



**west virginia department of environmental protection**

Division of Air Quality  
601 57<sup>th</sup> Street SE  
Charleston, WV 25304  
Phone (304) 926-0475 • FAX: (304) 926-0479

Earl Ray Tomblin, Governor  
Randy C. Huffman, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

**ENGINEERING EVALUATION / FACT SHEET**

**BACKGROUND INFORMATION**

Application No.: R13-2640B  
Plant ID No.: 061-00145  
Applicant: High Meadow Pet Crematory LLC (High Meadow)  
Facility Name: Monongalia County, WV  
Location: Monongalia County, WV  
NAICS Code: 812220 - Cemeteries and Crematories  
Application Type: Modification  
Received Date: February 3, 2015  
Engineer Assigned: John Legg  
Fee Amount: \$1,000.00  
Date Received: February 6, 2015  
Complete Date: February 7, 2015  
Due Date: May 5, 2015  
Applicant Ad Date: January 29, 2015  
Newspaper: *The Dominion Post*  
UTM's: Easting: 583.895 km Northing: 4,374.7448 km Zone: 17  
Lat/Long Coordinates: Latitude: 39.518252 Longitude: -80.023993  
Description: Installation of a second Therm-Tec Model S27T Animal Cremation Incinerator. The old incinerator's operating hours will be increased to 3,640 hr/yr (10 hr/day; 7 day/wk; 52 wk/yr) from 2,080 hr/yr (8 hr/day; 5 day/wk; 52 wk/yr) to match the new incinerator's operating hours. The old incinerator's annual processing weight of animal carcasses will be increased to 154.7 ton/yr from 88.4 ton/yr to match the new incinerator's processing weight.

**DESCRIPTION OF PROCESS**

High Meadow proposes to construct a second identical, propane-fired Therm-Tec, Inc. Model S27T animal cremation incinerator.

The new unit will be delivered complete and self-contained except for attaching the exhaust stack and connecting the unit to the propane fuel line and electric wiring. After

installation, the manufacturer's technicians will fire the unit to cure and adjust it. This process takes about 36 hours. The technicians will give on-site training at that time. The operation of the new cremation incinerator can begin after the training has ended.

The operating procedures for the new incinerator will remain the same as for the old incinerator:

- The incinerator's primary chamber (volume 27 ft<sup>3</sup>; 0.8 MM Btu/hr burner) is batch loaded with individual or multiple deceased small animals/pets. The total weight/load limit is 85 pounds.
- The burn timer is adjusted to the total weight of the batch load.
- The start button is pushed and the secondary burner (0.8 MM Btu/hr) located in the secondary chamber (volume 5.7 ft<sup>3</sup>) of the incinerator is fired.
- Once the secondary chamber's temperature reaches the minimum gas temperature set point of 1,600°F, the primary burner is fired to a maximum temperature of 1,600°F.
- The secondary chamber shall have a minimum operating temperature of 1,400°F.
- Exhaust gases will be vented to the atmosphere through a 1' 1" diameter and an 18' 2" tall stack.
- After burn down and cool down of the incinerator, the remains will be removed and returned to the pet owner.

A minimum cool down time of 30 minutes is expected, but it could exceed two hours or even be left over night.

#### Afterburner System (Therm Tec Model S-27)

From Attachment L of the permit application:

The afterburner (control chamber) consists of a vertical combustion chamber setting on top of the primary chamber. The afterburner has two distinct auxiliary combustion air zones, each with six air injectors installed for tangential air injection, creating cyclonic air flow to assure complete mixing of the exhaust gas with the combustion air. The auxiliary combustion air volume is controlled by a modulating air damper based on afterburner temperature.

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Table 1: Emission Units

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
S1	S1	animal cremation incinerator	2005	85 lb/hr	None
S2	S2	animal cremation incinerator	2015	85 lb/hr	None

SITE INSPECTION

The writer did not inspect the High Meadow facility for this modification application (R13-2640B). However, the facility is routinely inspected by DAQ Enforcement. On October 21, 2013 (the most recent inspection), Brian Tephabock, DAQ Enforcement, inspected the facility, found no violations, and give the facility the inspection code of 30. It was noted in the inspection report that there was no visual emissions/opacity, that the facility’s records were in very good order, and that the equipment was well maintained.

Directions to the facility:

- From Charleston, WV take I-79 North to Exit 146. Turn left onto Goshen Road. Travel 0.2 miles and turn left onto County Route 73 (Smithtown Road). Travel 1.6 miles and turn left on Halleck Road. Travel 0.3 miles and turn right onto Broom Sage Road. Travel 200 feet and turn right onto High Meadow Pass. Turn right onto the second driveway.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

High Meadow's emissions calculations for the new cremation incinerator are given in Attachment N-1 to the permit application. The writer reviewed the estimated emissions and found them to be correct.

The new cremation incinerator’s **hourly emissions** are the same as the hourly emissions for existing cremation incinerator.

**Annual emissions** under R13-2640A for the existing incinerator were based on operating 2,080 hr/yr (8 hr/day; 5 day/wk; 52 wk/yr).

**Annual emissions** under R13-2640B for the new incinerator will be based on operating 3,640 hr/yr (10 hr/day; 7 day/wk; 52 wk/yr).

**Annual emissions** under R13-2640B for the existing incinerator will be increased 1,560 hr/yr [(3,640 -2,0800 hr/yr)] to match the new incinerator’s operating hours.

The change in hourly and annual emissions resulting from going from R13-2640A to R13-2640B is given in Table 2.

<b>Table 2: Emissions Summary Table in Going from R13-2640A to R13-2640B.</b>								
Pollutant	EMISSIONS							
	BEFORE		NEW		AFTER			
					INCREASE in Potential-to-emit		Total	
	Existing Incinerator		Incinerator		H1 (lb/hr)	2*A3 - A2 (ton/yr)	Two (2) Incinerators	
	H1 (lb/hr)	A2 (ton/yr) <sup>(1)</sup>	H1 (lb/hr)	A3 (ton/yr) <sup>(2)</sup>			2*H1 (lb/hr)	2*A3 (ton/yr)
CO	0.007	0.01	0.007	0.01	0.007	0.02	0.014	0.02
NOx	0.13	0.13	0.13	0.23	0.13	0.33	0.26	0.46
PM10	0.07	0.07	0.07	0.13	0.07	0.19	0.14	0.26
SO2	0.11	0.11	0.11	0.19	0.11	0.28	0.22	0.38
VOC	0.13	0.13	0.13	0.23	0.13	0.33	0.26	0.46
(1) Based on operating: 2,080 hr/yr ( 8 hr/day; 5 day/wk; 52 wk/yr). (2) Based on operating: 3,640 hr/yr (10 hr/day; 7 day/wk; 52 wk/yr).								

Emission rates were calculated using emission factors found in AP-42, Section 2.1, "Refuse Combustion" (10/96), Table 2.1-12 and FIRE 6.22. Results from tests performed by Horizon Engineering, an independent test laboratory, on a Therm-Tec, Inc. Model S-27 incinerator were used to estimate the maximum CO and PM10 emission rates (and are lower than the CO and PM10 emission rates estimated by FIRE 6.22).

## REGULATORY APPLICABILITY

High Meadow's Monongalia County, WV facility is a non-major stationary source, not subject to Title V (45SCR30) because it is not subject to a standard or other requirement under §112 of the Clean Air Act.

Applicable State Rules:

*45CSR4: To Prevent and Control the Discharge of Air Pollutants Into the Open Air Which Causes or Contributes to an Objectionable Odor or Odors*

The facility is subject to the requirements of 45CSR4 and shall not allow the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public.

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*45CSR6: To Prevent and Control Air Pollution From Combustion of Refuse*

The allowable particulate emission rate calculated in accordance with 45CSR6, Section 4.1, is 0.23 lb/hr. The permitted emission rate for particulate matter is 0.07 lb/hr, which indicates the facility will meet the requirements of Section 4.1. 45CSR6, Section 4.3, states that visible emissions from any incinerator shall not exceed twenty (20%) percent opacity or greater.

*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 facility is subject to rule 45CSR6. Section 6.1 reads as follows, “No person shall construct, modify or relocate any incinerator without first obtaining a permit in accordance with the provisions of W. Va. Code §§22-5-1 et seq., 45CSR13, 45CSR14, and 45CSR19, as applicable.”

High Meadow submitted a permit application (R13-2650B) for the second cremation incinerator on February 2, 2015.

*45CSR22: Air Quality Management Fee Program*

The facility is subject to the requirements of 45CSR22 and shall pay all fees according to the application fee schedule and Certificate to Operate fee schedule. The proper application fee for a modification permit application (\$1,000) was received on February 9, 2015

The proposed construction of the second animal cremation incinerator is not subject to PSD, NSPS, NESHAPS or the following state and federal rules:

*45CSR2: To Prevent and Control Particulate Air Pollution From Combustion of Fuel in Indirect Heat Exchangers*

The proposed construction does not employ any indirect heat exchangers. Indirect heat exchanger means a device that combusts any fuel to produce steam or heats water or any other heat transfer medium. Therefore, this rule is not applicable to the proposed construction.

*45CSR16 Standards of Performance for New Stationary Sources Pursuant to 40 CFR Part 60 40 CFR 60*

*40 CFR 60, Subpart E: Standards of Performance for Incinerators*

Although the new incinerator was constructed after August 17, 1971, it is not subject to Subpart E - “Standards of Performance for Incinerators,” because it does not have

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a charging rate of more than 50 tons per day, which would define it as an affected facility. The maximum charging rate of the incinerator is 85 pounds per hour, which equals 1.02 tons per day. The maximum charging rate for both incinerators is 170 lb/hr or 2.04 ton/day (based on 24 hr/day of operation).

### TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

A toxicity analysis was not performed because the pollutants being emitted from this facility are normal products of combustion in small quantities and as such, should not pose any adverse health effects to the general public.

### AIR QUALITY IMPACT ANALYSIS

High Meadow's Monongalia County, WV facility is considered to be a non-major source. No impact analysis study was conducted for the source.

### MONITORING & RECORD KEEPING REQUIREMENTS

For the purpose of determining compliance with the limits established in permit R13-2640B, the permittee will be required to keep and maintain records of the following variables for both cremation incinerators:

- Type and amount (in pounds) of dead animal carcasses being charged into the incinerators.
- Hours of operation.
- Secondary combustion chamber temperatures during operation.

The facility should be inspected periodically by personnel from the Division of Air Quality (DAQ).

### RECOMMENDATION TO DIRECTOR

High Meadow's request for a modification permit for the construction/installation of a second identical cremation incinerator at their Monongalia County, WV facility meets the requirements of all applicable rules and therefore should be granted said modification permit (R13-2640B).

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John Legg  
Permit Writer

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March 20, 2015

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