



City of Evansville
ENVIRONMENTAL PROTECTION AGENCY

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Mayor Jonathan Weinzapfel

December 6, 2006

Mr. Daniel Ziemer
Tri-State Regional Crematory
800 S. Hebron Avenue
Evansville, IN 47714

Re: Exempt Construction and Operation Status,
163-23153-00168

The application from Tri-State Regional Crematory received on May 8, 2006 has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-1.1-3, it has been determined that the following equipment to be located at 621 North Second Avenue, Evansville, Indiana 47710, is classified as exempt from air pollution permit requirements:

- (1) one (1) crematory incinerator for human remains, equipped with a secondary chamber, was constructed October 2003, with a maximum capacity of one hundred and fifty (150) pounds per hour, supplemented by natural gas at a rate of 2.25 million British Thermal Units per hour (mmBTU/hr).

The following conditions shall be applicable:

- (1) Opacity Limitations [326 IAC 5-1-2]
Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:
 - (a) Opacity shall not exceed an average of thirty percent (30%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
 - (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity) monitor in a six (6) hour period.
- (2) Incinerators [326 IAC 4-2-2]
Pursuant to 326 IAC 4-2-2, all incinerators shall comply with the following requirements:
 - (a) Consist of primary and secondary chambers or the equivalent;
 - (b) Be equipped with a primary burner unless burning only wood products;
 - (c) Comply with 326 IAC 5-1 and 326 IAC 2.
 - (d) Be maintained, operated, and burn waste in accordance with the manufacturer's specifications.
 - (e) Not emit particulate matter in excess of five-tenths (0.5) pounds of particulate matter per one thousand (1,000) pounds of dry exhaust gas under standard conditions corrected to fifty percent (50%) excess air for incinerators with solid waste capacity less than two hundred (200) pounds per hour.

- (f) If any of the requirements of subdivisions (a) through (e) are not met, then the owner or operator shall stop charging the incinerator until adjustments are made that address the underlying cause of the deviation.
- (3) Carbon Monoxide Emission Limits [326 IAC 9-1-2]
Pursuant to 326 IAC 9-1-2, the permittee shall not operate the incinerator unless the waste stream is burned in the secondary chamber.
- (4) NSPS [40 CFR 60, Subpart CCCC, (§ 60.2000 through 60.2265)]
Pursuant to NSPS 40 CFR 60, Subpart CCCC (§ 60.2020), a crematory incineration facility considered a pathological waste incineration unit is exempt from the requirements of § 60.2265, if permittee meets the following criteria:
- (a) Permittee shall notify:
United States Environmental Protection Agency, Region V
Air and Radiation Division, Air Enforcement Branch-Indiana (AE-17J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590
- (1) that the incineration unit burns 90 percent or more by weight (on a calendar quarter basis and excluding the weight of auxiliary fuel and combustion air) of pathological waste, low-level radioactive waste, and/or chemotherapeutic as defined by § 60.2265 and is therefore not subject to § 60.2020.
- and
- (b) Permittee shall keep records on a calendar quarter basis of the weight of pathological waste, low-level radioactive waste, an/or chemotherapeutic waste burned, and the weight of all other fuels and wastes burned in the unit.

Based on request for name change, this exemption is the second air approval issued to this source.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Sincerely,

(original signed by)
Alma Mifflin
Permitting Specialist

cc: IDEM-OAQ

**Indiana Department of Environmental Management
Office of Air Quality
and
Evansville Environmental Protection Agency**

Technical Support Document (TSD) for an Exemption

Source Background and Description

Source Name: Tri-State Regional Crematory
Source Location: 621 North Second Avenue, Evansville, Indiana 47710
County: Vanderburgh
SIC Code: 7261
Operation Permit No.: 163-23153-00168
Permit Reviewer: Alma Mifflin, Evansville EPA

The Evansville EPA and the Office of Air Quality (OAQ) has reviewed an application from Tri-State Regional Crematory relating to the name change and operation of a crematory incinerator.

Emission Units and Pollution Control Equipment

The source consists of the following permitted emission units and pollution control devices:

- (a) one (1) crematory incinerator for human remains, equipped with a secondary chamber, was constructed October 2003, with a maximum capacity of one hundred and fifty (150) pounds per hour, supplemented by natural gas at a rate of 2.25 million British Thermal Units per hours (mmBtu/hr).

Enforcement Issue

There are no enforcement actions pending.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
#1	Crematory Incinerator	13	33 3/8"	2243	1622

Recommendation

Please note that Ziemer Funeral Home was issued an Exempt Construction and Operation Status 163-17776-00168 on September 16, 2003, and has now requested a name change to Tri-State Regional Crematory at the same location, 621 N. North Second Avenue, Evansville, IN 47710.

As noted on the GSD 01, all Tri-State Regional Crematory correspondence will be referred to the 800 S. Hebron Avenue, Evansville, IN 47714 address.

The staff recommends to the Commissioner that the new Exempt Construction and Operation Status 163-23153-00168 be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from correspondence dated April 27, 2006, application and additional information submitted by the applicant.

An application and correspondence from Tri-State Regional Crematory, for the purposes of this

review, was received on May 8, 2006 and submitted to IDEM on May 24, 2006.

Emission Calculations

See Appendix A of this document for detailed emissions calculations (pages 1 through 4.)

Potential To Emit of Source Before Controls

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, the department, or the appropriate local air pollution control agency.”

Pollutant	Potential To Emit (tons/year)
PM	NA
PM-10	0.23
SO ₂	0.19
VOC	0.16
CO	0.0
NO _x	1.1
HAPs	0.16

- (a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of pollutants are less than the levels listed in 326 IAC 2-1.1-3(d)(1). Therefore, the source is subject to the provisions of 326 IAC 2-1.1-3. An exemption will be issued.
- (b) The potential to emit (as defined in 326 IAC 2-7-1(29)) of any single HAP is less than ten (10) tons per year and/or the potential to emit (as defined in 326 IAC 2-7-1(29)) of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-1.1-3. An exemption will be issued.

County Attainment Status

The source is located in Vanderburgh County.

Pollutant	Status
PM2.5	Non-attainment
PM-10	Attainment
SO ₂	Attainment
NO ₂	Attainment
CO	Attainment
8 hr. ozone	attainment

- (a) On October 25, 2006, the Indiana Air Pollution Control Board finalized a rule revision to 326 IAC 1-4-1 redesignating Vanderburgh County to attainment for the eight-hour ozone standard and revoking the one-hour ozone standard in Indiana.
- (b) Volatile organic compounds (VOC) and Nitrogen Oxides (NOx) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC emissions and NOx emissions are considered when evaluating the rule applicability relating to ozone. Vanderburgh County has been designated as attainment for ozone. Therefore, VOC emissions and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability for the source section.

- (c) U.S. EPA in Federal Register Notice 70 FR 943 dated January 5, 2005 has designated Vanderburgh County as nonattainment for PM_{2.5}. On March 7, 2005 the Indiana Attorney General's Office on behalf of IDEM filed a law suit with the Court of Appeals for the District of Columbia Circuit challenging U.S. EPA's designation of non-attainment areas without sufficient data. However, in order to ensure that sources are not potentially liable for violation of the Clean Air Act, the OAQ is following the U.S. EPA's guidance to regulate PM₁₀ emissions as surrogate for PM_{2.5} emissions pursuant to the Non-attainment New Source Review requirements. See the State Rule Applicability – Entire Source section.
- (d) Vanderburgh County has been classified as attainment for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability for the source section.
- (e) Fugitive Emissions
Since this type of operation is not of the 28 listed source categories under 326 IAC 2-2 or 2-3 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are not counted toward determination of PSD and Emission Offset applicability.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This new source is not subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

- (a) each criteria pollutant is less than 100 tons per year,
- (b) a single hazardous air pollutant (HAP) is less than 10 tons per year, and
- (c) any combination of HAPs is less than 25 tons/year.

This is the third air approval issued to this source.

Federal Rule Applicability

- (a) This source is not subject to the requirements of 40 CFR 63, Subpart DDDD (63.7480 through 63.7575), NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters, because the source is not a major source of HAPs.
- (b) The incinerator has a charge rate of less than fifty (50) tons per day. Therefore, it is not subject to the requirements of the New Source Performance Standard, 326 IAC 12, (40 CFR 60.50 through 60.54, Subpart E).
- (c) The crematory incinerator does not combust any hazardous waste as defined in 40 CFR 261. Therefore, the incinerator is not subject to the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs)(40 CFR 63, Subpart EEE 63.1200 through 63.1214).
- (d) This crematory incinerator is not subject to the requirements of 40 CFR 60, Subpart CCCC (60.2000 through 60.2265), Standards of Performance for Commercial and Industrial Solid Waste Incinerations Units for which construction is commenced after November 30, 1999 or for which modification or reconstruction commences on or after June 1, 2001 (326 IAC 12), because this unit is considered a pathological waste incineration unit (40 CFR 60.2020(a)). Source shall maintain record keeping requirement and notify US EPA that it meets 40 CFR 60.2020(a)(1)(2) and is therefore exempt from this subpart requirement.

- (e) There are no New Source Performance Standards (NSPS) (326 IAC 12 and 40 CFR Part 60) included in the exemption for this source.

State Rule Applicability - Entire Source

326 IAC 2-2 (Prevention of Significant Deterioration (PSD))

This source, located in an attainment area, has the potential to emit of all criteria pollutants less than one hundred (100) tons per year, and is not one of the twenty-eight (28) listed source categories. Therefore, 326 IAC 2-2 does not apply.

326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAPs))

The operation of the crematory incinerator will emit less than ten (10) tons per year of a single HAP or 25 tons per year of a combination of HAPs. Therefore, 326 IAC 2-4.1 does not apply.

326 IAC 2-6 (Emission Reporting)

This source is located in Vanderburgh County and the potential to emit VOC is less than ten (10) tons per year, and that of all other criteria pollutants is less than one hundred (100) tons per year. Therefore, 326 IAC 2-6 does not apply.

326 IAC 5-1 (Visible Emissions Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of thirty percent (30%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

326 IAC 6-4 (Fugitive Dust Emissions Limitations)

Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions Limitations), the source shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4.

State Rule Applicability - Individual Facilities

326 IAC 4-2-2 (Incinerators: requirements)

Pursuant to 326 IAC 4-2-2, the crematory incinerator shall:

- (1) consist of primary and secondary chambers or the equivalent;
- (2) be equipped with a primary burner unless burning only wood products;
- (3) comply with 326 IAC 5-1 and 326 IAC 2;
- (4) be maintained, operated, and burn waste in accordance with the manufacturer's specifications or an operation and maintenance plan as specified in subsection (c).
- (5) Not emit particulate matter in excess of five-tenths (0.5) pound of particulate matter per one thousand (1000) pounds of dry exhaust gas under standard conditions corrected to fifty percent (50%) excess air for incinerators with solid waste capacity less than two hundred (200) pounds per hour.
- (6) If any of the requirements of subdivisions (1) through (5) are not met, then the owner or operator shall stop charging the incinerator until adjustments are made that address the

underlying cause of the deviation.

- (7) Comply with other state and/or local rules or ordinances regarding installation and operation of incinerators.

326 IAC 6-3-2 (Process Operations)

Incinerators are exempt from this rule. Therefore, 326 IAC 6-3-2 does not apply.

326 IAC 9-1 (Carbon Monoxide Emission Limits)

This stationary source equipped with a secondary chamber and constructed after March 21, 1972, is subject to the requirements pursuant to 326 IAC 9-1-2(a)(3)(B).

Conclusion

The construction and operation of this crematory incinerator shall be subject to the conditions of the attached Exemption No. 163-23153-00168.

**Appendix A: Emission Calculations
Crematory Incinerator**

Company Name: Tri-State Regional Crematory
Address City IN Zip: 621 N. Second Avenue, Evansville, IN 47710
Permit Number: 163-23153-00168
Plt ID: 168
Reviewer: A. Mifflin
Date: 10/16/2006

Crematory Manufacturing and Services, Inc.(CMS) submitted the following emission data:
CETCON, Inc. conducted emissions testing on Crematory Manufacturing Services, Inc. human crematory incinerator at Crematory Manufacturing Services, Inc. located in Tulsa, Oklahoma. The process rate at the test incinerator was a maximum of 150 lb/hr. The testing was conducted for NOx, VOC, SO2, HAPs and PM, and the emission factors are based on the test results.

Nitrogen Oxides (NOx)

Emission Factor = 0.258 lb/hr.

PTE = .258 lb/hr x 8760 hr/yr x 1 ton/2000 = 1.1 T/Y

Carbon Monoxide (CO)

Emission Factor = 0.0 lb/hr.

PTE = .00 lb/hr x 8760 hr/yr x 1 ton/2000 = 0.0 T/Y

Volatile Organic Compounds (VOC)

Emission Factor = .037 lb/hr

PTE = .037 lb/hr x 8760 hr/yr x 1 ton/2000 = .16 T/Y

Total PTE Emissions = 1.84 T/Y

Sulfur Dioxide (SO2)

Emission Factor = .044 lb/hr

PTE = .044 lb/hr x 8760 hr/yr x 1 ton/2000 = .19 T/Y

PM-10

Emission Factor = .053 lb/hr

PTE = .053 lb/hr x 8760 hr/yr x 1 ton/2000 = .23 T/Y

Hazardous Air Pollutants (HAPs)

Emission Factor = .037 lb/hr

PTE = .037 lb/hr x 8760 hr/yr x 1 ton/2000 = .16 T/Y

**Appendix A: Charge Rate
Crematory Incinerator**

Company Name: Tri-State Regional Crematory
Address City IN Zip: 621 N. Second Avenue, Evansville, IN 47710
Permit Number: 163-23153-00168
Plt ID: 168
Reviewer: A. Mifflin
Date: 10/13/2006

Crematory Manufacturing and Services, Inc.(CMS) submitted the following data which has been used to determine the charge rate for a Millennium III incinerator with maximum capacity of 150 pounds per hour, supplemented by natural gas at a rate of 2.25 million British Thermal Units per hour (mmBTU/hr).

Number of cremations per year	300
run time per cremation	2 hrs.
average weight (pre) cremation	150 lbs.
number of units	1
hours run a year	600
pounds cremated per year	45,000
tons cremated per year	22.5
tons cremated per day	0.075

METHODOLOGY:

$1 * 150/2000 = .075$ tons/day
(cremations/day) * (avg. weight/cremation)/2000(lbs/ton) = tons/day

Appendix A: Emissions Calculations

Natural Gas Combustion Only

MM BTU/HR <100

Small Industrial Boiler

Company Name: Tri-State Regional Crematory

Address City IN Zip: 621 N. Second Avenue, Evansville, Indiana 47710

Permit Number: 163-23153-00168

Plt ID: 168

Reviewer: Alma Mifflin

Date: 11/28/2006

Heat Input Capacity
MMBtu/hr

Potential Throughput
MMCF/yr

2.1

18.7

Emission Factor in lb/MMCF	Pollutant						
	PM*	PM10*	SO2	NOx	VOC	CO	HAP
69.6	n/a	17.6	50.0	0.4	0.0	14.8	
			**see below				
Potential Emission in tons/yr	0.7	0.0	0.2	0.5	0.0	0.0	0.1

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

See page 2 for HAPs emissions calculations.

Appendix A: Emissions Calculations

Natural Gas Combustion Only

MM BTU/HR <100

Small Industrial Boiler

HAPs Emissions

Company Name: Tri-State Regional Crematory

Address City IN Zip: 621 N. Second Avenue, Evansville, Indiana 47710

Permit Number: 163-23153-00168

Plt ID: 168

Reviewer: Alma Mifflin

Date: 11/28/2006

HAPs - Organics					
Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Potential Emission in tons/yr	1.968E-05	1.125E-05	7.030E-04	1.687E-02	3.187E-05

HAPs - Metals					
Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03
Potential Emission in tons/yr	4.687E-06	1.031E-05	1.312E-05	3.562E-06	1.968E-05

Methodology is the same as page 1.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.