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west virginia department of environmental protection

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Joe Manchin III, Governor  
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## ENGINEERING EVALUATION / FACT SHEET

### BACKGROUND INFORMATION

Application No.: R13-2822  
Plant ID No.: 069-00071  
Applicant: American Disposal Services of West Virginia Inc  
Facility Name: Short Creek Landfill  
Location: Wheeling  
SIC Code: 1422  
Application Type: Construction  
Received Date: December 21, 2009  
Engineer Assigned: Edward S. Andrews, P.E.  
Fee Amount: \$1000.00  
Date Received: December 22, 2009  
Completeness Date: March 4, 2010  
Due Date: June 2, 2010  
Newspaper: *The Intelligencer*  
Applicant Ad Date: December 1, 2009  
UTMs: Easting: 530.6 km      Northing: 4,444.1 km      Zone: 17  
Description: This permitting action is for the installation and operation of a portable stone crushing and sizing facility to be located at the Short Creek Landfill.

### DESCRIPTION OF PROCESS

American Disposal Services of West Virginia proposed to locate a portable stone crushing and sizing unit at the Short Creek Landfill. This unit will support landfill operations at the facility.

A front-end loader will feed raw stone into the crusher feed hopper that feeds directly the crusher. Once the stone is crushed, it drops onto a double deck screen. This screening unit will separate the stone into two difference sizes. From there, the sized stone or material is discharged onto a belt conveyor that transfers this material to an open stockpile. From the stockpile, the sized stone is consumed at the facility to support operating the landfill.

A small generator set will provided electric power to the rock crusher/screening unit and associated conveyor belts. A Caterpillar C9DI internal combustion engine will drive the generator, which is capable of producing about 350 kW of electricity.

### SITE INSPECTION

The Short Creek Landfill is an existing Title V facility, which is routinely inspected. Mr. Al Carducci, a member of the Northern Panhandle Regional Office, conducted the most resent inspection of facility on September 26, 2008. The result of findings from this full on site inspection found the landfill to be in compliance. In addition, Mr. Carducci has reviewed numerous semi-annual and annual compliance status reports of the landfill, which have indicated that the landfill is being operating in compliance with its Title V Operating Permit. Therefore, this writer deems that a site inspection of the Short Creek Landfill was not necessary for this permitting action.

### ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emissions were estimated using AP-42 emission factors for non-metallic mineral processing facilities. Because AP-42 dose not published a specific factor for primary crushing of stone, the estimate provided in the application did not account for any PM/PM<sub>10</sub> from the crusher. The DAQ has adopted a factor of 0.0007 lb/ton for PM and 0.0003 lb /ton for PM<sub>10</sub>. This writer estimated that the controlled PM emissions to be 3.97 pounds per hour and 17.4 tons per year from point sources, which included the crushing, screening, and transfer points. The

PM<sub>10</sub> and PM<sub>2.5</sub> components of PM were determined. Of this 3.97 pounds per hour of PM, 1.41 pounds is classified as PM<sub>0</sub> and PM<sub>2.5</sub>. Fugitive emissions from stone handling (drop point) and wind erosion was estimated to be 20.5 tons per year of PM and 9.7 tons per year of PM<sub>10</sub>.

Emission estimates for PM, NO<sub>x</sub>, CO, and VOCs was determined using emissions data provided by the engine manufacturer. These measurement procedures used to obtain the emission data were consistent with the methods described in 40 CFR Part 89 Subpart D and ISO 8178-1. Using this emission data and the maximum power output of the engine (350 bhp), the potential emissions produce from this Caterpillar C9DI are listed in the follow table. Sulfur dioxide emissions are function of the maximum fuel consumption rate of the engine (18.6 gal/hr) and sulfur content of the fuel (0.4 % by wt.)

Table 1 - Engine Emissions		
Engine	Caterpillar C9DI	
Power Rating (hp)	350 hp	
Pollutant	lb/hr	TPY
PM/PM <sub>10</sub> /PM <sub>2.5</sub>	0.05	0.2
Sulfur Dioxide	1.01	4.42
Nitrogen Oxide	1.95	8.55
Carbon Monoxide	0.96	4.19
Hydrocarbons (VOCs)	0.09	0.22

Annual emissions from the crushing/screening of stone and the engine are based on maximum operating schedule of 8,760 hours per year.

## REGULATORY APPLICABILITY

### **State Rules**

#### **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 process and associated operations. The affected process in question will be sizing of stone/rock. Therefore, the sizing unit is classified as a manufacturing process and subject to the particulate matter limitation under this rule.

The process activities involved with the stone sizing unit are classified as type "a" source operation. Based on a maximum hourly processing rate of 125 tons per hour (250,000 lb/hr), this operation would have an allowable particulate matter rate of 35 pounds per hour, which is significantly less than the proposed rate after controls of 3.22 lb/hr. Therefore, no further discussion of rule is necessary.

#### **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 mobile screening unit without controls has potential to emit of PM emissions that exceeds the trigger level under this rule. Thus, American Disposal Services of West Virginia submitted a complete modification application, published a Class I legal ad, and paid the application filling and NSPS fee.

#### **45CSR30 - Requirements for Operation Permits**

The Short Creek Landfill is currently required to operate within its Title V Operating Permit. The issuance of this construction permit, R13-2822, will not affect the Title V status of

this facility. The permittee has the duty to update the facility's Title V (45CSR30) permit application to reflect the changes permitted herein.

## **Federal Regulations**

### **40 CFR 60, Subpart IIII Standards of Performance for Stationary Compression Ignition Internal Combustion Engines**

The proposed engine is compression ignition, internal combustion engine, which will be manufactured after July 11, 2005. Therefore, these engines are subject to this subpart as defined in 40CFR§§60.4200(2). The displacement of the C9DI engine is 1.55 liters per cylinder. The engine is subject to the emission standard of Table 1 of this subpart per §§60.4205(a).

American Disposal Services of West Virginia provided engine emission data sheets for this C9DI engine. Using these sheets, the EPA Certification Number was able to be obtain from the appropriate spreadsheets downloaded from EPA's Engine Certification Data webpage. Since this engine is certified, it is understood that this engine meets the appropriate emission standards of this regulation.

The applicant will be required to equip the engine with a non- resettable hour meter and only use approved fuel in the engine, which is required under this regulation. In addition, the engine will be restricted to consumed diesel meeting certain specification. These requirements will be incorporated in the permit.

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

The proposed rock crushing and sizing plant is not subject this subpart. Although, the construction of emission sources will occur after August 1, 1985, it is a portable plant that processes a maximum of 125 tons of rock per hour. That is less than the trigger level of 150 ton

per hour (40CFR§60.670(c)(2)). Therefore, the proposed emission sources are not subject to this subpart.

#### AIR QUALITY IMPACTS ANALYSIS

This writer deemed that an air dispersion modeling study or analysis was not necessary, because the proposed modification does not meet the definition as a major modification as defined in 45CSR14.

#### MONITORING OF OPERATIONS

Monitoring of the screening plant shall relay on the applicant conducting visual emission observation and material processing rates to show compliance with Rule 7 emission limits. The processing rate corresponds to the predicted emissions. In addition, the hours of operation will be tracked by using the hour meters on the internal combustion engine.

#### RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates that American Disposal Services of West Virginia's proposed stone crushing/screening unit will meet all the requirements of the applicable rules when operated according to the permit application. Therefore, this writer recommends granting American Disposal Services of West Virginia a Rule 13 construction permit for their stone crushing/screening unit to be located at the Short Creek Landfill.

Edward S. Andrews, P.E.  
Engineer

Date: March 22, 2010

Fact Sheet R13-2822  
American Disposal Services of West Virginia  
Short Creek Landfill