



*Mitchell E. Daniels, Jr.*  
Governor

*Thomas W. Easterly*  
Commissioner

100 North Senate Avenue  
Indianapolis, Indiana 46204  
MC 61-53  
(317) 232-8603  
(800) 451-6027  
www.IN.gov/idem

TO: Interested Parties / Applicant  
DATE: March 18, 2008  
RE: Erlewein Mortuary / 059-26111-00036  
FROM: Matthew Stuckey, Deputy Branch Chief  
Permits Branch  
Office of Air Quality

### Notice of Decision – Approval

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to 326 IAC 2, this approval was effective immediately upon submittal of the application.

If you wish to challenge this decision, IC 4-21.5-3-7 requires that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, 100 North Senate Avenue, Government Center North, Suite N 501E, Indianapolis, IN 46204, **within eighteen (18) calendar days from the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

- (1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
- (2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
- (3) The date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

- (1) the name and address of the person making the request;
- (2) the interest of the person making the request;
- (3) identification of any persons represented by the person making the request;
- (4) the reasons, with particularity, for the request;
- (5) the issues, with particularity, proposed for considerations at any hearing; and
- (6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosures  
FNPER-AM.dot12/3/07



# INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

*We make Indiana a cleaner, healthier place to live.*

Mitchell E. Daniels, Jr  
Governor

Thomas W. Easterly  
Commissioner

100 North Senate Avenue  
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Dane Erlewein  
Erlewein Mortuary  
1484 West US 40  
Greenfield, IN 46140

March 18, 2008

Re: Exempt Construction and Operation Status,  
059-26111-00036

Dear Dane Erlewein:

The application from Erlewein Mortuary, received on February 19, 2008, 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 stationary human crematory incinerator located at 1484 West US 40, Greenfield, IN 46140, is classified as exempt from air pollution permit requirements:

- (a) One (1) natural gas-fired human pathological incinerator, identified as BL-01, approved for construction in 2008, with a maximum throughput capacity of 150 pounds of remains per hour and a maximum heat input capacity of 1.50 million British thermal units per hour (MMBtu/hr), consisting of a primary chamber, using a main burner, rated at 0.50 MMBtu/hr, and secondary chamber, using a high temperature afterburner, rated at 1.00 MMBtu/hr, to control emissions and exhausting to stack SY-01.

The following conditions shall be applicable:

1. Pursuant to 326 IAC 4-2-2 (Incinerators), the crematory incinerator shall:
  - (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 (Opacity Limitations) and 326 IAC 2 (Permit Review Rules);
  - (d) Be maintained, operated, and burn waste in accordance with the manufacturer's specifications or an operation and maintenance plan as specified in 326 IAC 4-2-2(c); and
  - (e) Not emit particulate matter in excess of five-tenths (0.5) pound of particulate matter per one thousand (1,000) pounds of dry exhaust gas under standard conditions corrected to fifty percent (50%) excess air.
  - (f) If any of the above requirements (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.
  - (g) The incinerator is exempt from requirement (5) if subject to a more stringent particulate matter emissions limit in 40 CFR 52 Subpart P, State Implementation Plan for Indiana.

2. 326 IAC 5-1 (Opacity Limitations)  
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:
  - (1) 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.
  - (2) 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 non-overlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.
3. 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.
4. 326 IAC 11-8 (Emission Limitations for Commercial and Industrial Solid Waste Incineration Units)  
Pursuant to 326 IAC 11-8-1(b)(1), the crematory incinerator is not subject to the requirements of 326 IAC 11-8, because it will burn 90 % or more by weight of pathological waste and provided that the following are met:
  - (1) The Permittee shall notify the department and U.S. EPA that the unit meets the criteria in this subdivision (326 IAC 11-8-1(1)(b)(1)).
  - (2) The Permittee shall keep records on a calendar quarter basis of the weight of pathological waste, low-level radioactive waste, chemotherapeutic waste, or any combination of these wastes burned, and the weight of all other fuels and wastes burned in the unit.

This exemption is the first 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. If you have any questions on this matter, please contact Hannah Desrosiers, OAQ, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana, 46204-2251, at 317-234-5374 or at 1-800-451-6027 (ext 45374).

Sincerely/Original Signed By:

Iryn Calilung, Section Chief  
Permits Branch  
Office of Air Quality

IC/hd

cc: File - Hancock County  
Hancock County Health Department  
Air Compliance Section  
Permit Tracking  
Compliance Data Section  
Permits Administrative and Development  
Billing, Licensing and Training Section

## Indiana Department of Environmental Management Office of Air Quality

### Technical Support Document (TSD) for an Exemption

#### Source Description and Location

**Source Name:** Erlewein Mortuary  
**Source Location:** 1484 West US 40, Greenfield, IN 46140  
**County:** Hancock  
**SIC Code:** 7261  
**Registration (or Exemption) No.:** 059-26111-00036  
**Permit Reviewer:** Hannah L. Desrosiers

On February 19, 2008, the Office of Air Quality (OAQ) received an application from Erlewein Mortuary related to the construction and operation of a new stationary human crematory incinerator.

#### Existing Approvals

There have been no previous approvals issued to this source.

#### County Attainment Status

The source is located in Hancock County.

The following attainment status designations are applicable to Hancock County:

Pollutant	Designation
SO <sub>2</sub>	Better than national standards.
CO	Unclassifiable or attainment effective November 15, 1990.
O <sub>3</sub>	Attainment effective October 19, 2007, for the 8-hour ozone standard. <sup>1</sup>
PM <sub>10</sub>	Unclassifiable effective November 15, 1990.
NO <sub>2</sub>	Cannot be classified or better than national standards.
Pb	Not designated.
<sup>1</sup> Unclassifiable or attainment effective October 18, 2000, for the 1-hour ozone standard which was revoked effective June 15, 2005. Unclassifiable or attainment effective April 5, 2005, for PM2.5.	

*(Air Pollution Control Board; 326 IAC 1-4-31; filed Dec 26, 2007, 1:43 p.m.: 20080123-IR-326070308FRA)*

(a) Ozone Standards

- (1) On October 25, 2006, the Indiana Air Pollution Control Board finalized a rule revision to 326 IAC 1-4-1 revoking the one-hour ozone standard in Indiana.
- (2) On September 6, 2007, the Indiana Air Pollution Control Board finalized a temporary emergency rule to re-designate Allen, Clark, Elkhart, Floyd, LaPorte, St. Joseph as attainment for the 8-hour ozone standard.
- (3) On November 9, 2007, the Indiana Air Pollution Control Board finalized a temporary emergency rule to re-designate Boone, Clark, Elkhart, Floyd, LaPorte, Hamilton, Hancock, Hendricks, Johnson, Madison, Marion, Morgan, Shelby, and St. Joseph as attainment for the 8-hour ozone standard.

- (4) 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 and NOx emissions are considered when evaluating the rule applicability relating to ozone. Hancock County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.
- (b) **PM2.5**  
Hancock County has been classified as attainment for PM2.5. U.S. EPA has not yet established the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 for PM2.5 emissions. Therefore, until the U.S. EPA adopts specific provisions for PSD review for PM2.5 emissions, it has directed states to regulate PM10 emissions as a surrogate for PM2.5 emissions.
- (c) **Other Criteria Pollutants**  
Hancock County has been classified as attainment or unclassifiable in Indiana for all remaining criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

#### **Fugitive Emissions**

The fugitive emissions of criteria pollutants and hazardous air pollutants are counted toward the determination of 326 IAC 2-1.1-3 (Exemptions) applicability.

#### **Background and Description of Emission Units and Pollution Control Equipment**

The Office of Air Quality (OAQ) has reviewed an application, submitted by Erlwein Mortuary on February 19, 2008, relating to the construction and operation of one (1) new human crematory incinerator.

The following is a list of the new emission unit(s) and pollution control device(s):

- (a) One (1) natural gas-fired human pathological incinerator, identified as BL-01, approved for construction in 2008, with a maximum throughput capacity of 150 pounds of remains per hour and a maximum heat input capacity of 1.50 million British thermal units per hour (MMBtu/hr), consisting of a primary chamber, using a main burner, rated at 0.50 MMBtu/hr, and secondary chamber, using a high temperature afterburner, rated at 1.00 MMBtu/hr, to control emissions and exhausting to stack SY-01.

#### **Enforcement Issues**

There are no pending enforcement actions related to this source.

#### **Emission Calculations**

See Appendix A of this TSD for detailed emission calculations.

#### **Permit Level Determination – Exemption**

The following table reflects the unlimited potential to emit (PTE) of the entire source before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

Process/Emission Unit	Potential To Emit of the Entire Source (tons/year)							
	PM	PM10*	SO <sub>2</sub>	NO <sub>x</sub>	VOC	CO	Total HAPs	Worst Single HAP
Incineration	2.30	2.30	0.82	0.99	0.99	3.29	0	***
Natural Gas Combustion	0.01	0.05	0.004	0.66	0.04	0.55	0.01	0.01 (Hexane)
Total PTE of Entire Source	2.31	2.35	0.83	1.64	1.02	3.84	0.01	0.01 (Hexane)

negl. = negligible  
 \* Under the Part 70 Permit program (40 CFR 70), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM10), not particulate matter (PM), is considered as a "regulated air pollutant". US EPA has directed states to regulate PM10 emissions as surrogate for PM2.5 emissions.

- (a) The potential to emit (PTE) (as defined in 326 IAC 2-1.1-1(16)) of all regulated criteria pollutants are less than the levels listed in 326 IAC 2-1.1-3(e)(1). Therefore, the source is subject to the provisions of 326 IAC 2-1.1-3 (Exemptions).
- (b) The potential to emit (PTE) (as defined in 326 IAC 2-1.1-1(16)) of any single HAP is less than ten (10) tons per year and the PTE of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, this source is an area source under Section 112 of the Clean Air Act (CAA) and not subject to the provisions of 326 IAC 2-7.

**Federal Rule Applicability Determination**

New Source Performance Standards (NSPS)

- (a) The requirements of 40 CFR 60, Subpart E (60.50 through 60.54), Standards of Performance for Incinerators (326 IAC 12), are not included in this exemption because the crematory incinerator has a charging rate less than fifty (50) tons per day and does not burn refuse consisting of more than 50 percent municipal type waste (household, commercial/retail, and/or institutional waste).
- (b) The requirements of the following New Source Performance Standards (NSPS), are not included in this exemption because crematory incinerator is considered a pathological waste combustor and is not considered a municipal waste combustor or hospital/medical/infectious waste incinerator:
  - (1) 40 CFR 60, Subpart Ea (60.50a through 60.59a), Standards of Performance for Large Municipal Waste Combustors for Which Construction is Commenced after December 20, 1989 and on or before September 20, 1994 (326 IAC 12)
  - (2) 40 CFR 60, Subpart Eb (60.50b through 60.59b), Standards of Performance for Large Municipal Waste Combustors for Which Construction is Commenced after September 20, 1994, or for Which Modification or Reconstruction is commenced after June 19, 1996 (326 IAC 12)
  - (3) 40 CFR 60, Subpart Ec (60.50c through 60.58c), Standards of Performance for Hospital/Medical/Infectious Waste Incinerators for Which Construction is Commenced after January 20, 1996 (326 IAC 12)
  - (4) 40 CFR 60, Subpart AAAA (60.1000 through 60.1465), Standards of Performance for Small Municipal Waste Combustion Units for Which Construction is Commenced After August 30, 1999 or for Which Modification or Reconstruction is Commenced After June 6, 2001 (326 IAC 12)

- (c) 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 is Commenced on or After June 1, 2001 (326 IAC 12), are not included in this exemption because this unit is considered pathological waste incineration unit (40 CFR 60.2020(a)).
- (d) There are no New Source Performance Standards (NSPS) (326 IAC 12 and 40 CFR Part 60) included in the exemption for this source.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

- (a) The requirements of 40 CFR 63, Subpart EEE (63.1200 through 63.1214), NESHAP for Hazardous Waste Combustors (326 IAC 20-28-1), are not included in this exemption because the crematory incinerator is not considered a hazardous waste incinerator and the source is not a major source of HAPs.
- (b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAP) (326 IAC 14, 20 and 40 CFR Part 61, 63) included in the exemption for this source.

Compliance Assurance Monitoring (CAM)

- (a) Pursuant to 40 CFR 64.2, Compliance Assurance Monitoring (CAM) is not included in the permit, because the unlimited potential to emit of the source is less than the Title V major source thresholds and the source is not required to obtain a Part 70 or Part 71 permit.

<b>State Rule Applicability Determination</b>
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The following state rules are applicable to the source:

- (a) 326 IAC 2-1.1-3 (Exemptions)  
Exemption applicability is discussed under the Permit Level Determination – Exemption section above.
- (b) 326 IAC 2-2 (Prevention of Significant Deterioration (PSD))  
This source was constructed after the applicability date of August 7, 1977. However, it is not one of the 28 listed source categories defined in 326 IAC 2-2-1(gg)(1), and the potential to emit of all attainment regulated pollutants is less than 250 tons per year. Therefore, the requirements of 326 IAC 2-2 (PSD) are not applicable.
- (c) 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))  
The potential to emit of any single HAP is less than ten (10) tons per year and the potential to emit of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, this source is an area source under Section 112 of the Clean Air Act (CAA) and not subject to the provisions of 326 IAC 2-4.1.
- (d) 326 IAC 2-6 (Emission Reporting)  
Pursuant to 326 IAC 2-6-1, this source is not subject to this rule, because it is not required to have an operating permit under 326 IAC 2-7 (Part 70), it is not located in Lake, Porter, or LaPorte County, and it does not emit lead into the ambient air at levels equal to or greater than 5 tons per year. Therefore, 326 IAC 2-6 does not apply.
- (e) 326 IAC 5-1 (Opacity Limitations)  
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:
  - (1) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute

averaging period as determined in 326 IAC 5-1-4.

- (2) 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.
- (f) 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.
- (g) 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)  
The source is not subject to the requirements of 326 IAC 6-5, because the source does not have potential fugitive particulate emissions greater than 25 tons per year. Therefore, 326 IAC 6-5 does not apply.
- (h) 326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)  
Each of the emission units at this source is not subject to the requirements of 326 IAC 8-1-6, since the unlimited VOC potential emissions from each emission unit is less than twenty-five (25) tons per year.

#### Incineration

- (a) 326 IAC 4-2-2 (Incinerators)  
This rule establishes standards for the use of incinerators which emit regulated pollutants. Since the new crematory incinerator is not an incinerator located in a residential unit consisting of four (4) or fewer families, as listed in 326 IAC 4-2-1(b)(1), and because there are no National Emission Standards for Hazardous Air Pollutants (NESHAP) or New Source Performance Standards (NSPS) (326 IAC 12, 14, 20 and 40 CFR Part 60, 61, 63), as listed in 326 IAC 4-2-1(b)(2), included in the exemption for this source, pursuant to 326 IAC 4-2-1(a) the one (1) crematory incinerator, rated at 1.5 MMBtu/hr, is subject to the requirements of 326 IAC 4-2.

Pursuant to 326 IAC 4-2-2, the incinerator, identified as unit 001, 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 (Opacity Limitations) and 326 IAC 2 (Permit Review Rules);
- (4) Be maintained, operated, and burn waste in accordance with the manufacturer's specifications or an operation and maintenance plan as specified in 326 IAC 4-2-2(c); and
- (5) Not emit particulate matter in excess of five-tenths (0.5) pound of particulate matter per one thousand (1,000) pounds of dry exhaust gas under standard conditions corrected to fifty percent (50%) excess air.
- (6) If any of the above requirements (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) The incinerator is exempt from requirement (5) if subject to a more stringent particulate matter emission limit in 40 CFR 52 Subpart P, State Implementation Plan for Indiana.

- (b) 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes)  
Pursuant to 326 IAC 6-3-1(b)(2), the crematory incinerator is exempt from the requirements of 326 IAC 6-3.
- (c) 326 IAC 7-1 (Sulfur dioxide emission limitations: Applicability)  
The crematory incinerator is not subject to the requirements of 326 IAC 7-1, because it has potential and the actual emissions that are less than twenty-five (25) tons per year and ten (10) pounds per hour respectively.
- (d) 326 IAC 8-1-6 (VOC rules: General Reduction Requirements for New Facilities)  
The crematory incinerator is not subject to the requirements of 326 IAC 8-1-6, since the potential to emit VOCs is less than twenty-five (25) tons per year.
- (e) 326 IAC 9-1 (Carbon Monoxide Emission Limits)  
This stationary source, constructed after the applicability date of March 21, 1972, is not subject to the requirements of 326 IAC 9-1-2(a)(3), since the crematory incinerator burns pathological waste and does not burn refuse consisting of more than 50 percent municipal type waste (household, commercial/retail, and/or institutional waste).
- (f) 326 IAC 11-6 (Hospital/Medical/Infectious Waste Incinerators)  
This source is not subject to the provisions of 326 IAC 11-6 because the crematory incinerator is a pathological waste incinerator, and does not meet the definition of a Hospital/Medical/Infectious Waste Incinerator as defined in 40 CFR 60.50c, subpart Ec.
- (g) 326 IAC 11-7 (Emission Limitations for Municipal Waste Combustors)  
The crematory incinerator is not subject to the requirements of 326 IAC 11-7, since it is considered pathological waste combustors and not considered municipal waste combustors.
- (h) 326 IAC 11-8 (Emission Limitations for Commercial and Industrial Solid Waste Incineration Units)  
Pursuant to 326 IAC 11-8-1(b)(1), the crematory incinerator is not subject to the requirements of 326 IAC 11-8, because it will burn 90 % or more by weight of pathological waste and provided that the following are met:
  - (1) The Permittee shall notify the department and U.S. EPA that the unit meets the criteria in this subdivision.
  - (2) The Permittee shall keep records on a calendar quarter basis of the weight of pathological waste, low-level radioactive waste, chemotherapeutic waste, or any combination of these wastes burned, and the weight of all other fuels and wastes burned in the unit.

### Conclusion and Recommendation

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant. An application for the purposes of this review was received on February 19, 2008.

The construction and operation of this source shall be subject to the conditions of the attached proposed Exemption No. 059-26111-00036. The staff recommends to the Commissioner that this Exemption be approved.

### IDEM Contact

- (a) Questions regarding this proposed permit can be directed to Hannah Desrosiers at the Indiana Department Environmental Management, Office of Air Quality, Permits Branch, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204-2251 or by telephone at (317) 234-5374 or toll free at 1-800-451-6027 extension 4-5374.

- (b) A copy of the findings is available on the Internet at: [www.in.gov/idem/permits/air/pending.html](http://www.in.gov/idem/permits/air/pending.html).
- (c) For additional information about air permits and how the public and interested parties can participate, refer to the IDEM's Guide for Citizen Participation and Permit Guide on the Internet at: [www.in.gov/idem/permits/guide/](http://www.in.gov/idem/permits/guide/).

**Appendix A: Emissions Calculations  
Emission Summary**

**Company Name:** Erlewein Mortuary  
**Address City IN Zip:** 1484 West US 40, Greenfield, IN 46140  
**Permit Number:** E 059-26111-00036  
**Reviewer:** Hannah L. Desrosiers  
**Date Received:** February 19, 2008

Category	Uncontrolled Potential Emissions (tons/year)			
	Emissions Generating Activity			
	Pollutant	Incineration	Natural Gas Combustion	TOTAL
Criteria Pollutants	PM	2.30	0.01	2.31
	PM10	2.30	0.05	2.35
	SO2	0.82	0.004	0.83
	NOx	0.99	0.66	1.64
	VOC	0.99	0.04	1.02
	CO	3.29	0.55	3.84
Hazardous Air Pollutants	Chromium	0	9.2E-06	9.2E-06
	Manganese	0	2.5E-06	2.5E-06
	Nickel	0	1.4E-05	1.4E-05
	n-Hexane	0	0.012	0.012
	Toluene	0	2.2E-05	2.2E-05
	Benzene	0	1.4E-05	1.4E-05
	Dichlorobenzene	0	7.9E-06	7.9E-06
	Formaldehyde	0	4.9E-04	4.9E-04
	Lead	0	3.3E-06	3.3E-06
	Cadmium	0	7.2E-06	7.2E-06
	<b>Totals</b>	<b>0</b>	<b>0.01</b>	<b>0.012</b>
			<b>Worse Case HAP</b>	<b>0.012</b>

Total emissions based on rated capacity at 8,760 hours/year.

### Appendix A: Emissions Calculations Multiple Chamber Industrial Incinerators

**Company Name:** Erlewein Mortuary  
**Address City IN Zip:** 1484 West US 40, Greenfield, IN 46140  
**Permit Number:** E 059-26111-00036  
**Reviewer:** Hannah L. Desrosiers  
**Date Received:** February 19, 2008

			Pollutant					
			PM*	PM10*	SO2	NOx**	VOC	CO
Emission Factor (lb/ton)			7.0	7.0	2.5	3.0	3.0	10.0
Emission Unit	Potential Throughput (lbs/hr)	Potential Throughput (tons/yr)	Potential to Emit (tons/yr)					
			PM*	PM10*	SO2	NOx**	VOC	CO
Crematory Incinerator 1 (Primary and Secondary Chamber)	150	657.0	2.30	2.30	0.82	0.99	0.99	3.29
<b>Totals</b>			<b>2.30</b>	<b>2.30</b>	<b>0.82</b>	<b>0.99</b>	<b>0.99</b>	<b>3.29</b>

**Methodology**

Potential Throughput (tons/yr) = [Potential Throughput (lbs/hr)] \* [8,760 hrs/yr] \* [ton/2000 lbs]

Potential to Emit (tons/yr) = [Potential Throughput (tons/yr)] \* [Emission Factor (lb/ton)] \* [ton/2,000 lbs]

Emission factors are from AP-42 (5th Edition 1/95) Table 2.1-12, Uncontrolled emission factors for industrial/commercial refuse combustors, multiple chambers

\*No emission factor for PM10 available (assume PM = PM10)

**Abbreviations**

PM = Particulate Matter

NOx = Nitrous Oxides

PM10 = Particulate Matter (<10 um)

VOC - Volatile Organic Compounds

SO2 = Sulfur Dioxide

CO = Carbon Monoxide

**Appendix A: Emissions Calculations  
Natural Gas Combustion Only  
MM BTU/HR <100**

**Company Name:** Erlewein Mortuary  
**Address City IN Zip:** 1484 West US 40, Greenfield, IN 46140  
**Permit Number:** E 059-26111-00036  
**Reviewer:** Hannah L. Desrosiers  
**Date Received:** February 19, 2008

Emission Unit	Number of Units	Unit Heat Input Capacity (MMBtu/hr)	Combined Total Heat Input Capacity (MMBtu/hr)	Potential Throughput (MMCF/yr)	Pollutant					
					PM*	PM10*	SO2	NOx**	VOC	CO
					Emission Factor (lb/MMCF)					
					1.9	7.6	0.6	100	5.5	84.0
					Potential to Emit (tons/yr)					
					PM*	PM10*	SO2	NOx**	VOC	CO
Crematory Incinerator 1 (Primary and Secondary Chamber)	1	1.5	1.5	13.14	0.012	0.050	0.004	0.657	0.036	0.552
<b>Totals</b>	<b>1</b>		<b>1.5</b>		<b>0.012</b>	<b>0.050</b>	<b>0.004</b>	<b>0.657</b>	<b>0.036</b>	<b>0.552</b>

Emission Unit	Pollutant									
	Benzene	DCB	Formaldehyde	Hexane	Toluene	Pb	Cd	Cr	Mn	Ni
	Emission Factor (lb/MMCF)									
	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
	Potential to Emit (tons/yr)									
	Benzene	DCB	Formaldehyde	Hexane	Toluene	Pb	Cd	Cr	Mn	Ni
Crematory Incinerator 1 (Primary and Secondary Chamber)	1.4E-05	7.9E-06	4.9E-04	0.012	2.2E-05	3.3E-06	7.2E-06	9.2E-06	2.5E-06	1.4E-05
<b>Totals</b>	<b>1.4E-05</b>	<b>7.9E-06</b>	<b>4.9E-04</b>	<b>0.012</b>	<b>2.2E-05</b>	<b>3.3E-06</b>	<b>7.2E-06</b>	<b>9.2E-06</b>	<b>2.5E-06</b>	<b>1.4E-05</b>

<b>Total HAPs (tons/yr)</b>	<b>0.012</b>
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\*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

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

**Methodology**

Potential Throughput (MMCF/yr) = [Combined Total Heat Input Capacity (MMBtu/hr)] \* [8,760 hrs/yr] \* [1 MMCF/1,000 MMBtu]

Potential to Emit (tons/yr) = [Potential Throughput (MMCF/yr)] \* [Emission Factor (lb/MMCF)] \* [ton/2,000 lbs]

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)

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu, MMCF = 1,000,000 Cubic Feet of Gas

**Abbreviations**

PM = Particulate Matter

NOx = Nitrous Oxides

DCB = Dichlorobenzene

Cr = Chromium

PM10 = Particulate Matter (<10 um)

VOC - Volatile Organic Compounds

Pb = Lead

Mn = Manganese

SO2 = Sulfur Dioxide

CO = Carbon Monoxide

Cd = Cadmium

Ni = Nickel