



SOUTHEAST REGIONAL OFFICE

March 20, 2018

Mr. Curt Mitchell
Facility Director
Richard E. Pierson Materials Corporation
PO Box 714
Bridgeport, NJ 08017

Re: Richard E. Pierson Materials Corporation -
East Rockhill Quarry
Operating Permit GP9-09-0083
APS ID No. 962527, AUTH ID No. 1218994
East Rockhill Township
Bucks County

Dear Mr. Mitchell:

The Department of Environmental Protection (DEP) has received and reviewed your application for use of the General Plan Approval and General Operating Permit for the modification of a diesel or No. 2 fuel-fired internal combustion engines to power an existing portable nonmetallic mineral processing plant. You are authorized to modify the diesel or No. 2 fuel-fired internal combustion engine according to GP9. The diesel or No. 2 fuel-fired internal combustion engine must be operated as specified in your application and in compliance with all conditions contained in the General Plan Approval and General Operating Permit, a copy of which is enclosed. Please be advised that coverage under any General Permit (GP) does not relieve the permittee of the obligation to obtain all other required DEP permits or approvals before the initiation of construction under any GP.

This authorization is valid for five years and may be renewed by submitting a renewal application before this authorization expires.

Please carefully review the BAQ-GPA/GP9-09-0083 to ensure that all applicable terms and conditions will be met.

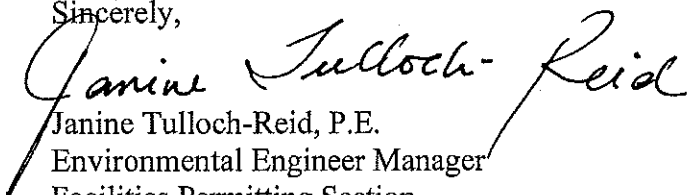
Mr. Curt Mitchell

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March 20, 2018

If you have any questions regarding this matter, please call Mr. Warren L. Colston at the phone number located in the footer below.

Sincerely,

A handwritten signature in black ink that reads "Janine Tulloch-Reid". The signature is written in a cursive style with a large, sweeping initial "J".

Janine Tulloch-Reid, P.E.
Environmental Engineer Manager
Facilities Permitting Section
Air Quality

Enclosure

cc: Mr. Colston, Permit Reviewer
Mr. Mountain – AIR District Supervisor
PADEP, Harrisburg, Division of Permits
File No. GP9-09-0083
Re 30 (TDB18) 079-2

Commonwealth of Pennsylvania
Department of Environmental Protection
Southeast Regional Office
March 6, 2018

Subject: General Plan Approval and General Operating Permit
Richard E. Pierson Materials Corporation
East Rockhill Township, Bucks County
GP9-09-0083
APS #962527, AUTH #1218994

To: James D. Rebarchak
Air Quality Program Manager
Southeast Regional Office *JDR 3/13/18*

From: Warren L. Colston *WLC*
Engineering Specialist
Facilities Permitting Section
Air Quality

Through: Janine Tulloch-Reid, P.E. *JTR 3/13/2018*
Environmental Engineer Manager
Facilities Permitting Section
Air Quality

Through: James A. Beach *JAB 3/13/2018*
Environmental Engineer Manager
New Source Review
Air Quality

I. Introduction

On February 20, 2018, Richard E. Pierson Materials Corporation submitted an application for a Bureau of Air Quality General Plan Approval/General Operating Permit (“BAQ-GPA/GP”) for the installation and operation of a new portable nonmetallic mineral processing plant with associated equipment (e.g., crushers, screens and conveyors) at the East Rockhill Quarry located at 2205 North Rockhill Road, in Sellersville, Bucks County.

The quarry is an existing facility permitted under GP3-09-0153, but the company submitted the new application after determining that a different crusher and screener was needed to produce aggregate to specifications.

The previously permitted sources at the quarry include a 550-ton per hour (*tph*) Sandvik UJ440i “Jaw” crusher that is powered by a Volvo D-13 generator with a diesel fuel-fired, 422-horsepower (*hp*) engine, a 300-tph Sandvik QS331 secondary “Cone” crusher that is powered by a Caterpillar C-9 generator with a diesel fuel-fired, 350-hp engine and a QE441 scalper screen that is by a Caterpillar C-4.4 generator with a diesel fuel-fired, 129-hp engine.

II. Source Description

The company submit a new GP-3 application to replace the existing Sandvik QH311 crusher and Sandvik Q459 screen at the East Rockhill Quarry with a new closed-circuit crusher/screener to produce aggregate to specifications. The new closed-circuit crusher/screener is manufactured by the Mellott Company, model no. MC300HPCC and has a maximum capacity of 300 tph. Power to the new closed-circuit crusher/screener is supplied by a generator with a Caterpillar C-27 diesel fuel-fired engine. The engine is a 4-stroke, 27-liters displacement internal combustion engine (ICE) with a rated capacity of 1,093 brake-horsepower (725-kW output). Table 1 contains the general performance data for this engine, operating at maximum load and capacity.

Table 1. Caterpillar C27 Diesel ICE General Performance Data

Engine Power (hp)	Engine Power (kW)	Engine Speed (rpm)	Fuel Type	Fuel Consumption (gal/hr)	Displacement (L)
1,093	725	1,800	Diesel	53.2	27

III. Emissions Analysis

Table 7 of §40 CFR 1039.102 establishes EPA Tier 4 2011 “Interim” emissions standards for nitrogen oxides (*NOx*), carbon monoxide (*CO*), non-methane hydrocarbons (*NMHC*), and particulate matter (*PM*) for non-road engines rated at greater than 560-kW and less than or equal to 900-kW. Table 2 contains the EPA Tier 4 Interim Emission Standards for nonroad engines for 2011.

Table 2. EPA Tier 4 “Interim” Emission Standards 2011 for Non-Road Engines, g/kW-hr (g/bhp-hr)

Engine Power	Year	CO	NMHC	NOx	PM
560<kW≤900	2011-2014	3.5 (2.6)	0.40 (0.30)	3.5 (2.6)	0.10 (0.075)

The pollutant PTE estimates in Table 2 are shown in the Appendix.

Condition 7 of the General Plan Approval and/or General Operating Permit (BAQ-GPA/GP 9) establishes emission limits for diesel engines which commenced operation after July 1, 1972 and are located in either “severe” or “moderate” ozone nonattainment areas. The East Rockhill Quarry is located in Bucks County which is specially regulated in which the New Source Review trigger values for NOx and VOC increases are similar to that of a severe nonattainment area. NOx and VOC emissions in the presence of sunlight act as precursors for the formation of ozone.

An engine for which best available technology (*BAT*) has not been previously established nor is equipped with either a NOx or a CO Oxidation Catalyst control device must comply with the following alternate emission limits from GP-9:

CO: 2.0 gm/bhp-hr NOx: 6.9 gm/hp-hr PM: 1.0 gm/bhp-hr

IV. Regulatory Analysis

Pursuant 25 Pa. Code § 127.622(a) and (b), the Richard E. Pierson Materials Corp. must comply with the conditions contained within the GP-9 General Plan Approval and/or General Operating Permit for Diesel or No. 2 fuel-fired Internal Combustion Engines.

A fee of \$375.00 was paid to the PA Department of Environmental Protection by Richard E. Pierson Corp. on December 5, 2015, as required by Condition 13 of the GPA/GP-9.

V. Program Coordination

Coordination with other DEP Program was not required for this review.

VI. Recommendation

I recommend issuance of the General Plan Approval/General Operating Permit No. GP9-09-0083 to the Richard E. Pierson Materials Corp. for the installation of four (4) diesel fuel-fired internal combustion engines to power a portable nonmetallic mineral processing plant at the East Rockhill Quarry. GP9-09-0083 will supersede GP9-09-0080.

APPENDIX

❖ Pollutant PTE Calculations Using EPA Tier 4 Interim Emission Standards

The potential-to-emit emissions for the new diesel fuel-fired engine can be calculated from the following equation using the EPA Tier 4 Interim emission standards as emission factors, the rated power output capacity of the engine, in kW, and the expected annual hours of operation:

$$\text{PTE (tpy)} = \text{E.F. (g/kW-hr)} * \text{Engine Power (kW)} * 1.0 \text{ lb/454 gm} * \text{operating hours (hr/yr)} \\ * 1.0 \text{ ton/2,000 lb}$$

The diesel fuel-fired engine is not expected to be operated for more than 1,849 hours per year; therefore, the potential pollutant emissions are as follows:

$$\text{PTE CO} = 3.5 \text{ g/kW-hr} * 725\text{-kW} * 1.0 \text{ lb/454 g} * 1,849 \text{ hr/yr} * 1.0 \text{ ton /2,000 lb} = \mathbf{5.167 \text{ tpy}}$$

$$\text{PTE NMHC} = 0.40 \text{ g/ kW-hr} * 725\text{-kW} * 1.0 \text{ lb/454 g} * 1,849 \text{ hr/yr} * 1.0 \text{ ton /2000 lb} = \mathbf{0.590 \text{ tpy}}$$

$$\text{PTE NOx} = 3.5 \text{ g/ kW-hr} * 725\text{-kW} * 1.0 \text{ lb/454 g} * 1,849 \text{ hr/yr} * 1.0 \text{ ton /2000 lb} = \mathbf{5.167 \text{ tpy}}$$

$$\text{PTE PM} = 0.10 \text{ g/ kW-hr} * 725\text{-kW} * 1.0 \text{ lb/454 g} * 1,849 \text{ hr/yr} * 1.0 \text{ ton /2000 lb} = \mathbf{0.148 \text{ tpy}}$$

❖ Pollutant PTE Calculations Using GP-9 Emission Standards

The potential-to-emit emissions for the new diesel fuel-fired engine using the GP-9 emission standards CO, NOx and PM for an engine which BAT has not been previously established nor is equipped with either a NOx or a CO Oxidation Catalyst control device can be calculated using the rated power output capacity of the engine, in bhp, and the expected annual hours of operation (e.g., 1,849 hr/yr):

$$\text{PTE (tpy)} = \text{E.F. (gm/bhp-hr)} * \text{Engine Power (bhp)} * 1.0 \text{ lb/454 gm} * 1,849 \text{ hr/yr} \\ * 1.0 \text{ ton/2,000 lb}$$

$$\text{PTE CO} = 2.0 \text{ gm/bhp-hr} * 1,093 \text{ hp} * 1.0 \text{ lb/454 gm} * 1,849 \text{ hr/yr} * 1.0 \text{ ton/2,000 lb} = \mathbf{4.45 \text{ tpy}}$$

$$\text{PTE NOx} = 6.9 \text{ gm/bhp-hr} * 1,093 \text{ hp} * 1.0 \text{ lb/454 gm} * 1,849 \text{ hr/yr} * 1.0 \text{ ton/2,000 lb} = \mathbf{15.36 \text{ tpy}}$$

$$\text{PTE PM} = 1.0 \text{ gm/bhp-hr} * 1,093 \text{ hp} * 1.0 \text{ lb/454 gm} * 1,849 \text{ hr/yr} * 1.0 \text{ ton/2,000 lb} = \mathbf{2.23 \text{ tpy}}$$

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
FIELD OPERATIONS - BUREAU OF AIR QUALITY

**GENERAL PLAN APPROVAL AND GENERAL OPERATING PERMIT
(BAQ-GPA/GP-9)**

In accordance with provisions of the Air Pollution Control Act, the act of January 8, 1960, P.L. 2119, as amended, and after due consideration of an application received under Chapter 127 of the Rules and Regulations of the Department of Environmental Protection, the Department hereby issues this permit for the operation of the air contamination source(s) described below:

Permit No.	<u>GP9-09-0083</u>	Source(s)	<u>1-Volvo D13, diesel engine, 422-bhp 1-Caterpillar C9, diesel engine, 350-bhp 1-Caterpillar C27, diesel engine, 1093-bhp 1-Caterpillar C4.4, diesel engine, 129-bhp</u>
Owner	<u>Richard E. Pierson Materials Corporation</u>	Air	<u></u>
Address	<u>PO Box 714</u>	Cleaning	<u></u>
	<u>Bridgeport, NJ 08014</u>	Device	<u></u>
Attention	<u>Curt Mitchell</u>	Location	<u>East Rockhill Quarry</u>
	<u>Facility Director</u>		<u>2055 N. Rockhill Road</u>
			<u>Sellersville (E. Rockhill Twp.), Bucks County</u>

This general Plan Approval and general permit is subject to the attached conditions for Diesel or No. 2 Fuel-Fired Combustion Engine(s) (BAQ-GPA/GP-9):

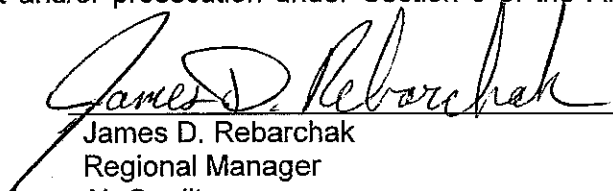
(1) This General Permit supersedes GP9-09-0080.

(SEE CONDITIONS ATTACHED)

Failure to comply with the conditions placed on this permit is a violation of Section 127.444. Violation of this or any other provision of Article III of the Rules and Regulations of the Department of Environmental Protection will result in suspension or revocation of this permit and/or prosecution under Section 9 of the Air Pollution Control Act.

Issued March 14th, 2018

Expires March 14th, 2023


James D. Rebarchak
Regional Manager
Air Quality

cc: Central Office
Administration
SERO
Re 30