = \mathbf{16.57 \text{ tons/yr}}$
Diesel $0.055 \text{ lb/ton} \times 385 \text{ tons/hr} = 21.18 \text{ lb/hr}$
 $21.18 \text{ lb/hr} \times 1.15 = \mathbf{24.36 \text{ lb/hr}}$
 $(24.36 \text{ lb/hr} \times 2880 \text{ hr/yr}) \div 2000 \text{ lb/ton} = \mathbf{35.08 \text{ tons/yr}}$

CO

NG or Diesel $0.13 \text{ lb/ton} \times 385 \text{ tons/hr} = 50.05 \text{ lb/hr}$
 $50.05 \times 1.15 = \mathbf{57.56 \text{ lb/hr}}$
 $(57.56 \text{ lb/hr} \times 2880 \text{ hr/yr}) \div 2000 \text{ lb/ton} = \mathbf{82.89 \text{ tons/yr}}$

VOC:

NG or Diesel $0.032 \text{ lb/ton} \times 385 \text{ tons/hr} = 12.32 \text{ lb/hr}$
 $12.32 \times 1.15 = \mathbf{14.17 \text{ lb/hr}}$
 $(14.17 \text{ lb/hr} \times 2880 \text{ hr/yr}) \div 2000 \text{ lb/ton} = \mathbf{20.40 \text{ tons/yr}}$

HAPs:

NG $0.0053 \text{ lb/ton} \times 385 \text{ tons/hr} = 2.04 \text{ lb/hr}$
 $2.12 \times 1.15 = \mathbf{2.35 \text{ lb/hr}}$
 $(2.35 \text{ lb/hr} \times 2880 \text{ hr/yr}) \div 2000 \text{ lb/ton} = \mathbf{3.38 \text{ tons/yr}}$
Diesel $0.0087 \text{ lb/ton} \times 385 \text{ tons/hr} = 3.35 \text{ lb/hr}$
 $3.35 \text{ lb/hr} \times 1.15 = \mathbf{3.85 \text{ lb/hr}}$
 $(3.85 \text{ lb/hr} \times 2880 \text{ hr/yr}) \div 2000 \text{ lb/ton} = \mathbf{5.54 \text{ tons/yr}}$

LIQUID ASPHALT TANKS WITH HEATEC BURNER

These calculations are based on emission factors found in Article XXI and AP-42. Note: 15 percent was added to the AP-42 emissions rates to account for the variance in the AP-42 emission factors. The burner is rated at 1.0 MMBtu/hr. The btu rating for the natural gas is 1050 btu/cf. The Btu rating for the diesel fuel is 139,000 Btu/gal. This burner uses 952.38 scf/hr of natural gas and 7.19 gal/hr of diesel fuel per hour.

PM/PM10/PM2.5:

NG $1,000,000 \text{ btu/hr} \div 1050 \text{ btu/scf} = 952.38 \text{ scf/hr.}$
 $0.008 \text{ lb/1,000,000 btu} \times 1,000,000 \text{ btu/hr} = \mathbf{0.008 \text{ lb/hr}}$
 $(0.008 \text{ lb/hr} \times 2880 \text{ hr/yr}) \div 2000 \text{ lb/ton} = \mathbf{0.012 \text{ tons/yr}}$
Diesel $7.19 \text{ gal/hr} \times 139,000 \text{ btu/gal} = 1,000,000 \text{ btu/hr.}$
 $0.015 \text{ lb/1,000,000 btu} \times 1,000,000 \text{ btu/hr} = \mathbf{0.015 \text{ lb/hr}}$
 $(0.015 \text{ lb/hr} \times 2880 \text{ hr/yr}) \div 2000 \text{ lb/ton} = \mathbf{0.022 \text{ tons/yr}}$

SO₂:

NG $0.6 \text{ lb/1,000,000 scf} \times 952.38 \text{ scf/hr} = 0.0006 \text{ lb/hr}$
 $0.0006 \text{ lb/hr} \times 1.15 = \mathbf{0.0007 \text{ lb/hr}}$
 $(0.0007 \text{ lb/hr} \times 2880 \text{ hr/yr}) \div 2000 \text{ lb/ton} = \mathbf{0.001 \text{ tons/yr}}$
Diesel $42 \text{ lb/1,000 gal} \times 7.19 \text{ gal/hr} \times 0.0015 \%S = 0.000022 \text{ lb/hr}$
 $0.000022 \text{ lb/hr} \times 1.15 = \mathbf{0.000025 \text{ lb/hr}}$
 $(0.000025 \text{ lb/hr} \times 2880 \text{ hr/yr}) \div 2000 \text{ lb/ton} = \mathbf{0.000036 \text{ tons/yr}}$

NO_x:

NG $100 \text{ lb/1,000,000 scf} \times 952.38 \text{ scf/hr} = 0.095238 \text{ lb/hr round to } 0.11 \text{ lb/hr}$
 $0.01 \text{ lb/hr} \times 1.15 = \mathbf{0.12 \text{ lb/hr}}$
 $(0.12 \text{ lb/hr} \times 2880 \text{ hr/yr}) \div 2000 \text{ lb/ton} = \mathbf{0.17 \text{ tons/yr}}$

Diesel 24 lb/1,000 gal × 7.19 gal/hr = 0.173 lb/hr
0.173 lb/hr × 1.15 = **0.20** lb/hr
(0.20 lb/hr × 2880 hr/yr) ÷ 2000 lb/ton = **0.29 tons/yr**

CO:

NG 84 lb/1,000,000 scf × 952.38 scf/hr = 0.08 lb/hr
0.08 lb/hr × 1.15 = **0.092 lb/hr**
(0.092 lb/hr × 2880 hr/yr) ÷ 2000 lb/ton = 0.13248 round to **0.13 tons/yr**

Diesel 5 lb/1,000 gal × 7.19 gal/hr = 0.036 lb/hr
0.036 lb/hr × 1.15 = **0.041** lb/hr
(0.041 lb/hr × 2880 hr/yr) ÷ 2000 lb/ton = **0.059 tons/yr**

VOC:

NG 5.5 lb/1,000,000 scf × 952.38 scf/hr = 0.0052 lb/hr
0.0052 lb/hr × 1.15 = **0.006** lb/hr
(0.006 lb/hr × 2880 hr/yr) ÷ 2000 lb/ton = 0.00864 round to **0.009 tons/yr**

Diesel 0.252 lb/1,000 gal × 7.19 gal/hr = 0.002 lb/hr
0.002 lb/hr × 1.15 = **0.0023** lb/hr
(0.0023 lb/hr × 2880 hr/yr) ÷ 2000 lb/ton = 0.003312 tons/yr round to **0.003 tons/yr**

EMISSIONS SUMMARY:

Emissions Summary for The Lane Construction Corporation

Pollutant	Total NG (tpy*)	Total Diesel (tpy*)
Particulate Matter	6.68	6.69
Particulate Matter <10 µm (PM ₁₀)	6.68	6.69
Particulate Matter <2.5 µm (PM _{2.5})	6.68	6.69
Sulfur Oxides (SO ₂)	2.17	7.03
Nitrogen Oxides (NO _x)	16.74	35.37
Carbon Monoxide (CO)	83.02	82.95
Volatile Organic Compounds (VOCs)	20.41	20.40
Hazardous Air Pollutants (HAPs)	3.38	5.54
Carbon Dioxide	18,299.55	18,299.55

* A year is defined as any consecutive 12-month period.

RECOMMENDATION:

All applicable Federal, State, and County regulations have been addressed in the permit. Section 2102.04.k of Article XXI does not apply because no Notices of Violation were issued to this facility within the last 18 months. It is recommended that this minor operating permit for The Lane Construction Corporation should be approved with the emission limitations and terms and conditions in Synthetic Minor Source Operating Permit No. 0072.