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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-2475B
Plant ID No.: 009-00053
Applicant: Valero Terrestrial Corporation
Facility Name: Brooke County Sanitary Landfill
Location: Brooke County
NAICS Code: 562212
Application Type: Modification
Received Date: June 3, 2011
Engineer Assigned: Joe Kessler
Fee Amount: \$2,000
Date Received: June 13, 2011
Complete Date: June 23, 2011
Due Date: September 21, 2011
Applicant Ad Date: June 2, 2011
Newspaper: *The Weirton Daily Times*
UTM's: Easting: 535.865 km Northing: 4,469.677 km Zone: 17
Description: This modification addresses the proposed use of a Viper 122 100 ton/hour (TPH) rock screen and associated support operations.

On June 3, 2011 Valero Terrestrial Corporation (Valero) submitted an application for a portable 100 ton/hour (TPH) rock screen and associated support operations to be located at the existing Brooke County Sanitary Landfill. The landfill has been the subject of several previous permitting actions. A brief description of each is given below:

- On May 15, 2002 the DAQ issued after-the-fact Permit R13-2475 to Valero for a 200 TPH rock crushing and screening operation at the landfill.
- On February 26, 2003 the DAQ issued Permit R13-2480 to Valero for a sewage sludge composting facility at the landfill.
- On July 31, 2007 the DAQ issued Permit R13-2475A to Valero for a flare used in the composting facility. This permit superseded both R13-2475 and R13-2480.

DESCRIPTION OF PROCESS/MODIFICATIONS

Existing Facility

Valero's Brooke County Sanitary Landfill is a 196-acre non-hazardous municipal solid waste (MSW) landfill that began operation in 1970's. The landfill accepts residential, commercial, and non-hazardous industrial waste; construction/demolition debris, institutional waste, autoclaved or sterilized waste, and petroleum contaminated soil. The maximum monthly tonnage of municipal solid waste accepted at Brooke County Landfill is 20,000 tons/month. The existing facility also utilizes a 200 TPH rock crushing and screening operation and a sewage sludge composting plant.

Proposed Modifications

This modification addresses the proposed use of a portable 100 ton/hour rock screen (Viper 122) and associated support operations. Rock is delivered to the area of the screen by truck and dumped onto the ground (TP1A). A front-end loader picks up loads of rock and dumps it into the pile (TP2A) where it is later picked up and placed into the screen (TP3A) by the loader. The screen (24S), which is listed as uncontrolled (but which does have built in enclosures around the screen itself), separates the rock into rip rap and 3/4 inch stone. The rip rap falls to the ground (TP4A) and is moved by the loader (TP8A) to an open stockpile that is controlled by water sprays (OS5). From the stockpile the rip rap is loaded into trucks by a loader (TP9A). The sized 3/4 inch stone falls from the screen (TP5A) to an attached belt conveyor where it is dropped to the ground (TP6A). It is quickly moved by loader to an open stockpile (TP7A) that is controlled by water sprays (OS6). From the stockpile the sized stone is loaded into trucks by a the loader (TP10A). All transfer points are uncontrolled. Truck haulroads and the mobile work area is kept wet as needed by a water truck or water sprays.

SITE INSPECTION

Due to the nature of the modification, a site inspection was not done by the writer. According to the database, the last inspection of the facility was conducted on March 23, 2011 by Al Carducci of the Northern Panhandle Regional Office. The result of the inspection was an enforcement status of "30 - In Compliance."

REVIEW OF APPLICANT'S EMISSIONS ESTIMATE

Valero included in the permit application an emission estimate for the screening operation. The estimate was based on the "Nonmetallic Minerals Processing Plant General Permit Number G40-C Emission Calculation Spreadsheet" available on the DEP website. The spreadsheet is based primarily on emission factors provided in AP-42. A review of the spreadsheet by the writer has determined the input variables were reasonable. The emissions associated with the new screening operation are given in the following table:

Table 1: Criteria-Pollutant Potential-to-Emit⁽¹⁾

Section	Potential-To-Emit			
	PM ₁₀		PM	
	lb/hr	ton/yr	lb/hr	ton/yr
Transfer Points	0.16	0.04	0.34	0.09
Screening	0.87	0.22	2.50	0.63
Open Stockpiles ^c	0.01	0.01	0.01	0.01
Unpaved Haulroads & Mobile Work Areas	7.33	1.83	24.84	6.21
Total Facility-Wide	8.37	2.10	27.69	6.94

(1) Valero did not include an estimate of PM_{2.5} emissions. Therefore, to be conservative, PM_{2.5} emissions from this facility are considered to be equal to the PM₁₀ emissions. This will be the case for all applicability purposes until such time a Valero is able to show that PM_{2.5} emissions are less than PM₁₀ emissions.

Update to Facility-Wide Particulate Matter Annual Emission Rate

According to the Title V Fact Sheet associated with the Renewal Permit issued in 2007 for the Brooke County Landfill, the facility-wide annual potential-to-emit (PTE) of PM and PM₁₀ was 78.1 TPY. Based on the increase noted above, the new facility-wide PTE of PM and PM₁₀ will be 85.04 TPY and 80.2 TPY, respectively. Without an estimate of PM_{2.5} emissions from the facility, the facility-wide PTE of PM_{2.5} shall be considered equal to the PTE of PM₁₀.

REGULATORY APPLICABILITY

This section will address the potential regulatory applicability/non-applicability of substantive state and federal air quality rules relevant to this permitting action.

45CSR7: To Prevent and Control Particulate Air Pollution from Manufacturing Process Operations

45CSR7 has three substantive requirements applicable to the proposed screening operation. These are the opacity requirements under Section 3, the mass emission standards under Section 4, and the fugitive emission standards under Section 5. Each of these sections will be discussed below.

45CSR7 Opacity Standards - Section 3

Section 3.1 sets an opacity limit of 20% on the screen and transfer points. As there are no add-on controls associated with the screen and transfer points, it can be reasonably be expected that the material handling operations will generate some opacity. However, the small scale of the operation and the moisture content of the material should help mitigate any opacity from this source in excess of 20%. Additionally, the Viper 122 screen is enclosed on the sides of the screen and that will provide for some fugitive dust control.

45CSR7 Weight Emission Standards - Section 4

Section 4.1 of 45CSR7 requires that each manufacturing process meet a particulate matter limit based on the weight of material processed through the source operation. The screening operation is defined as a type 'a' source type operation. The maximum throughput of the screen is 200,000 pounds per hour (lb/hr). Based on Table 45-7A, the particulate matter limit would be 37.00 lb/hr. The maximum potential hourly PM emissions from the screen and all the transfer points is estimated to be 2.81 lb/hr. This emission rate is 7.6% of the 45CSR7 limit.

45CSR7 Fugitive Emissions - Section 5

Section 5.1 of Rule 7 states that each manufacturing process must include a system to minimize the emissions of fugitive particulate matter. The fugitive emissions generated by the haulroads, mobile work areas, and open stockpiles are minimized as necessary by water sprays or a water truck.

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

The proposed installation of the screening operation has a potential to increase emissions in excess of 144 pounds per calendar day and, therefore, pursuant to §45-13-2.17a, the installation is defined as a "modification" under 45CSR13

Therefore, as required under §45-13-8.3 ("Notice Level A"), Valero placed a Class I legal advertisement in a "newspaper of general circulation in the area where the source is . . . located." The ad ran on June 2, 2011 in *The Weirton Daily Times*. The affidavit of publication for this legal advertisement was submitted on June 10, 2011.

45CSR30: Requirements for Operating Permits

45CSR30 provides for the establishment of a comprehensive air quality permitting system consistent with the requirements of Title V of the Clean Air Act. The Valero facility, defined under Title V as a "major source," was issued a Title V renewal permit on September 6, 2007. Changes authorized by the proposed permit must also be incorporated into the facility's Title V operating permit. Commencement of the operations authorized by this permit (which is the operation of the plant) shall be determined by the appropriate timing limitations associated with Title V permit revisions per 45CSR30.

40 CFR 60, Subpart OOO: Standards of Performance for Nonmetallic Mineral Processing Plants

Subpart OOO contains requirements relating to the performance of non-metallic mineral processing plants. The proposed Valero screening operation contains equipment that is applicable to Subpart OOO (note: Subpart OOO was updated in 2009 to include requirements for new equipment added after that date. The requirements for equipment installed prior that date were not changed and remain in effect for the existing rock crushing and screening operation). The following discusses the substantive applicable requirements of Subpart OOO relating to the screening operation.

Subpart 000 Applicability - Section §60.670

Pursuant to §60.670, affected facilities under Subpart 000 include “each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station” located at a “fixed or portable nonmetallic mineral processing plant[s].” “Non-metallic processing plant” is defined as “any combination of equipment that is used to crush or grind any nonmetallic mineral wherever located.”

As the proposed screening operation will contain two “affected facilities” under Subpart 000 - the screen and the attached belt conveyer - the rule is applicable to those sources.

Subpart 000 Standard for Particulate Matter - Section §60.672

Section §60.672 Table 3 sets an opacity standard of 7% on all affected facilities subject to Subpart 000 (the screen and the attached belt conveyer). As there are no add-on controls associated with the screen and transfer points, it can be reasonably be expected that the material handling operations will generate some opacity. However, the small scale of the operation and the moisture content of the material should help mitigate any opacity from this source in excess of 7%. Additionally, the Viper 122 screen is enclosed on the sides of the screen and that will provide for some fugitive dust control.

Subpart 000 Test Method and Procedures - Section §60.675

Section §60.675 outlines the test methods and procedures to determine initial compliance with the standards noted above including the use of Method 9 to determine compliance with the opacity limits. Valero will be required to follow these requirements to determine initial compliance with the emission standards.

Subpart 000 Reporting and Record-keeping - Section §60.676

Section §60.51a outlines the reporting and record-keeping requirements required to be followed to be in compliance with Subpart 000. Valero will be required to follow these requirements.

TOXICITY ANALYSIS OF NON-CRITERIA REGULATED POLLUTANTS

No non-criteria regulated pollutants are expected to be emitted from the screening operation in any substantive amounts.

COMPLIANCE DEMONSTRATION: MONITORING, RECORD-KEEPING, AND REPORTING REQUIREMENTS

Valero will demonstrate compliance with the potential emissions by maintaining hourly, monthly, and yearly throughput records of the screening operation utilizing the forms given in Appendix A and B of the permit [5.3.4.]. Additionally, Valero will be required to demonstrate

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compliance with the 45CSR7 opacity limitations given under 5.1.9. of the permit by performing monthly Method 9 tests of all rock crushing and screening operations at the facility [5.3.6.].

TESTING OF OPERATIONS

Beyond the opacity testing requirements of Subpart OOO (required in the permit [5.2.1.]), there is no site-specific performance testing required on the screening operation.

CHANGES TO PERMIT R13-2475A

The following substantive changes were made to permit R13-2475A:

- The Emission Units Table 1.0 was updated to include the equipment and transfer points associated with the new screening operation.
- Screening operation throughput limitations and an equipment table were added as 5.1.6.
- Limitations on the size of the open stockpiles were added as 5.1.7.
- Updated Subpart OOO requirements were added specific to the new screening operation as 5.1.8.
- A reference to the new throughput limitations were added to the record-keeping requirement under 5.3.4.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates that compliance with all applicable regulations will be achieved. Therefore, I recommend to the Director the issuance of a Permit Number R13-2475B to Valero Terrestrial Corporation for the above discussed modification to the Brooke County Sanitary Landfill located in Colliers, Brooke County, WV.

Joe Kessler, PE
Engineer

Date

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