



August 3, 2018

*Via UPS Overnight Delivery and via Electronic Mail*

James Rebarchak  
Program Manager  
Pennsylvania Department of Environmental Protection  
Division of Air Quality  
2 East Main Street  
Norristown, PA 19401

**RE: Submittal of Revised GP-13 and GP-9 Application Forms and Emissions Calculations for the Proposed Hot Mix Asphalt Plant and Three Temporary Diesel Generators to be Installed and Operated by Richard E. Pierson Materials Corporation at the Existing Hanson Quarry located at 2055 North Rockhill Road, Sellersville, PA 18960, Bucks County, East Rockhill Township**

Dear Mr. Rebarchak:

Compliance Plus Services, Inc. ("CPS") is submitting, on behalf of Richard E. Pierson Materials Corporation ("RE Pierson"), the enclosed revised portions of the GP-13 and GP-9 General Plan Approval and General Operating Permit air permit applications and revised emissions calculations for the construction and operation of a portable hot mix asphalt (HMA) plant and three temporary diesel generators to be located at the existing Hanson Quarry at the address identified above. These revised application forms and emissions calculations are intended to supersede and replace the corresponding application forms and calculations submitted on July 25, 2018.

The GP-13 application form and the emissions calculations for the HMA plant have been revised to clarify the proposed operating facility parameters. These are included in Attachments 1 and 2. In the July 25, 2018 submittal, the emissions calculations were based upon the maximum capacity for the HMA plant of 400 tons per hour and 800,000 tons per year based upon 2000 hours per year of operation. The actual rated capacity of the plant will be, on average, approximately 250 tons per hour. At 2000 hours per year of operation, the maximum production of HMA will be 500,000 tons per year. The information on the GP-13 application form has been revised to reflect this maximum annual production rate.

In addition, the GP-9 application form and the emissions calculations for the three temporary diesel generators have also been revised (see Attachments 3 and 4). The calculations show the projected emissions based upon 1040 hours of operation. Since the generators will be removed once electrical power is available at the facility, the actual hours of operation are expected to be less than 1040.

In Attachment 5, a summary of the total projected emissions from the facility has been included. These include the emissions from each source at the facility and totals for all the equipment operating, as well as, a total of the projected emissions after the temporary diesel generators and

the portable crushing and screening equipment have been removed from the site.

Finally, the revised emissions calculations for greenhouse gases have been included in Attachment 6. These emissions are based upon a maximum throughput of 500,000 tons of HMA production per year for the HMA plant and the temporary diesel generators operating 1040 hours.

In conclusion, to ensure that emissions from the HMA plant and the three temporary diesel generators remain below the levels specified in the summary table shown in Attachment 5, RE Pierson will keep accurate records of the hours of operation of the HMA plant and the production of HMA on a daily, monthly and rolling 12-month period basis to demonstrate that the proposed operating limit of 2000 hours per year and the proposed production limit of 500,000 tons of HMA per year are not exceeded. In addition, records of the hours of operation on a daily and monthly basis will be kept for the three temporary diesel generators to show that the proposed limit of 1040 hours is not exceeded.

If you have any questions or comments related to this application or enclosed information, please feel free to contact me by telephone at 215.734.1414, or by email, at [mlogan@cps-2comply.com](mailto:mlogan@cps-2comply.com).

Sincerely,

  
Michael D. Logan  
Vice President, Environmental Services  
**Compliance Plus Services, Inc.**

Attachments

cc: Curt Mitchell, RE Pierson  
East Rockhill Township  
Bucks County Commissioners



## **Attachment 1**

*Revised GP-13 Application Form for the  
Proposed Hot Mix Asphalt Plant*



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF AIR QUALITY

**APPLICATION FOR AUTHORIZATION TO USE  
GENERAL PLAN APPROVAL AND/OR GENERAL OPERATING PERMIT**

**General Permit BAQ-GPA/GP-13  
Hot Mix Asphalt Plant**

SECTION A. APPLICATION USAGE INFORMATION				
<b>This application pertains to:</b>				
<input checked="" type="checkbox"/> New Authorization		<input type="checkbox"/> Renewal of an Existing Authorization		
<input type="checkbox"/> General Plan Approval Only		<input type="checkbox"/> General Operating Permit Only		
<input checked="" type="checkbox"/> General Plan Approval & General Operating Permit				
SECTION B. OWNER INFORMATION				
Owner's Name	Richard E. Pierson Materials Corp.			
Owner's Tax ID	22-2975097			
Address Line 1	426 Swedesboro Rd			
Address Line 2				
City State Zip+4	Pilesgrove	NJ	08098	Phone 856-769-8244
SECTION C. OPERATOR INFORMATION (if different than Owner)				
Operator's Name				
Address Line 1				
Address Line 2				
City State Zip+4				Phone
SECTION D. CONTACT INFORMATION				
Contact Name	Curt Mitchell			
Contact Title	Facility Director			
Address Line 1	426 Swedesboro Rd			
Address Line 2				
Email Address	cmitchell@repierson.com			
City State Zip+4	Pilesgrove	NJ	08098	Phone 856-769-8244
SECTION E. FACILITY INFORMATION				
Plant Name	R. E. Pierson Materials - East Rock Hill Plant			
Address Line 1	2055 N. Rockhill Road			
Address Line 2				
Municipality	East Rockhill Township			County Bucks
City State Zip+4	Sellersville	PA	18960	Phone 609-743-0345



### SECTION F. HOT MIX ASPHALT PLANT INFORMATION

Source Description:

☐ Batch Mix Plant    ☐ Parallel Flow Drum Mix Plant    ☒ Counter Flow Drum Mix Plant    ☐ Other \_\_\_\_\_

Manufacturer Dillman Unified Counterflow Drum	Model No. D-PUCF10250
Maximum Capacity (tons/hr) 400	Rated Capacity (tons/hr) 250
Maximum Operating Schedule (HR/YR) 2000	Dimension of dryer 8.5 feet x 50 feet
Dryer Burner Type: Phoenix Talon II	Rated heat input (MMBtu/Hr): 100 MM BTU/hr
Heater Burner Type:	Rated heat input (MMBtu/Hr):
Max. % reclaimed asphalt pavement (RAP) used: 50	

### SECTION G. CONTROL DEVICE(S)

#### 1. Inertial and/or Cyclone Collectors

Manufacturer	Type	Model No.
Pressure Drop (in. of water)	Inlet Volume _____ ACFM @ _____ °F	Outlet Volume _____ ACFM @ _____ °F _____ % Moisture
Number of Individual Cyclone(s)	Outlet Straightening Vanes Used? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Length of Cyclone(s) Cylinder (ft)	Diameter of Cyclone(s) Cylinder	Model No.
Inlet Diameter (ft) or Duct Area (ft <sup>2</sup> ) of Cyclone(s)	Outlet Diameter (ft) or Duct area (ft <sup>2</sup> ) of cyclone(s)	
If a multi-clone or multi-tube unit is installed, will any of the individual cyclones or cyclone tubes be blanked or blocked off?		
Describe any exhaust gas recirculation loop to be employed.		
Attach particle size efficiency curve.		

#### 2. Fabric Collector

##### Equipment Specifications

Manufacturer Dillman D-PRPBH-80-498	Model No.	<input type="checkbox"/> Pressurized Design <input checked="" type="checkbox"/> Suction Design
Number of Compartments 3	Number of Filters Per Compartment 280	Is Baghouse Insulated? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Can each compartment be isolated for repairs and/or filter replacement?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are temperature controls provided? (Describe in detail) V-PAC Temperature Control System		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Inlet? _____    Outlet? _____
Dew point at maximum moisture _____ °F	Design inlet volume _____ SCFM	





<b>Type of Fabric</b>				
Material	Aramid _____	<input type="checkbox"/> Felted	<input type="checkbox"/> Membrane	
Weight	14 _____ oz/sq.yd	<input checked="" type="checkbox"/> Woven	<input type="checkbox"/> Others: List: _____	
Thickness	_____ in	<input type="checkbox"/> Felted-Woven		
Fabric permeability (clean) @ ½" water-ΔP <span style="float: right;">4.94 _____ CFM/sq.ft.</span>				
Filter dimensions <u>2.5"x12.75</u> Diameter/Width <span style="float: right;"><u>98 inches</u> Height</span>				
Effective area per filter <u>19.3 ft2</u>			Maximum operating temperature (°F) <u>400</u>	
Effective air to cloth ratio Minimum _____ Maximum <u>4.94</u>				
<b>Drawing of Fabric Filter</b>				
A sketch of the fabric filter showing all access doors, catwalks, ladders and exhaust ductwork, location of each pressure and temperature indicator should be attached.				
<b>Operation and Cleaning of Fabric Collector</b>				
Volume of gases handled		Pressure drop across collector (in. of water). 2-6 inches H2O		
<u>80,000</u> ACFM <u>240°F</u>		Describe the equipment to be used to monitor the pressure drop. Magnahelic gauge		
<b>Type of filter cleaning</b>				
<input type="checkbox"/> Manual Cleaning		<input type="checkbox"/> Bag Collapse		<input checked="" type="checkbox"/> Reverse Air Jets
<input type="checkbox"/> Mechanical Shakers		<input type="checkbox"/> Sonic Cleaning		<input type="checkbox"/> Other: _____
<input type="checkbox"/> Pneumatic Shakers		<input type="checkbox"/> Reverse Air Flow		
If compressed air is required for collector operation, describe the equipment with the compressor to provide dry air free from oil.				
<b>Cleaning Initiated By</b>				
<input checked="" type="checkbox"/> Timer		Frequency if timer actuated _____		
<input type="checkbox"/> Expected pressure drop range _____ in. of water		<input type="checkbox"/> Other Specify _____		
Does air cleaning device employ hopper heaters, hopper vibrators or hopper level detectors? If yes, describe.				
Describe the warning/alarm system that protects against operation when the unit is not meeting design requirements.				
<b>3. Fugitive Dust Control</b>				
<b>Storage Bins Enclosed?</b>				
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Type or method: _____				
Describe fugitive dust control system for loading, handling, etc. operations.				
<b>Roadways dust control:</b>				
Roadways Paved <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Dust Suppressor <input checked="" type="checkbox"/> Water		Frequency of use of suppressor _____
		<input type="checkbox"/> Power Broom		
		<input type="checkbox"/> Other _____		
<b>ESTIMATED EMISSIONS AFTER CONTROL DEVICE(S)</b>				
<b>Submit relevant calculations and documents. Use extra page for additional unit(s)</b>				
<b>Emission Rates</b>	<b>ppmvd</b>	<b>Lbs/hr</b>	<b>TPY</b>	<b>Hrs/Year Operation</b>
CO	166	32.72	32.72	2000
NO <sub>x</sub>	43	14.53	14.53	2000
Filterable Particulate	N/A	2.05	2.05	2000
SO <sub>2</sub>	1	3.66	3.66	2000
VOC	26	8.23	8.23	2000
HAPS		3.48	3.48	2000
Total PM-10	N/A	1.06	1.06	2000
PM <sub>2.5</sub>	N/A			2000



**SECTION H.  
ASPHALT STORAGE TANK INFORMATION**

Storage Tank Type: HT-30BPAA5					
Height: 14'1"	Diameter: 10'6"	Design Capacity (m <sup>3</sup> ): 30,000 gallons	Vapor Pressure (kPa):		
Turnovers/year: 196 (max)	Throughput (gals or barrels/year): 5,882,000 (assuming no RAP used)		Tank heated: 15.3 gal/hr #2 oil		
Controls:					
Storage Tank Type:					
Height:	Diameter:	Design Capacity (m <sup>3</sup> ):	Vapor Pressure (kPa):		
Turnovers/year:	Throughput (gals or barrels/year):		Tank heated:		
Controls:					
Storage Tank Type:					
Height:	Diameter:	Design Capacity (m <sup>3</sup> ):	Vapor Pressure (kPa):		
Turnovers/year:	Throughput (gals or barrels/year):		Tank heated:		
Controls:					

**SECTION I.  
FUEL**

Fuel Type	Estimate Yearly Usage	Maximum Hourly Fuel Usage	% Sulfur
Propane	_____ x MMCF		
Natural Gas	_____ x MMCF		
No. 2 Fuel Oil	0.905 x 10 <sup>6</sup> Gal.	453	0.015
Biodiesel (ASTM D6751)	x 10 <sup>6</sup> Gal.		
No. 4 Fuel Oil	x 10 <sup>6</sup> Gal.		
On-spec WDLF	x 10 <sup>6</sup> Gal.		
Liquid Biofuels	x 10 <sup>6</sup> Gal.		
Bio-oil from pyrolysis of bio-mass	x 10 <sup>6</sup> Gal.		
Bio fuels from bio-processing of cellulosic bio-mass	x 10 <sup>6</sup> Gal.		

**WASTE DERIVED LIQUID FUEL (WDLF)**

(See Condition 14.a.xvii. for specifications)

- From what specific sources will the WDLF be obtained? WDLF will not be used in the HMA plant
- What will the maximum concentration of each of the following contaminants be in the WDLF prior to use in a burner?

Constituent	Part per Million (ppm by weight)	Analytical Method
Arsenic		
Cadmium		
Chromium		
Lead		
Total Halogens (TX)		
% Sulfur (By Weight)		
% Ash (By Weight)		



pennsylvania

 DEPARTMENT OF ENVIRONMENTAL PROTECTION  
 Polychlorinated Biphenyls (PCBs)

3. What will the WDLF's BTU content, specific gravity and minimum flash point be?

 4. Will the same oil burner be used as at present? Yes ☐ No ☐

 Will the WDLF supply system be heated? Yes ☐ No ☐

### SECTION J. PERMITS INFORMATION

 Is this hot mix asphalt plant currently permitted? ☐ Yes (Attach copy of current permit) ☒ No

Air Quality Permit No. \_\_\_\_\_

Limitation(s) imposed by permit:

 Indicate if addition of any  
unit(s) may result in:

☐ New Source Review

☐ Not sure

(Attach summary)

☐ Exceed Title V  
thresholds

(Attach summary)

☒ Not applicable

### SECTION K. APPLICANT'S CHECKLIST

I have enclosed the following:

☒ General Information Form (GIF) (For new plant only) ☒ Compliance Review Form

☒ Permit Fee for New Authorization

☐ Permit Fee for Renewal of Authorization

☒ Proof of Municipal Notification

### SECTION L. AFFIDAVIT

I certify that, subject to the penalties of Title 18 Pa. C.S.A. Section 4904 and 35 P.S. Section 4009(b)(2), I am the responsible official having primary responsibility for the design and operation of the sources at the facility to which this application applies and that, based on information and belief formed after reasonable inquiry, the statements and information provided in this application are true, accurate and complete. I further certify, subject to the penalties of Title 18 Pa. C.S.A. Section 4904 and 35 P.S. Section 4009(b)(2), that the facility will be operated in conformity with all limitations and conditions of the Hot Mix Asphalt Plant General Permit (BAQ-GPA/GP-13).

Signature

Curt Mitchell

Date

8/3/18

Typed/Printed Name



## **Attachment 2**

### *Revised Emissions Calculations for the Proposed Hot Mix Asphalt Plant*

**R.E. Pierson Mateials Corporation**  
**Emissions from Proposed Hot Mix Asphalt Plant<sup>(1)</sup>**

Pollutant	Hot Mix Asphalt Plant		Asphalt Heater		Storage Silo		Total Emissions	
	800,000 tons/year <sup>(2)</sup>	500,000 tons/year <sup>(3)</sup>	800,000 tons/year <sup>(2)</sup>	500,000 tons/year <sup>(3)</sup>	800,000 tons/year <sup>(2)</sup>	500,000 tons/year <sup>(3)</sup>	800,000 tons/year <sup>(2)</sup>	500,000 tons/year <sup>(3)</sup>
NOx	21.9	13.69	1.35	0.84			23.25	14.53
VOC	12.8	8	0.37	0.23			13.17	8.23
PM	3.14	1.96	0.138	0.086	0.008	0.005	3.29	2.05
CO	52	32.5	0.36	0.22			52.36	32.72
SO2	0.8	0.5	5.06	3.16			5.86	3.66

**Notes:**

- (1) Emissions are based on the plant operating a maximum of 2000 hours/year.  
(2) The maximum rated capacity of the plant is 400 tons/hour.  
(3) The expected annual average hourly throughput of the plant will be 250 tons/hour. At 2000 hours/year, the plant would produce 500,000 tons/year of HMA. The projected operation of the plant will not exceed 2000 hours/year and the production will not exceed 500,000 tons/year



## **Attachment 3**

*Revised GP-9 Application for Three  
Proposed Temporary Diesel Generators*



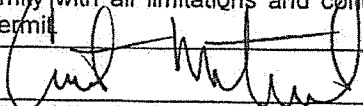
COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF AIR QUALITY

**GENERAL PLAN APPROVAL & GENERAL OPERATING PERMIT APPLICATION**  
**General Permit BAQ-GPA/GP-9: Diesel or No.2 fuel-fired Internal Combustion Engine(s)**

<b>This application is for a plant:</b> <input type="checkbox"/> At a construction site (Up to 24 months)		<input checked="" type="checkbox"/> At a site with valid mining or air quality permit <input type="checkbox"/> Relocating to a new site without modification to any of its units		
<b>SECTION A. OWNER INFORMATION</b>				
<b>Owner</b>	Richard E. Pierson Materials Corp.			
<b>Address Line1</b>	PO Box 714			
<b>Address Line2</b>				
<b>City State Zip+4</b>	Bridgeport	NJ 08014	<b>Phone</b> 856-769-8244	
<b>SECTION B. CONTACT INFORMATION</b>				
<b>Contact Name</b>	Curt Mitchell			
<b>Contact Title</b>	Facility Director			
<b>Address Line1</b>	PO Box 714			
<b>Address Line2</b>				
<b>City State Zip+4</b>	Bridgeport	NJ 08017	<b>Phone</b> 856-769-8244	
<b>SECTION C. FACILITY INFORMATION</b>				
<b>Facility Name</b>	East Rockhill Quarry			
<b>Proposed Address Line1</b>	2055 N. Rockhill Road			
<b>Proposed Address Line2</b>	Sellersville, PA 18960			
<b>Municipality</b>	East Rockhill Township	<b>County</b>	Bucks	
<b>Date Municipality Notified</b>	7/2/2018 (Include proof of notification)			
<b>SECTION D. ENGINE(S) INFORMATION</b>				
	<b>Engine(s)</b>	<b>Engine(s)</b>	<b>Engine(s)</b>	<b>Engine(s)</b>
<b># Of Units</b>	1	1	1	
<b>Manufacturer</b>	Caterpillar	Caterpillar	John Deere	
<b>Model#</b>	C27 - Tier 4i	C7.1 - Tier 4 Final	4045HFG93 - Tier4i	
<b>Date Installed</b>	08/2018	08/2018	08/2018	
<b>Date of Manufacture</b>				
<b>Capacity (BHP) each</b>	1071 (800 kW)	268 (200 kW)	134 (100 kW)	
<b>Hrs/Year Operation</b>	1040 (max)	1040 (max)	1040 (max)	
<b>SECTION E. ENGINE(S) EMISSIONS INFORMATION</b>				
<b>NOx (gms/bhp-hr) / (lbs/hr)/TPY</b>	2.3 / 5.4 / 2.82	1.37 / 0.81 / 0.42	0.3 / 0.09 / 0.046	
<b>CO (gms/bhp-hr) / (lbs/hr)/TPY</b>	0.45 / 1.06 / 0.553	0.15 / 0.089 / 0.046	3.7 / 1.09 / 0.57	
<b>VOC (gms/bhp-hr) / (lbs/hr)/TPY</b>	0.1 / 0.24 / 0.123	0.02 / 0.013 / 0.007	0.14 / 0.04 / 0.021	
<b>SOx (gms/bhp-hr) / (lbs/hr)/TPY</b>	0.0047 / 0.011 / 0.00581	0.0047 / 0.0028 / 0.00145	0.0047 / 0.0014 / 0.00072	
<b>PM10 (gms/bhp-hr) / (lbs/hr)/TPY</b>	0.037 / 0.087 / 0.045	0.003 / 0.0018 / 0.001	0.015 / 0.0044 / 0.002	
<b>Compliance Demonstration Methods</b>	<input type="checkbox"/> Performance stack testing	<input type="checkbox"/> Department Approved Portable Analyzer	<input type="checkbox"/> Department approved test data for identical engine(s)	<input checked="" type="checkbox"/> Other as approved by the Department



SECTION F. AIR CLEANING DEVICE		
<input type="checkbox"/> Selective Catalytic Reduction (SCR) <input type="checkbox"/> CO Catalyst <input type="checkbox"/> Other		
<b>Equipment Specifications</b>		
Manufacturer	Type	Model No.
Design Inlet Gas Volume (SCFM)	Design operating temperature (°F)	
Is the system equipped with process controls for proper mixing/control of the reducing agent in gas stream? If yes, give details.		
Attach efficiency and other pertinent information (e.g., ammonia slip, catalyst life)		
<b>Operating Parameters</b>		
Volume of gases handled	(ACFM)	@ °F
Operating temperature range for the SCR system (°F)		From °F To °F
Reducing agent used, if any	Oxidation catalyst used, if any	
State expected range of usage rate and concentration.		
Service life of catalyst	Ammonia slip (ppm)	
Describe fully with a sketch giving locations of equipment, controls systems, important parameters and method of operation.		
Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.		
<b>CO Oxidizer</b>		
<b>Equipment Specifications</b>		
Manufacturer	Type <input type="checkbox"/> Thermal <input type="checkbox"/> Catalytic	Model No.
Design Inlet Gas Volume (SCFM)	Combustion chamber dimensions (length, cross-sectional area, effective chamber volume, etc.)	
Describe design features, which will ensure mixing in combustion chamber.		

Catalyst Used	Life of catalyst	Expected temperature rise across catalyst (°F)	Dimensions of bed (in inches). Height: Diameter or Width: Depth:
Are temperature sensing devices being provided to measure the temperature rise across the catalyst? <input type="checkbox"/> Yes <input type="checkbox"/> No			
If yes, describe.			
Describe any temperature sensing and/or recording devices (including specific location of temperature probe in a drawing or sketch).			
<b>SECTION G. PERMITS INFORMATION</b>			
Is this engine currently permitted? <input type="checkbox"/> Yes (Attach copy of current permit) <input checked="" type="checkbox"/> No			
Air Quality Permit No.			
Is this facility currently permitted? <input type="checkbox"/> Yes (Attach copy of current permit) <input checked="" type="checkbox"/> No			
Indicate if addition of the Engine(s) may result in any of the followings			
<input type="checkbox"/> New Source Review		<input type="checkbox"/> Exceed Title V thresholds	<input checked="" type="checkbox"/> Not Applicable
(Attach summary)		(Attach summary)	
<b>SECTION H. APPLICANT'S CHECKLIST</b>			
I have enclosed the following:			
<input checked="" type="checkbox"/> General Information Form (GIF) (For new plant only)		<input checked="" type="checkbox"/> Compliance Review Form	
<input checked="" type="checkbox"/> Permit Fee for new or renewal of authorization; OR		<input type="checkbox"/> Fee for change in location	
<b>SECTION I. AFFIDAVIT</b>			
I certify that, subject to the penalties of Title 18 Pa. C.S.A. Section 4904 and 35 P.S. Section 4009(b)(2), I am the responsible official having primary responsibility for the design and operation of the facilities to which this application applies and that the information provided in this application is true, accurate and complete to the best of my knowledge, information and belief formed after reasonable inquiry. I further certify that the facility will be operated in conformity with all limitations and conditions of the Diesel or No. 2 fuel-fired Internal Combustion Engines General Permit.			
Signature 			
Curt Mitchell		8/3/18	
Typed/Printed Name		Date	

## **Attachment 4**

### *Revised Emissions Calculations for the Proposed Temporary Diesel Generators*

**Stack Emissions**  
**Richard E. Pierson Materials Corp.**  
**Revised Emissions from Diesel Engines Powering Temporary Generators**

Engine (1)	Output <sup>(5)</sup>	PM Emissions <sup>(1)</sup>	CO Emissions <sup>(1)</sup>	NOx Emissions <sup>(1)</sup>	SOx Emissions <sup>(2),(3),(4)</sup>	HC Emissions <sup>(1)</sup>
Tier 4i Diesel Engine  Caterpillar C27	1,072 HP 800 kW  Hours of Operation 1040 hours	Based on 1072 HP	Based on 1072 HP	Based on 1072 HP	Based on sulfur content of fuel and firing rate	Based on 1072 HP
		0.037 g/hp-hr	0.45 g/hp-hr	2.3 g/hp-hr	0.0047 g/hp-hr	0.10 g/hp-hr
		0.0874 lb/hr	1.0626 lb/hr	5.4308 lb/hr	0.0112 lb/hr	0.2361 lb/hr
		90.86 lb/yr	1105.06 lb/yr	5648.07 lb/yr	11.61 lb/yr	245.57 lb/yr
		0.045 ton/yr	0.553 ton/yr	2.824 ton/yr	0.00581 ton/yr	0.123 ton/yr

Engine (2)	Output <sup>(5)</sup>	PM Emissions <sup>(1)</sup>	CO Emissions <sup>(1)</sup>	NOx Emissions <sup>(1)</sup>	SOx Emissions <sup>(2),(3),(4)</sup>	HC Emissions <sup>(1)</sup>
Tier 4 Final Diesel Engine  John Deere 6068HFG08	268 HP 200 kW  Hours of Operation 1040 hours	Based on 268 HP	Based on 268 HP	Based on 268 HP	Based on sulfur content of fuel and firing rate	Based on 268 HP
		0.003 g/hp-hr	0.15 g/hp-hr	1.37 g/hp-hr	0.0047 g/hp-hr	0.022 g/hp-hr
		0.0018 lb/hr	0.0885 lb/hr	0.8087 lb/hr	0.0028 lb/hr	0.0130 lb/hr
		1.84 lb/yr	92.09 lb/yr	841.07 lb/yr	2.90 lb/yr	13.51 lb/yr
		0.001 ton/yr	0.046 ton/yr	0.421 ton/yr	0.00145 ton/yr	0.007 ton/yr

Engine (3)	Output <sup>(5)</sup>	PM Emissions <sup>(6)</sup>	CO Emissions <sup>(6)</sup>	NOx Emissions <sup>(6)</sup>	SOx Emissions <sup>(2),(3),(4)</sup>	HC Emissions <sup>(6)</sup>
Tier 4i Diesel Engine  John Deere 4045HFG93	134 HP 100 kW  Hours of Operation 1040 hours	Based on 134 HP	Based on 134 HP	Based on 134 HP	Based on sulfur content of fuel and firing rate	Based on 134 HP
		0.015 g/hp-hr	3.7 g/hp-hr	0.3 g/hp-hr	0.0047 g/hp-hr	0.14 g/hp-hr
		0.0044 lb/hr	1.0921 lb/hr	0.0885 lb/hr	0.0014 lb/hr	0.0413 lb/hr
		4.60 lb/yr	1135.75 lb/yr	92.09 lb/yr	1.44 lb/yr	42.97 lb/yr
		0.002 ton/yr	0.568 ton/yr	0.046 ton/yr	0.00072 ton/yr	0.021 ton/yr

**SUMMARY OF STACK EMISSIONS**

Emission Rate	PM Emissions	CO Emissions	NOx Emissions	SOx Emissions	HC Emissions
lb/hour	0.094	2.243	6.328	0.015	0.290
lb/year	97.31	2332.90	6581.23	15.96	302.05
ton/year	0.049	1.166	3.291	0.008	0.151

**Notes**

(1) The emissions are based upon the certified emissions for each engine make and model.

(2) Est. firing rates of engines      Engine (1)      53.6 gal/hr      Estimated firing rate = (7000 BTU/hp-hr\*) x (hp) / (140,000 BTU/gallon)  
    Engine (2)      13.4 gal/hr      (\*From AP-42, Table 3.3-1)  
    Engine (3)      6.7 gal/hr

(3) Sulfur % in ULSD fuel      0.0015%

(4) Density of diesel fuel      6.943 lbs/gallon

(5) Hours of operation based upon rented engines operating only until electrical power is established at the facility. Once the HMA plant is operating on electrical power from the grid, the diesel engines will be removed from the facility. The rented engines will operate a maximum of 1040 hours (assume 26 weeks, 5 days/week, 8 hours/day). The actual number of hours of operation is expected to be less than 1040 hours.

(6) Emission factors are based upon the emission standards for Tier 4 engines from 75 to 175 hp.

Rev. 1, August 2018



## **Attachment 5**

*Summary of Emissions from All the  
Proposed and Existing Sources at the  
Facility*

**R.E. Pierson Materials Corporation**  
**Rockhill Quarry**  
**East Rockhill Township**  
**Summary of Emissions Calculations - Projected Emissions from the Facility**

Pollutant	<u>Current Portable Equipment</u> <sup>(1)</sup>	<u>1000 tph C/S Plant</u>	<u>Portable Hot Mix Asphalt Plant</u> <sup>(2),(3)</sup>	<u>Temporary Diesel Generators</u> <sup>(2)</sup>	<u>Total Emissions (all equipment operating)</u>	<u>Total Emissions (Final)</u> <sup>(4)</sup>
	Projected (tpy) @ 1849 hrs/yr	Projected (tpy) @ 2800 hrs/yr	Projected (tpy) @ 2000 hrs/yr	Projected (tpy) @ 1040 hrs/yr	Projected (tpy)	Projected (tpy)
NOx	4.85	0	14.53	0.48	19.86	14.53
VOC	0.39	0	8.23	0.23	8.85	8.23
PM	3.50	7.71	2.05	0.02	13.28	9.76
CO	6.24	0	32.72	4.36	43.32	32.72
SO2	0.02	0	3.66	0.01	3.69	3.66

**Notes:**

- (1) The current portable crushing and screening equipment will be removed from the site once the 1000 ton/hour permanent c/s plant is operational.
- (2) Portable HMA plant will be powered by rented diesel generators until electric power is established at the facility. The rented diesel generators are only expected to operate a few months. To be conservative, the emissions were calculated based on the generators operating 8 hrs/day, 5 days/week for 26 weeks or 1040 total hours.
- (3) The preliminary emissions estimates are overestimated and based upon AP-42 emission factors specified in Section 11.1, Tables 11.1-3 (total PM), 11.1-7 (NOx, CO, SO2) and 11.1-8 (TOC). More detailed emissions calculations for stack criteria air pollutants will be submitted with the permit application based upon stack test data and/or projected concentrations of the pollutants in the stack exhaust gases. 2000 hours = About 8 hrs/day, 5 days/week.
- (4) Total final emissions are based upon only the HMA plant and the 1000 tph c/s plant operating after the currently permitted portable crushing and screening equipment and the diesel generators are removed from the site.



## **Attachment 6**

*Revised Emissions Calculations for  
Greenhouse Gases from the Proposed Hot  
Mix Asphalt Plant and the Proposed Diesel  
Generators*

# RE Pierson Material Corp. - Greenhouse Gas Emissions Calculations 800 kW Engine - CO2e

Equipment	Max Output¹	CO₂ Emissions¹	N₂O Emissions¹,³	Methane²	Total Greenhouse Gas Emissions
Caterpillar C27 Diesel Engine	1,072 HP (Total) 800 kW (Total)  1040 hrs/yr (max)	Based on 1072 HP / 800 kW	Based on 1072 HP / 800 kW	Based on 1072 HP / 800 kW	Total CO2e Greenhouse Gas Emissions
		1.15 lb CO2/hp-hr	0.031 lb/hp-hr	6.35E-05 lb/hp-hr	
		1232.80 lb CO2/hr	33.23 lb/hr	0.068 lb/hr	
		1,282,112 lb CO2/yr	34,561 lb/yr	70.739 lb/yr	
		641.06 tons CO2/year	17.28 tons N2O/year	0.0354 tons CH4/year	
		1 GWP	298 GWP	25 GWP	
		Based on 1040 hrs/year =		641.06 Tons CO2/year⁴	5149.63 Tons CO2/year⁴

**Notes:**

- 1.) Based emission factors from AP-42 table 3.3-1.
- 2.) Based a TOC emission factor of 0.000705 lb/hp-hr from AP-42 table 3.4-1 and that TOC is by weight 9% methane and 91% nonmethane.
- 3.) Assumes worst case scenario that all NOx emissions = N<sub>2</sub>O emissions
- 4.) Ton equivalents of CO2 (TECO2) are based on the comparison ratio of the 100 yr global warming potentials obtained for the reference comparison to CO2 from 40 CFR Part 98 subpart A Table A-1 Global Warming Potentials (GWP)

**Assumptions:**

1 g	0.002205 lbs
Max hours per year	1040 hrs/yr
Engine Max Output (Total)	1072 hp
	800 kW
Diesel Sulfur Content	0.0015 %
1 Ton	2000 lbs



# **RE Pierson Material Corp. - Greenhouse Gas Emissions Calculations** **200 kW Engine - CO2e**

Equipment	Max Output <sup>1</sup>	CO <sub>2</sub> Emissions <sup>1</sup>	N <sub>2</sub> O Emissions <sup>1,2</sup>	Methane <sup>2</sup>	Total Greenhouse Gas Emissions
Caterpillar C7.1 Diesel Engine	268 HP (Total) 200 kW (Total)  1040 hrs/yr (max)	Based on 268 HP / 200 kW	Based on 268 HP / 200 kW	Based on 268 HP / 200 kW	Total CO <sub>2</sub> e Greenhouse Gas Emissions
		1.15 lb CO <sub>2</sub> /hp-hr	0.031 lb/hp-hr	6.35E-05 lb/hp-hr	
		308.20 lb CO <sub>2</sub> /hr	8.31 lb/hr	0.017 lb/hr	
		320,528 lb CO <sub>2</sub> /yr	8,640 lb/yr	17,685 lb/yr	
		160.26 tons CO <sub>2</sub> /year	4.32 tons N <sub>2</sub> O/year	0.0088 tons CH <sub>4</sub> /year	
		1 GWP	298 GWP	25 GWP	
		Based on 1040 hrs/year =		160.26 Tons CO <sub>2</sub> /year <sup>4</sup>	1287.41 Tons CO <sub>2</sub> /year <sup>4</sup>

**Notes:**

- 1.) Based emission factors from AP-42 table 3.3-1.
- 2.) Based a TOC emission factor of 0.000705 lb/HP-hr from AP-42 table 3.4-1 and that TOC is by weight 9% methane and 91% nonmethane.
- 3.) Assumes worst case scenario that all NOx emissions = N<sub>2</sub>O emissions
- 4.) Ton equivalents of CO<sub>2</sub> (TECO<sub>2</sub>) are based on the comparison ratio of the 100 yr global warming potentials obtained for the reference comparison to CO<sub>2</sub> from 40 CFR Part 98 subpart A Table A-1 Global Warming Potentials (GWP)

**Assumptions:**

1 g	0.002205 lbs
Max hours per year	1040 hrs/yr
Engine Max Output (Total)	268 hp
Diesel Sulfur Content	200 kw
1 Ton	0.0015 %
	2000 lbs

# **RE Pierson Material Corp. - Greenhouse Gas Emissions Calculations** **100 kW Engine - CO2e**

Equipment	Max Output <sup>1</sup>	CO <sub>2</sub> Emissions <sup>1</sup>	N <sub>2</sub> O Emissions <sup>1,3</sup>	Methane <sup>2</sup>	Total Greenhouse Gas Emissions
John Deere Diesel Engine	134 HP (Total) 100 kW (Total)  1040 hrs/yr (max)	Based on 134 HP / 100 kW	Based on 134 HP / 100 kW	Based on 134 HP / 100 kW	Total CO <sub>2</sub> e Greenhouse Gas Emissions
		1.15 lb CO <sub>2</sub> /hp-hr	0.031 lb/hp-hr	6.35E-05 lb/hp-hr	
		154.10 lb CO <sub>2</sub> /hr	4.15 lb/hr	0.009 lb/hr	
		160,264 lb CO <sub>2</sub> /yr	4,320 lb/yr	8.842 lb/yr	
		80.13 tons CO <sub>2</sub> /year	2.16 tons N <sub>2</sub> O/year	0.0044 tons CH <sub>4</sub> /year	
		1 GWP	298 GWP	25 GWP	
		Based on 1040 hrs/year =		80.13 Tons CO <sub>2</sub> /year <sup>4</sup>	643.70 Tons CO <sub>2</sub> /year <sup>4</sup>

**Notes:**

- 1.) Based emission factors from AP-42 table 3.3-1.
- 2.) Based a TOC emission factor of 0.000705 lb/hp-hr from AP-42 table 3.4-1 and that TOC is by weight 9% methane and 91% nonmethane.
- 3.) Assumes worst case scenario that all NOx emissions = N<sub>2</sub>O emissions
- 4.) Ton equivalents of CO2 (TECO2) are based on the comparison ratio of the 100 yr global warming potentials obtained for the reference comparison to CO2 from 40 CFR Part 98 subpart A Table A-1 Global Warming Potentials (GWP)

**Assumptions:**

1 g	0.002205 lbs
Max hours per year	1040 hrs/yr
Engine Max Output (Total)	134 hp
Diesel Sulfur Content	100 kw
1 Ton	0.0015 %
	2000 lbs

# **RE Pierson Material Corp. - Greenhouse Gas Emissions Calculations** **Hot Mix Asphalt Plant - CO2e**

Equipment	Maximum Output	CO <sub>2</sub> Emissions <sup>1</sup>	N <sub>2</sub> O Emissions <sup>2</sup>	Methane <sup>1</sup>	Total Greenhouse Gas Emissions
Hot Mix Asphalt Plant	500,000 tons/year  2000 hrs/yr (max)	Based on 400 tons/hour	Based on 724.3 gallons/hour	Based on 400 tons/hour	Total CO <sub>2</sub> e Greenhouse Gas Emissions
		33.00 lb CO <sub>2</sub> /ton	0.00026 lb N <sub>2</sub> O/gallon	0.12 lb methane/ton	
		8250.00 lb CO <sub>2</sub> /hr	0.12 lb/hr	30.00 lb/hr	
		16,500,000 lb CO <sub>2</sub> /yr	236 lb/yr	60000.000 lb/yr	
		8250.00 tons CO <sub>2</sub> /year	0.12 tons N <sub>2</sub> O/year	30.00 tons CH <sub>4</sub> /year	
		1 GWP	298 GWP	25 GWP	
		8250.00 Tons CO <sub>2</sub> /year <sup>3</sup>	35.10 Tons CO <sub>2</sub> /year <sup>3</sup>	750.00 Tons CO <sub>2</sub> /year <sup>3</sup>	9,035.10 Tons CO <sub>2</sub> /year <sup>3</sup>
Based on maximum of 2000 hrs/year =					

**Notes:**

- 1). Based emission factors from AP-42, Section 11.1.
- 2). Based on emission factor from AP-42, Section 1.3
- 3). Ton equivalents of CO2 (TECO2) are based on the comparison ratio of the 100 yr global warming potentials obtained for the reference comparison to CO2 from 40 CFR Part 98 subpart A Table A-1 Global Warming Potentials (GWP)

**Assumptions:**

1 g	0.002205 lbs
Max hours per year	2000 hrs/yr
Max Output (Average)	250 tons/hour
Max Output (Total)	500000 tons/year
Projected Average Output (Total)	250 tons/hour
Max Fuel Rate	500000 tons/year
Max Fuel Rate	905,375 gallons/year
Max Fuel Rate	453.0 gallon/hour
1 Ton	2000 lbs