ALLEGHENY COUNTY HEALTH DEPARTMENT
AIR QUALITY PROGRAM

October 28, 2014

SUBJECT: **The Lane Construction Corporation,**
Bridgeville Plant
2 Prestley Road
Bridgeville, PA 15017
Allegheny County

Synthetic Minor Source Operating Permit No. 0070

TO: Sandra L. Etzel
Chief Engineer

FROM: Michael Dorman
Air Quality Engineer

FACILITY DESCRIPTION:

The Lane Construction Corporation Bridgeville Facility (Lane – Bridgeville) contains a 400 ton per hour counter flow hot mix asphalt plant, a liquid asphalt heater, three (3) 25,000 gallon liquid asphalt tanks, one (1) 10,000 gallon diesel fuel tank, six (6) 200ton, heated asphalt silos with a drag conveyor, one (1) 700 barrel dust silo that collects baghouse dust for recycling and aggregate stockpiles.

The facility is a synthetic minor source for 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. Installation Permit application #0070-I001, dated June 10, 2011
2. Revised Installation Permit application #0070-I001, dated October 28, 2011
3. Correspondence, dated May 19, 2010 (PTE calculations)
4. E-mail received October 20, 2011.
5. E-mail received October 31, 2011.
6. E-mail received November 7, 2011.
7. E-mail received November 9, 2011.
8. E-mail received November 18, 2011.
9. E-mail received December 5, 2011.
10. Telephone conversation January 4, 2012.
11. Synthetic Minor Installation Permit No. 0070-I002 issued April 5, 2012.
12. E-mail received August 30, 2013.
13. 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 PDT-400 Drum Dryer with Hauck ESII-115B Burner	Baghouse	400 tons/hr	Asphalt Materials	S001
P002	Three (3) Liquid Asphalt Tanks with Tank Heater	None	25,000 gal each	Natural Gas and No.2 Fuel Oil	S002
P003	Six (6) 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	10,000 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, NOx, CO. VOCs and HAPs. See Minor Source Operating Permit No. 0070 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 an operating permit 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:**
   Permit Application No. 0070 does not contain a BACT analysis because this permit is an operating permit.

3. **Testing Requirements:**
   The permittee shall conduct testing at least once every 5 years for PM, PM10, PM2.5, NOx, CO and VOCs. 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):**
   The storage tank at this site does not 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 storage tank has a capacity below the applicability threshold of 75 cubic meters (19,814.9 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 none of the regulated chemicals exceed 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: CO_2, and CH_4 (methane). Based on the calculation methodology in 40 CFR Part 98, §98.33(a)(1), potential emissions of CO_2e are 20,304.32 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.
CO_2e emissions are based on the emission factor for CO_2 found in AP-42.
Drum Plant:
CO_2: (33 lb/ton × 400 tons/hr × 3000 hr/yr) ÷ 2000 lb/ton = 19,800 tons/yr CO_2
Methane: (0.012 lb/ton × 400 tons/hr × 3000 hr/yr) ÷ 2000 lb/ton = 7.2 tons/yr methane
7.2 ton/yr methane × 21 global warming potential = 151.2 tons CO_2e

Asphalt Cement Tank Heater:
CO_2: (120,000 lbs/1,000,000 cf × 1961 cf/hr × 3000 hr/yr) ÷ 2000 lb/ton = 352.98 tons/yr
Methane: (2.3 lbs/1,000,000 cf × 1961 cf/hr × 3000 hr/yr) ÷ 2000 = 0.0068 tons/yr methane
0.0068 ton/yr methane × 21 global warming potential = 0.14 tons CO_2e

19,800 tons/yr + 151.2 tons/yr + 352.98 tons/yr + 0.14 tons/yr = 20,304.32 tons/yr CO_2

The potential CO_2e 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 CO_2e 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 ECO-STAR ESII-115 BURNER
PM calculations are based on a baghouse emission limit of 0.01 grains per dscf. 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 3,000 hours per 12 month period.
PM/PM10/PM2.5:
0.01 gr/cf × 89,217 cf/min × 60 min/hr × 1 lb/7,000 gr = **7.65 lb/hr**
(7.65 lb/hr × 3000 hr/yr) ÷ 2000 lb/ton = **11.48 tons/yr**
SO_2:
NG: 0.0034 lb/ton ×400 tons/hr = 1.36 lb/hr
1.36 lb/hr × 1.15 = **1.56** lb/hr
(1.56 lb/hr × 3000 hr/yr) ÷ 2000 lb/ton = **2.34 tons/yr**
Diesel: 0.011 lb/ton ×400 tons/hr = 4.4 lb/hr
4.4 lb/hr × 1.15 = **5.06** lb/hr
(5.06 lb/hr × 3000 hr/yr) ÷ 2000 lb/ton = **7.59 tons/yr**

NOx:
NG: 0.026 lb/ton ×400 tons/hr = 10.40 lb/hr
10.40 lb/hr × 1.15 = **11.96** lb/hr
(11.96 lb/hr × 3000 hr/yr) ÷ 2000 lb/ton = **17.94 tons/yr**
Diesel: 0.055 lb/ton ×400 tons/hr = 22.00 lb/hr
22.00 lb/hr × 1.15 = **25.30** lb/hr
(25.30 lb/hr × 3000 hr/yr) ÷ 2000 lb/ton = **37.95 tons/yr**
CO
NG or Diesel: 0.13 lb/ton × 400 tons/hr = 52 lb/hr
52 × 1.15 = **59.80 lb/hr**
(59.80 lb/hr × 3000 hr/yr) ÷ 2000 lb/ton = **87.70 tons/yr**
VOC:
NG or Diesel: 0.032 lb/ton × 400 tons/hr = 12.8 lb/hr
12.8 × 1.15 = **14.72 lb/hr**
(14.72 lb/hr × 3000 hr/yr) ÷ 2000 lb/ton = **22.08 tons/yr**
HAPs:
NG: 0.0053 lb/ton × 400 tons/hr = 2.12 lb/hr
2.12 × 1.15 = **2.44 lb/hr**
(2.44 lb/hr × 3000 hr/yr) ÷ 2000 lb/ton = **3.66 tons/yr**
Diesel: 0.0087 lb/ton ×400 tons/hr = 3.48 lb/hr
3.48 lb/hr × 1.15 = **4.00** lb/hr
(4.00 lb/hr × 3000 hr/yr) ÷ 2000 lb/ton = **6.00 tons/yr**

LIQUID ASPHALT TANKS WITH HEATEC HC-200 POWER FLAME 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 2.0 MMBtu/hr. The btu rating for the natural gas is 1020 btu/cf. The btu rating for the diesel fuel is 139,000 btu/gal. This burner uses 18 gal/hr of diesel fuel
PM/PM10/PM2.5:
NG: 2,000,000 btu/hr ÷ 1020 btu/scf = 1960.78 scf/hr round to 1961 cf/hr.
0.008 lb/1,000,000 btu × 2,000,000 btu/hr = **0.016 lb/hr**
(0.016 lb/hr × 3000 hr/yr) ÷ 2000 lb/ton = **0.024 tons/yr**
Diesel: 14.39 gal/hr × 139,000 btu/gal = 2,502.000 btu/hr.
0.015 lb/1,000,000 btu × 2,502,000 btu/hr = 0.03753 lb/hr round to **0.04 lb/hr**
(0.04 lb/hr × 3000 hr/yr) ÷ 2000 lb/ton = **0.06 tons/yr**
SO_2:
NG: 0.6 lb/1,000,000 scf × 1961 scf/hr = 0.001177 lb/hr
0.001177 lb/hr × 1.15 = **0.0014** lb/hr
(0.0014 lb/hr × 3000 hr/yr) ÷ 2000 lb/ton = **0.002 tons/yr**
Diesel: 42 lb/1,000 gal ×18 gal/hr × 0.0015 %S = 0.001134 lb/hr round to 0.001 lb/hr
0.001 lb/hr × 1.15 = **0.001** lb/hr
(0.001 lb/hr × 3000 hr/yr) ÷ 2000 lb/ton = **0.0015 tons/yr**
NOx:
NG: 100 lb/1,000,000 scf × 1961 scf/hr = 0.1961 lb/hr round to 0.2 lb/hr
0.2 lb/hr × 1.15 = **0.23** lb/hr
(0.23 lb/hr × 3000 hr/yr) ÷ 2000 lb/ton =**0.35 tons/yr**
Diesel: 24 lb/1,000 gal ×18 gal/hr = 0.432 lb/hr
0.432 lb/hr × 1.15 = **0.50** lb/hr
(0.50 lb/hr × 3000 hr/yr) ÷ 2000 lb/ton = **0.75 tons/yr**
CO:
NG: 84 lb/1,000,000 scf × 1961 scf/hr = 0.16 lb/hr
0.16 lb/hr × 1.15 = **0.184 lb/hr**
(0.184 lb/hr × 3000 hr/yr) ÷ 2000 lb/ton = 0.8059 round to **0.28 tons/yr**

Diesel: 5 lb/1,000 gal × 18 gal/hr = 0.09 lb/hr
0.09 lb/hr × 1.15 = **0.10** lb/hr
(0.10 lb/hr × 3000 hr/yr) ÷ 2000 lb/ton = **0.15 tons/yr**
VOC:
NG: 5.5 lb/1,000,000 scf × 1961 scf/hr = 0.011 lb/hr
0.011 lb/hr × 1.15 = **0.013** lb/hr
(0.013 lb/hr × 3000 hr/yr) ÷ 2000 lb/ton = 0.0569 round to **0.02 tons/yr**
Diesel: 0.252 lb/1,000 gal × 18 gal/hr = 0.0045 lb/hr
0.0045 lb/hr × 1.15 = **0.0052** lb/hr
(0.0052 lb/hr × 3000 hr/yr) ÷ 2000 lb/ton = 0.0078 tons/yr round to **0.008 tons/yr**

EMISSIONS SUMMARY:

Emissions Summary for The Lane Construction Corporation

Pollutant	Total NG (tpy*)	Total Diesel (tpy*)
Particulate Matter	11.504	11.54
Particulate Matter <10 μm (PM_{10})	11.504	11.54
Particulate Matter <2.5 μm ($PM_{2.5}$)	11.504	11.54
Sulfur Oxides (SO_2)	2.342	7.59
Nitrogen Oxides (NO_X)	18.29	38.70
Carbon Monoxide (CO)	87.98	87.85
Volatile Organic Compounds (VOCs)	22.08	22.09
Hazardous Air Pollutants (HAPs)	3.66	6.00
Carbon Dioxide (CO_2)		20,304.32

* 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 operating permit for The Lane Construction Corporation Bridgeville Plant should be approved with the emission limitations and terms and conditions in Synthetic Minor Source Operating Permit No. 0070.