



west virginia department of environmental protection

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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-2869
Plant ID No.: 053-00074
Applicant: Green Global, LLC
Facility Name: New Haven Facility
Location: New Haven, Mason County
SIC Code: 1481 - Mining and Quarrying of Non-Metallic Minerals
Application Type: Modification
Received Date: December 20, 2010
Engineer Assigned: Steven R. Pursley, PE
Fee Amount: \$1000.00
Date Received: December 21, 2010
Complete Date: January, 19 2011
Due Date: April 19, 2011
Applicant Ad Date: December 1, 2010
Newspaper: *Point Pleasant Register*
UTM's: Easting: 420.545 km Northing: 4312.216 km Zone: 17
Description: The applicant proposes to utilize a portable crushing and screening plant followed by water based gravity separation to recover manganese slag.

DESCRIPTION OF PROCESS

Green Global, LLC's New Haven, WV facility recycles silica manganese slag into aggregate and metals for recycle from Felman Production, Inc. using a combined crushing and screening process followed by water based gravity separation.

The slag is stockpiled on site and then crushed in a jaw crusher which utilizes a magnetic belt to remove metals before screening. The maximum production rate of the jaw crusher is 100 tons per hour. After the first set of screens, fines and course sized slag is stockpiled for further water-based separation. Oversized slag is discharged to a cone crusher for recrushing and then returned to the screens.

Materials from the course stockpile is transferred to a water based separator which separates the majority of the aggregate and metallics by specific gravity. Material which has not been fully

separated is returned to the course stockpile for re-processing. Metallics are discharged to steel totes for offsite shipment and further processing. The washed aggregate is stockpiled for sale as aggregate after dewatering.

Material from the fines stockpile is processed first in a wet screen / separator which separates the courser material which is then moved to the course stockpile. Fines from the wet screen separator are then processed in a water based separator which separates the aggregate and metallics by specific gravity. Metallics are recovered and moved to totes for offsite recycle. The remaining fines are stockpiled to be sold as sand aggregate.

The proposed facility shall be constructed and operated in accordance with the following equipment, transfer points and control device information taken from permit application R13-2869:

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed/ Modified	Design Capacity (tph)	Control Device
E-1SP	E-1SP	Course Material Stockpile	2011	31	1C, 2C
E-2SP	E-2SP	Fines Material Stockpile	2011	19	1C, 2C
E-3SP	E-3SP	Washed Aggregate Stockpile	2011	26.5	1C, 4C
E-4SP	E-4SP	Sand Stockpile	2011	15.5	1C, 4C
E-5SP	E-5SP	Raw Material Stockpile	2011	50	3C
E-1RMT	E-1RMT	Raw Material Transfer	2011	50	1C, 3C
E-1H	E-1H	Course Mat'l Transfer to Hopper	2011	31	3C
E-2H	E-2H	Fines Mat'l Transfer to Hopper	2011	19	3C
E-3H	E-3H	Raw Mat'l Transfer to Jaw Crusher	2011	50	3C
E-4H	E-4H	Raw Mat'l Transfer to Cone Crusher	2011	10	3C
E-5H	E-5H	Crushed Mat'l Transfer to Screens	2011	50	3C-
E-6H	E-6H	Transfer to Raw Mat'l Stockpile	2011	50	1C

E-7H	E-7H	Transfer to Stockpiles From Screens	2011	50	1C, 3C
E-8H	E-8H	Transfer to Washed Aggregate Conveyor	2011	26.5	4C
E-1JC	E-1JC	Jaw Crusher	2011	50	3C
E-1CC	E-1CC	Cone Crusher	2011	10	3C
E-1PS	E-1PS	Primary Screening	2011	50	3C
E-1WS	E-1WS	Sand Transfer to Stockpile	2011	15.5	1C
E-1WA	E-1WA	Washed Aggregate to Stockpile	2011	26.5	1C
E-1WBS	E-1WBS	Water Based Separator (Course Material)	2011	31	4C
E-2WBS	E-2WBS	Water Based Separator (Fines Material)	2011	18	4C
E-1SEP	E-1SEP	Wet Screen Separator	2011	19	4C
E-1DWS	E-1DWS	De-Watering Screw/Screen	2011	26.5	4C
E-1WB	E-1WB	Water Based Production	2011	8	4C
E-1T	E-1T	Haulroad Emissions	2011	----	1C
E-1COMB	E-1COMB	Diesel Generator	2011		----
1C	1C	Water Truck	2011	----	1C
2C	2C	Stockpile Sprays	2011	----	2C
3C	3C	Water Mists	2011	----	3C
4C	4C	Wet Process	2011	----	4C

SITE INSPECTION

A site inspection was performed by James Robertson of the Enforcement Section on April 21, 2010 and the facility was found to be operating without a permit. Permit R13-2845 was a result of that inspection.

Directions as given in application:

From New Haven, take WV62 towards Parkersburg approximately 4 miles, turn left onto Hanson Lane, continue straight, cross railroad tracks, site is just ahead.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Fugitive emission calculations for transfer points, crushing, storage piles, and unpaved haulroads are based on AP-42 “Compilation of Air Pollution Emission Factors,” Fifth Edition, Volume I, Sections 11.19.2. “Crushed Stone Processing and Pulverized Mineral Processing” and 13.2.4. “Aggregate Handling and Storage Piles.” Control efficiencies were applied based on the Reference Document for General Permit G40-B. The estimated emission calculations for processing the stone/aggregate were performed by the applicant and were reviewed for accuracy by the writer. Refer to the following table for a complete summary of the proposed facility’s emissions created from the processing of the stone/aggregate:

Emissions Summary - Green Global, LLC New Haven Facility	Controlled PM Emissions		Controlled PM₁₀ Emissions	
	lb/hour	TPY	lb/hour	TPY
Fugitive Emissions				
Stockpile Emissions	0.03	0.13	0.02	0.06
Unpaved Haulroad Emissions	1.70	1.77	0.44	0.46
Fugitive Emissions Total	1.73	1.9	0.46	0.52
Point Source Emissions				
Equipment Emissions	0.17	0.19	0.07	0.11
Transfer Point Emissions	0.05	0.05	0.02	0.02
Point Source Emissions Total	0.22	0.24	0.09	0.13
FACILITY EMISSIONS TOTAL				
	1.95	2.14	0.55	0.65

Emission calculations for the operation of the diesel fired engine are based on AP-42 “Compilation of Air Pollution Emission Factors,” Fifth Edition, Volume I. Section 3.3 Gasoline And Diesel Industrial Engines (10/96). The estimated emission calculations for the diesel engine were performed by the applicant and reviewed for accuracy by the writer. Refer to the following table for a complete summary of the proposed facility’s emissions created from the operation of the engine:

Pollutant	Type of Emission Point	Source of Emission Factor/Rate	Hourly Emissions (lb/hr)	Annual Emissions (ton/yr)
Carbon Monoxide (CO)	Stack	AP-42 ¹	0.49	2.16
Nitrogen Oxides (NO _x)	Stack	AP-42 ¹	1.61	7.03
Particulate Matter < 10 microns (PM ₁₀)	Stack	AP-42 ¹	0.15	0.64
Sulfur Dioxide (SO ₂)	Stack	AP-42 ¹	0.16	0.68

(1) Emission factors were obtained from AP-42 5th Edition - Section 3.3 Gasoline and Diesel Industrial Engines (10/96).

Overall, the proposed construction will result in an estimated annual potential to discharge controlled

emissions as follows: Particulate Matter (PM), 2.78 tons per year (TPY); Particulate Matter less than 10 microns (PM₁₀), 1.29 TPY; Sulfur Dioxide (SO₂), 0.68 TPY; Oxides of Nitrogen (NO_x), 7.03 TPY; Carbon Monoxide (CO), 2.16 TPY. **Note that, in order to be conservative all PM₁₀ is assumed to be PM_{2.5}.**

Manganese emission calculations were also provided by the applicant and reviewed by the writer. Based on 4% Manganese content, the maximum uncontrolled potential to emit is 0.01 lb/hr or 0.05 tons per year which is below Major HAP source thresholds.

REGULATORY APPLICABILITY

NESHAPS and PSD have no applicability to the proposed facility. The proposed stone processing facility is subject to the following state and federal rules:

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

The facility is subject to the requirements of 45CSR7 because it meets the definition of “Manufacturing Process” found in subsection 45CSR7.2.20. The facility should be in compliance with Subsection 3.1 (no greater than 20% opacity), Subsection 4.1 (PM emissions shall not exceed those allowed under Table 45-7B), Subsection 5.1 (manufacturing process and storage structures must be equipped with a system to minimize emissions), Subsection 5.2 (minimize PM emissions from haulroads and plant premises) when the particulate matter control methods and devices proposed within permit application R13-2869 are in operation.

According to Table 45-7A, for a type ‘a’ source with a maximum process weight rate of 100,000 lb/hour, the maximum allowable emission rate is 33 lb/hour of particulate matter. The maximum emission rate of all point sources is less than 1 lb/hour of particulate matter.

45CSR13 Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits, and Procedures for Evaluation

The proposed facility is subject to the requirements of 45CSR13 because uncontrolled emissions of PM from the facility could exceed 6 pounds per hour and 10 tons per year. The facility is ***not*** subject to substantive requirement 40 CFR 60 Subpart OOO due to the process rate being exactly 150 tons per hour (when combined with the equipment covered in permit R13-2845) for a portable source (§60.670(c)(2) exempts facilities with a cumulative capacity of 150 tons per hour or less). The applicant submitted the proper application fee of \$1000.00 and published a Class I legal advertisement in *The Point Pleasant Register* on December 1, 2010.

The facility is located in the Graham tax district in Mason County, WV, which is currently in non attainment for PM_{2.5}. However, even when combined with the equipment permitted under R13-2845 the total increase in PM_{2.5} is only 6.48 tons per year (conservatively assuming all PM₁₀ is PM_{2.5}.)

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

A toxicity analysis was not performed because the majority of the pollutants being emitted from this facility are PM (particulate matter) and PM₁₀ (particulate matter less than 10 microns in diameter). Minute quantities of Manganese are present, 0.05 tons per year.

AIR QUALITY IMPACT ANALYSIS

Air dispersion modeling was not performed due to the size and location of this facility, and the water-based nature of the process.

MONITORING OF OPERATIONS

The stone processing and storage areas should be observed to make sure that the facility is meeting the visible emission standards of 45CSR7. Visible emissions from any transfer point on belt conveyors or from any other affected facility or any fugitive emissions must be less than 20% opacity.

The permittee shall maintain certified monthly and annual records of the amount of stone processed and the usage and amount of water applied by the water truck. Also, the facility shall perform visible emission checks and opacity readings as specified. Example forms are given as Appendices A through C to Permit R13-2845. These certified records shall be maintained on site for a period not less than five (5) years and be made available to the Director or his or her duly authorized representative upon request.

RECOMMENDATION TO DIRECTOR

The information contained in this construction application indicates that compliance with all applicable regulations should be achieved when all proposed particulate matter control methods are in operation. Therefore, the granting of a permit to Green Global, LLC for the construction of a portable stone crushing and processing plant to be located near New Haven, Mason County, WV is hereby recommended.

Steven R. Pursley, P.E.
Permit Engineer

April 12, 2011
Date