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**west virginia** department of environmental protection

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Earl Ray Tomblin, Governor  
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## **ENGINEERING EVALUATION / FACT SHEET**

### BACKGROUND INFORMATION

Application No.: R13-2086C  
Plant ID No.: 023-00006  
Applicant: Bardon, Inc.  
Facility Name: Keplinger Quarry  
Location: Grant County  
NAICS Code: 212312  
Application Type: Modification  
Received Date: July 9, 2013  
Engineer Assigned: Jill Harris  
Fee Amount: \$2,000.00  
Date Received: July 10, 2013  
Complete Date: July 30, 2013  
Due Date: October 28, 2013  
Applicant Ad Date: July 16, 2013  
Newspaper: *Grant County Press*  
UTM's: Easting: 655.609 km      Northing: 4,326.739 km      Zone:  
17  
Description: The facility is submitting a modification permit for the purpose of including engines omitted in the original permit and updating the facility Potential to Emit (PTE). It should be noted that equipment IDs are changing from the existing permit. The facility will continue crushing and screening product at 500 tons per hour (tph). The facility is requesting an increase in the annual throughput from 500,000 tons per year (tpy) to 1,000,000 tpy. The Terex Pegson 1300 MXT crusher and Terex Powerscreen 1800 screen and associated equipment are increased to 2,000,000 tpy to account for the processing of recycled material.

## DESCRIPTION OF PROCESS

The facility is submitting a modification permit for the purpose of including engines omitted in the original permit and updating the facility Potential to Emit (PTE). It should be noted that equipment IDs are changing from the existing permit. The facility will continue crushing and screening product at 500 tons per hour (tph). The facility is requesting an increase in the annual throughput from 500,000 tons per year (tpy) to 1,000,000 tpy. The Terex Pegson 1300 MXT crusher and Terex Powerscreen 1800 screen and associated equipment are increased to 2,000,000 tpy to account for the processing of recycled material.

This operation will use raw material from the existing on-site stockpile (OS2) to make different sized product.

There are four (4) portable units that are going to be utilized: Lokotrack Primary Jaw LT3054, a Terex Pegson 1300 MXT crusher, a Terex Powerscreen Chieftain 1800, and a Lokotrack ST620 screen, along with two (2) portable belt conveyors. Each unit may be used independently or in any combination. Equipment excluding the belt conveyors is track mounted and has onboard engines, ENG-CF1/N [ENG-E1], ENG-CR2/N [ENG-E2], ENG-1S [ENG-E3], and ENG-2S/N [ENG-E4] to operate the systems for both movement around the site and aggregate processing. The two portable belt conveyors are powered by a 750 horsepower diesel generator set, ENG-BC [ENG-E5].

The system is depicted in Attachment F of R13-2086B. Trucks will unload raw material to OS2/N via TP33/MD. Raw material from OS2/N will be loaded to H1/PE to grizzly feeder G1/N by excavator transfer point TP1/MD. Material from grizzly feeder G1/N will go to the Primary Jaw Crusher CR1/FE or passes through G1/N to a mesh (non-vibrating) screen (TP2/WS). From the mesh screen material goes to either BC1/N or BC2/N via TP3/PE. From BC1/N material will be deposited into open stockpile OS1/N via TP4/WS. Crushed material will pass from CR1/FE to BC2/N via TP5/PE and into the feed hopper for the Terex Pegson 1300 MXT secondary crusher H2/PE via TP6/WS. It continues through the crushing system from H2/PE to BC3/N via TP7/N and from BC3/N to CR2/FE (TP8/WS) to BC4/N via TP9/PE. From BC4/N material enters the feed hopper for the screen system H3/PE via TP10/WS to BC5/N via TP11/N. From BC5/N material enter a Terex Chieftain 1800 two deck screen 1S/FE to BC6/N via TP13/N and then onto BC7/N via TP14/N where it is circulated back to the feed hopper H2/PE (TP15/N). Material may also pass from screen 1S/FE to BC8/N via TP16/N which deposits it into stockpile OS1/N via TP17/N. Other material will pass through screen 1S/FE to BC9/N via TP18/N. BC9/N carries material to the feed hopper H4/PE (TP19/WS). Material transfers from H4/PE to BC10/N via TP20/N which carries it to the second screen system 2S/FE via TP21/N. 2S/FE has three decks and will allow material to go to four piles with OS1/N. From 2S/FE material can go to BC11/N via TP22/N via TP23/N and then TP24/N into OS1/N; and TP25/N to BC13/N to OS1/N through TP26/N; and TP27/N to BC15/N to OS1/N via TP28/WS; and TP29/N to BC14/N to OS1/N via TP30/N. Material from OS1/N is loaded into trucks (TP31/MD) to be taken to offsite locations or to the refuse pile (TP32/MD).

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## SITE INSPECTION

On October 4, 2013, Karl Dettinger from DAQ's Enforcement Section. Upon inspection, the sites records were reviewed for compliance with the requirements of 45CSR7 and Subpart OOO of 40CFR60. There were recordkeeping issues (i.e., not keeping the inspection/PM records for air pollution control equipment, not keeping malfunction records for air pollution control equipment, and miscalculation of 12-month tolling totals for production and hours of operation), but the dust control of the equipment was adequate. There was also the issue of the diesel generator that is not included in the current permit for the facility, but the site assured me that he would get Potesta & Associates to include it in the current application. The facility was found in compliance at the time of the inspection.



## ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Increased emissions from the site due to the proposed increase in throughput and the engines are shown below. Detailed emission calculations can be found in R13-2086C permit application.

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Table1: Point Source Emissions

Source Description	Regulated Air Pollutant	Uncontrolled		Controlled	
		lb/hr	tpy	lb/hr	tpy
Transfer Points	PM	73.15	79.75	58.46	64.09
	PM10	34.58	37.70	27.60	30.29
	PM2.5	5.32	5.80	4.26	4.66
Crushing	PM	1.60	3.00	0.32	0.60
	PM10	0.80	1.50	0.16	0.30
	PM2.5	0.11	0.21	0.02	0.04
Screening	PM	20.00	37.50	4.00	7.50
	PM10	6.96	13.05	1.39	2.61
	PM2.5	1.43	2.68	0.29	0.54
Engines	PM	0.53	2.34	0.53	2.34
	PM10	0.53	2.34	0.53	2.34
	PM2.5	0.53	2.34	0.53	2.34
	NOx	18.22	79.80	18.22	79.80
	CO	6.55	28.68	6.55	28.68
	SOx	2.13	9.33	2.13	9.33
	VOC	3.07	13.45	3.07	13.45
	CO2e	--	4,911.91	--	4,911.91
Engine HAPs	Benzene	0.0106	0.0465	0.0106	0.0465
	Toluene	0.0043	0.0188	0.0043	0.0188
	Xylenes	0.0030	0.0132	0.0030	0.0132
	1,3-Butadiene	0.0004	0.0017	0.0004	0.0017
	Formaldehyde	0.0090	0.0394	0.0090	0.0394
	Acetaldehyde	0.0057	0.0249	0.0057	0.0249
	Acrolein	0.0009	0.0038	0.0009	0.0038
	Naphthalene	0.0013	0.0056	0.0013	0.0056
	Total HAPs	0.0352	0.1538	0.0352	0.1538
	Total PM	95.28	122.59	63.31	74.53
	Total PM10	42.87	54.59	29.68	35.54
	Total PM2.5	7.39	11.03	5.10	7.58

Table 2: Fugitive Sources

Source Description	Regulated Air Pollutant	Uncontrolled		Controlled	
		lb/hr	tpy	lb/hr	tpy
Open Stockpiles	PM	2.83	12.40	2.83	12.40
	PM10	1.35	5.90	1.35	5.90
	PM2.5	0.20	0.89	0.20	0.89
Vehicular Traffic	PM	101.43	129.37	30.43	38.81
	PM10	29.94	38.18	8.98	11.46
	PM2.5	3.00	3.82	0.90	1.15
	Total PM	104.26	141.77	33.26	51.21
	Total PM10	31.29	44.08	10.33	17.36
	Total PM2.5	3.20	4.71	1.10	2.04

Table 3: Portable Plant Total Emissions (Point & Fugitive)

Regulated Air Pollutant	Uncontrolled		Controlled	
	lb/hr	tpy	lb/hr	tpy
PM	199.54	264.36	96.57	125.74
PM10	74.16	98.67	40.01	52.90
PM2.5	10.59	15.74	6.20	9.62
NOx	18.22	79.80	18.22	79.80
CO	6.55	28.68	6.55	28.68
SOx	2.13	9.33	2.13	9.33
VOC	3.07	13.45	3.07	13.45
CO2e	--	4,911.91	--	4,911.91
Benzene	0.0106	0.0465	0.0106	0.0465
Toluene	0.0043	0.0188	0.0043	0.0188
Xylenes	0.0030	0.0132	0.0030	0.0132
1,3-Butadiene	0.0004	0.0017	0.0004	0.0017
Formaldehyde	0.0090	0.0394	0.0090	0.0394
Acetaldehyde	0.0057	0.0249	0.0057	0.0249
Acrolein	0.0009	0.0038	0.0009	0.0038
Naphthalene	0.0013	0.0056	0.0014	0.0056

## REGULATORY APPLICABILITY

The following rules apply to the facility.

- 45CSR4 To Prevent And Control The Discharge Of Air Pollutants Into The Open Air Which Causes Or Contributes To An Objectionable Odor Or Odors

This rule is designed to prevent and control the discharge of pollutants into the open air which causes or contributes to an objectionable odor or odors.

No person shall be considered in violation of this rule unless notified that he is discharging air pollutant or air pollutants which causes or contributes to an objectionable odor.

- 45CSR7 To Prevent And Control Particulate Matter Air Pollution From Manufacturing Processes And Associated Operations

The purpose of this rule is to prevent and control particulate matter air pollution from manufacturing processes and associated operations.

The facility is a type 'a' manufacturing operation (undergoes a physical change) which has the potential to emit particulate matter (PM) and particulate matter less than 10 microns in diameter (PM-10). The facility will be subject to the opacity and weight rate limits set forth in Sections 3, 4, 5 and 8.

The facility will demonstrate compliance by keeping records of the amount of material processed and the hours of operation. From this information, emission estimates can be made. Also, opacity checks from the facilities source operations will be made to demonstrate compliance. Note that more stringent opacity requirements may be required by 40 CFR 60 Subpart OOO.

- 45CSR13 Permits For Construction, Modification, Relocation And Operation Of Stationary Sources Of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, Permission To Commence Construction, And Procedures For Evaluation

The purpose of this rule is to set forth the procedures for stationary source reporting, and the criteria for obtaining a permit to construct and operate a new stationary source which is not a major stationary source, to modify a non-major stationary source, to make modifications which are not major modifications to an existing major stationary source, to relocate non-major stationary sources within the state of West Virginia,

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and to set forth procedures to allow facilities to commence construction in advance of permit issuance. Such construction, modification, relocation and operation without a required permit is a violation of this rule.

Per section 2.17, the facility is requesting to obtain a modification permit. In addition, the sources for the modification are requested for are subject to New Source Performance Standards (NSPS) per section 2.20e, 40 CFR 60 Subpart OOO and 40 CFR 60 Subpart IIII.

45CSR16 Standards Of Performance For New Stationary Sources

This rule establishes and adopts standards of performance for new stationary sources promulgated by the USEPA pursuant to section 111(b) of the federal Clean Air Act (CAA).

The facility is subject to the requirements of 40 CFR 60 Subpart OOO and 40 CFR 60 Subpart IIII.

45CSR34 Emission Standards For Hazardous Air Pollutants

This rule establishes and adopts a program of national emission standards for hazardous air pollutants (NESHAPS) and other regulatory requirement promulgated by the USEPA pursuant to 40 CFR Parts 61, 63, and section 112 of the federal Clean Air Act (CAA).

The facility has several internal combustion engines onsite. The internal combustion engines are subject to 40 CFR 63 Subpart ZZZZ National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.

40CFR60 Subpart OOO Standards of Performance for Nonmetallic Mineral Processing Plants

This regulation applies to facility is fixed or portable nonmetallic mineral processing plants: each crusher; grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station.

The facility is subject to this subpart and is defined as an affected facility defined in §§ 60.670 that modification occurred after April 22, 2008.

The facility is subject to the particulate matter standards of Table 3 of this subpart, which requires an opacity standard of

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less than or equal to 7 percent from the defined affected operations and less than or equal to 12 percent opacity from crushers. An initial performance test will be required to demonstrate compliance. In addition, the facility will conduct periodic water spray inspections.

40CFR60 Subpart III Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE) and other persons as specified in paragraphs (a)(1) through (4) of § 60.4200(a).

The facility has a five (5) diesel generators onsite. This generators are subject to this regulation. ENG-1S and ENG-BC were installed/constructed before July 11, 2005. Therefore, the requirements of this subpart do not apply to these engines.

ENG-CR1 and ENG-CR2 must meet the emission standards set forth in section §60.4204(d) and §60.4201(d)(1).

Engine Size Liter/Cylinder rated power	Category	Model year	THC+NOx (g/KW-hr)	CO (g/KW-hr)	PM (g/KW-hr)
5.0 ≤ disp. < 15.0 all power levels	Category 2	2007	7.8	5.0	0.27

ENG-CR1 and ENG-CR have the following Certified exhaust emissions from the manufacturer (g/KW-hr).

Emission Source	HC	NOx	NMHC + NOx	CO	PM
ENG-CR1	-	-	3.6	2.2	0.10
ENG-CR2	-	-	3.6	2.2	0.10

The engine will meet the emission standards of this regulation.

ENG-2S must meet the emission standards set forth in section §62.4204(a).

Maximum engine power	Emission standards for stationary pre-2007 model year engines with a displacement of <10 liters per cylinder g/KW-hr (g/HP-hr)				
	NMHC + NOx	HC	NOx	CO	PM
75 ≤ KW < 130 (100 ≤ HP < 175)			9.2 (6.9)		

ENG-2S have the following Certified exhaust emissions from the manufacturer (g/KW-hr)

Emission Source	HC	NOx	NMHC + NOx	CO	PM
ENG-CR1	-	-	6.2	0.7	0.21

The engine will demonstrate compliance with the emission standards of this rule.

The facility will meet the initial testing, fuel requirements and recordkeeping requirements set forth in this rule.

40CFR63 Subpart ZZZZ National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

The facility is considered by this rule as an area source of HAP emissions. Since the facility is subject to the requirements of 40CFR60. An affected source that meets any of the criteria in paragraphs (c)(1) through (7) of this section must meet the requirements of this part by meeting the requirements of 40CFR60 subpart III, for compression ignition engines.

The following rules do not apply.

45CSR14 Permits for Construction and Major Modification of Major Stationary Sources for the Prevention of Significant Deterioration of Air Quality

This rule provides:

A mechanism to ensure that economic growth will occur in harmony with the preservation of existing clean air resources; to prevent the development of any new non-attainment problems; to protect the public health and welfare from any adverse effects which might occur even at air quality levels better than the West Virginia and National Ambient Air Quality Standards; and to preserve, protect, and enhance the air quality in areas of special natural, recreational, scenic, or historic value. It is the intent of the Secretary to register and evaluate sources of air pollutants and to preclude the construction or relocation of any major stationary source or major modification in any area classified as attaining National or West Virginia Ambient Air Quality Standards or unclassifiable in which the establishment of such source or modification may interfere with the goals of the prevention of significant deterioration of air quality levels; and

A method to quantitatively define significant deterioration of air quality with respect to the desired degree of preservation of air quality for various areas and to set forth procedures for registration and reporting, and the criteria for obtaining a permit to construct or relocate a major stationary source or make a major modification to a stationary source within a designated attainment or unclassified area of the State of West Virginia. Such construction, modification, or relocation without such a permit is a violation of this rule.

A major stationary source defined as any of the following stationary sources or air pollutants which emits or has the potential to emit, 100 tpy of any regulated NSR pollutant per section 2.43a of this rule or a stationary source which emits or has the potential to emit, 250 tpy or more of regulated NSR pollutant per section 2.43.b or any physical change at a stationary source, not otherwise qualifying under subdivision 2.43.a as a major stationary source, if the change itself would constitute a major stationary source per 2.43.b.

The facility is not listed in section 2.43.a of this rule and is not required to include fugitive emission per section 2.43.g. Therefore, the facility is not defined as a major source per this rule.

45CSR19 Permits for Construction and Major Modification of Major Stationary Sources Which Cause or Contribute to Nonattainment Areas

It is the intent of the Secretary that all applications filed by any person to construct major new or modified stationary air pollution sources, intending to locate in areas with air quality worse than the levels set to protect the public health and welfare, or that might impact those areas, must adequately meet the preconstruction review procedures and conditions of the Clean Air Act as amended and this rule.

These conditions are designed to ensure that the major new or modified source's emissions will be controlled to the greatest degree practicable; that more than equivalent offsetting emission reductions will be obtained from existing sources; that there will be progress toward achievement of the National Ambient Air Quality Standards; and that all applicable air pollution regulations adopted by the Secretary will be met.

The facility is located in Grant County, which is attainment for all regulated air pollutants.

45CSR30 Requirements for Operating Permits

This rule provides for the establishment of a comprehensive air quality permitting system consisting with the requirements of Title V of the Clean Air Act.

Major source of air pollutants is a facility that directly emits or has the potential to emit, one hundred (100) tpy or more of any air pollutant subject to regulation. Fugitive emissions of a stationary source shall not be considered in determining whether it is a major stationary source unless the source belongs to one of the categories of stationary sources listed in section 2.26.b. Mineral processing plants are listed in this section to include fugitive emissions. The facility has a NAICS of 212312, which is defined as a mineral processing plant.

The facility is not a major source of any regulated air pollutant defined in this rule.

The facility Title V permit applicability will not change from the previous permit.

#### TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

There will be small amounts of various non-criteria regulated pollutants emitted from the combustion of diesel. However, due to the concentrations emitted, detailed toxicological information is not included in this evaluation.

#### AIR QUALITY IMPACT ANALYSIS

Grant County is considered an attainment area for all regulated air pollutants. The facility's proposed modification should not adversely impact the air quality in that area.

#### MONITORING OF OPERATIONS

1. Monthly opacity checks in accordance with 45CSR7 and 40 CFR 60 Subpart OOO.
2. Total daily and yearly throughput of stone processed through each operation.
3. Monthly checks of the wet suppression system.
4. Monthly and yearly fuel consumption.
5. Monitor the hours of operation.

#### CHANGES TO PERMIT R13-2086B

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- Annual throughput from 500,000 tons per year (tpy) and 1,000,000 tons per year (tpy).
- Increase Terex Pegson 1300 MXT crusher and Terex Powerscreen 1800 screen and associated equipment are increased to 2,000,000 tons per year.
- Equipment Ids have been changed from the existing permit.
- Added requirements for the existing five (5) diesel fired engines located onsite.

#### RECOMMENDATION TO DIRECTOR

Permit application, R13-2086C, submitted by Bardon, Inc, for the Keplinger Quarry, for a modification of a limestone crushing facility at the permittee's Maysville facility, Grant County, WV, has been reviewed and determined to meet all applicable requirements. It is therefore, recommended for approval.

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Jill Harris  
Permit Writer

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August 2, 2013

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