



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

TO: Interested Parties / Applicant

DATE: May 22, 2012

RE: Robert D. Loose Funeral Home, Inc. / 095-31781-00135

FROM: Matthew Stuckey, Branch Chief
Permits Branch
Office of Air Quality

Notice of Decision: Approval - Registration

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 IC 4-21.5-3-4(d) this order is effective when it is served. When served by U.S. mail, the order is effective three (3) calendar days from the mailing of this notice pursuant to IC 4-21.5-3-2(e).

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 of 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
FN-REGIS.dot 1/2/08



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REGISTRATION OFFICE OF AIR QUALITY

Robert D. Loose Funeral Home, Inc.
200 West 53rd Street
Anderson, Indiana 46013

Pursuant to 326 IAC 2-5.1 (Construction of New Sources: Registrations) and 326 IAC 2-5.5 (Registrations), (herein known as the Registrant) is hereby authorized to construct and operate subject to the conditions contained herein, the source described in Section A (Source Summary) of this registration.

Registration No. R095-31781-00135

Issued by:

Nathan C. Bell, Section Chief
Permits Branch
Office of Air Quality

Issuance Date: May 22, 2012

SECTION A

SOURCE SUMMARY

This registration is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the source contained in conditions A.1 and A.2 is descriptive information and does not constitute enforceable conditions. However, the Registrant should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Registrant to obtain additional permits pursuant to 326 IAC 2.

A.1 General Information

The Registrant owns and operates a stationary source for cremation of human and animal remains.

Source Address:	200 West 53rd Street, Anderson, IN 46013
General Source Phone Number:	765-649-5255
SIC Code:	7261 (Funeral Service and Crematories)
County Location:	Madison County
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Registration

A.2 Emission Units and Pollution Control Equipment Summary

This stationary source consists of the following emission units and pollution control devices:

- (a) One (1) crematory incinerator for human remains, a B & L Human Crematory N20AA, identified as 01, constructed in 2003, with a maximum capacity of 150 pounds per hour, consisting of a primary chamber and a secondary chamber that fire natural gas at a total maximum heat input rate of 1.5 million British thermal units per hour (MMBtu/hr), exhausting to the atmosphere;
- (b) One (1) crematory incinerator for animal remains, a B & L Animal Crematory BLP-500, identified as 02, constructed in 2007, with a maximum capacity of 150 pounds per hour, consisting of a primary chamber and a secondary chamber that fire natural gas at a total maximum heat input rate of 1.5 million British thermal units per hour (MMBtu/hr), exhausting to the atmosphere;
- (c) One (1) crematory incinerator for animal remains, a Matthews Animal Crematory IE B Series-20, identified as 03, approved for construction in 2012, with a maximum capacity of 150 pounds per hour, consisting of a primary chamber and a secondary chamber that fire natural gas at a total maximum heat input rate of 1.5 million British thermal units per hour (MMBtu/hr), exhausting to the atmosphere;
- (d) Paved roads and parking lots.

SECTION B GENERAL CONDITIONS

B.1 Definitions [326 IAC 2-1.1-1]

Terms in this registration shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, the applicable definitions found in the statutes or regulations (IC 13-11, 326 IAC 1-2 and 326 IAC 2-1.1-1) shall prevail.

B.2 Effective Date of Registration [IC 13-15-5-3]

Pursuant to IC 13-15-5-3, this registration is effective immediately, unless a petition for stay of effectiveness is filed and granted according to IC 13-15-6-3, and may be revoked or modified in accordance with the provisions of IC 13-15-7-1.

B.3 Registration Revocation [326 IAC 2-1.1-9]

Pursuant to 326 IAC 2-1.1-9 (Revocation), this registration to operate may be revoked for any of the following causes:

- (a) Violation of any conditions of this registration.
- (b) Failure to disclose all the relevant facts, or misrepresentation in obtaining this registration.
- (c) Changes in regulatory requirements that mandate either a temporary or permanent reduction of discharge of contaminants. However, the amendment of appropriate sections of this registration shall not require revocation of this registration.
- (d) For any cause which establishes in the judgment of IDEM the fact that continuance of this registration is not consistent with purposes of this article.

B.4 Prior Permits Superseded [326 IAC 2-1.1-9.5]

- (a) All terms and conditions of permits established prior to Registration No. R095-31781-00135 and issued pursuant to permitting programs approved into the state implementation plan have been either:
 - (1) incorporated as originally stated,
 - (2) revised, or
 - (3) deleted.
- (b) All previous registrations and permits are superseded by this registration.

B.5 Annual Notification [326 IAC 2-5.1-2(f)(3)] [326 IAC 2-5.5-4(a)(3)]

Pursuant to 326 IAC 2-5.1-2(f)(3) and 326 IAC 2-5.5-4(a)(3):

- (a) An annual notification shall be submitted by an authorized individual to the Office of Air Quality stating whether or not the source is in operation and in compliance with the terms and conditions contained in this registration.
- (b) The annual notice shall be submitted in the format attached no later than March 1 of each year to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003

Indianapolis, IN 46204-2251

- (c) The notification shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

B.6 Source Modification Requirement [326 IAC 2-5.5-6(a)]

Pursuant to 326 IAC 2-5.5-6(a), 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.

B.7 Registrations [326 IAC 2-5.1-2(i)]

Pursuant to 326 IAC 2-5.1-2(i), this registration does not limit the source's potential to emit.

B.8 Preventive Maintenance Plan [326 IAC 1-6-3]

- (a) If required by specific condition(s) in Section D of this registration, the Registrant shall prepare and maintain Preventive Maintenance Plans (PMPs) no later than ninety (90) days after issuance of this registration or ninety (90) days after initial start-up, whichever is later, including the following information on each facility:

- (1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;
- (2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and
- (3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

If, due to circumstances beyond the Registrant's control, the PMPs cannot be prepared and maintained within the above time frame, the Registrant may extend the date an additional ninety (90) days provided the Registrant notifies:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

The Registrant shall implement the PMPs.

- (b) A copy of the PMPs shall be submitted to IDEM, OAQ upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ may require the Registrant to revise its PMPs whenever lack of proper maintenance causes or is the primary contributor to an exceedance of any limitation on emissions.
- (c) To the extent the Registrant is required by 40 CFR Part 60 or 40 CFR Part 63 to have an Operation Maintenance, and Monitoring (OMM) Plan for a unit, such OMM Plan is deemed to satisfy the PMP requirements of 326 IAC 1-6-3 for that unit.

SECTION C

SOURCE OPERATION CONDITIONS

Entire Source

Emission Limitations and Standards [326 IAC 2-5.1-2(g)] [326 IAC 2-5.5-4(b)]

C.1 Opacity [326 IAC 5-1]

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 registration:

- (a) 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.
- (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.

C.2 Fugitive Dust Emissions [326 IAC 6-4]

The Registrant 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 (Fugitive Dust Emissions).

SECTION D.1

OPERATION CONDITIONS

Facility Description [326 IAC 2-5.1-2(f)(2)] [326 IAC 2-5.5-4(a)(2)]:

- (a) One (1) crematory incinerator for human remains, a B & L Human Crematory N20AA, identified as 01, constructed in 2003, with a maximum capacity of 150 pounds per hour, consisting of a primary chamber and a secondary chamber that fire natural gas at a total maximum heat input rate of 1.5 million British thermal units per hour (MMBtu/hr), exhausting to the atmosphere;
- (b) One (1) crematory incinerator for animal remains, a B & L Animal Crematory BLP-500, identified as 02, constructed in 2007, with a maximum capacity of 150 pounds per hour, consisting of a primary chamber and a secondary chamber that fire natural gas at a total maximum heat input rate of 1.5 million British thermal units per hour (MMBtu/hr), exhausting to the atmosphere;
- (c) One (1) crematory incinerator for animal remains, a Matthews Animal Crematory IE B Series-20, identified as 03, approved for construction in 2012, with a maximum capacity of 150 pounds per hour, consisting of a primary chamber and a secondary chamber that fire natural gas at a total maximum heat input rate of 1.5 million British thermal units per hour (MMBtu/hr), exhausting to the atmosphere;

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-5.1-2(f)(1)] [326 IAC 2-5.5-4(a)(1)]

D.1.1 Incinerators [326 IAC 4-2-2]

Pursuant to 326 IAC 4-2-2 (Incinerators), the Registrant shall comply with the following:

- (a) All incinerators shall comply with the following requirements:
 - (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 subsection (c).
 - (5) Not emit particulate matter in excess of one (1) of the following:
 - (A) Three-tenths (0.3) pound 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 a maximum solid waste capacity of greater than or equal to two hundred (200) pounds per hour.
 - (B) 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 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.
- (b) An incinerator is exempt from subsection (a)(5) if subject to a more stringent particulate matter emission limit in 40 CFR 52 Subpart P, State Implementation Plan for Indiana.
- (c) An owner or operator developing an operation and maintenance plan pursuant to subsection (a)(4) must comply with the following:
 - (1) The operation and maintenance plan must be designed to meet the particulate matter emission limitation specified in subsection (a)(5) and include the following:
 - (A) Procedures for receiving, handling, and charging waste.
 - (B) Procedures for incinerator startup and shutdown.
 - (C) Procedures for responding to a malfunction.
 - (D) Procedures for maintaining proper combustion air supply levels.
 - (E) Procedures for operating the incinerator and associated air pollution control systems.
 - (F) Procedures for handling ash.
 - (G) A list of wastes that can be burned in the incinerator.
 - (2) Each incinerator operator shall review the plan before initial implementation of the operation and maintenance plan and annually thereafter.
 - (3) The operation and maintenance plan must be readily accessible to incinerator operators.
 - (4) The owner or operator of the incinerator shall notify the department, in writing, thirty (30) days after the operation and maintenance plan is initially developed pursuant to this section.
- (d) The owner or operator of the incinerator must make the manufacturer's specifications or the operation and maintenance plan available to the department upon request.

D.1.2 Preventive Maintenance Plan [326 IAC 1-6-3]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Registrant's obligation with regard to the preventive maintenance plan required by this condition.

Record Keeping and Reporting Requirements [326 IAC 2-5.1-2(g)] [326 IAC 2-5.5-4(b)]

D.1.3 Record and Reporting Requirement [40 CFR 60, Subpart CCCC][326 IAC 12-1]

Pursuant to 40 CFR 60.2555(a)(1) and 60.2555(a)(2), in order to demonstrate that each of the crematory incinerators (01, 02, and 03) is not subject to the requirements of the New Source Performance Standard (NSPS) 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, 40 CFR 60, Subpart CCCC (326 IAC 12), the source shall comply with the following:

- (a) The Registrant shall notify the IDEM, OAQ that each crematory incinerator burns 90% or more by weight of pathological waste, excluding the weight of the auxiliary fuel and combustion air. The Registrant shall submit the notification to:
- Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251
- (b) The Registrant shall maintain records on a calendar quarter basis of the weight of pathological waste burned (excluding the weight of auxiliary fuel and combustion air) and the weight of all other fuels and wastes burned each crematory incinerator.
- (c) Pursuant to 40 CFR 60.2875, pathological waste means waste material consisting of only human or animal remains, anatomical parts, and/or tissue, the bags/containers used to collect and transport the waste material, and animal bedding (if applicable).
- (d) All records shall be retained for a period of at least five (5) years from the date of the measurement. These records shall be physically present or electronically accessible at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Registrant, the Registrant shall furnish the records to the Commissioner within a reasonable time.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH**

**REGISTRATION
ANNUAL NOTIFICATION**

This form should be used to comply with the notification requirements under 326 IAC 2-5.1-2(f)(3) and 326 IAC 2-5.5-4(a)(3).

Company Name:	Robert D. Loose Funeral Home, Inc.
Address:	200 West 53rd Street
City:	Anderson, IN 46013
Phone Number:	765-649-5255
Registration No.:	R095-31781-00135

I hereby certify that Robert D. Loose Funeral Home, Inc. still in operation.
is :

I hereby certify that Robert D. Loose Funeral Home, Inc. no longer in operation.
is : in compliance with the requirements
of Registration No. R095-31781-00135.
 not in compliance with the requirements
of Registration No. R095-31781-00135.

Authorized Individual (typed):
Title:
Signature:
Phone Number:
Date:

If there are any conditions or requirements for which the source is not in compliance, provide a narrative description of how the source did or will achieve compliance and the date compliance was, or will be achieved.

Noncompliance:

Indiana Department of Environmental Management Office of Air Quality

Technical Support Document (TSD) for a Registration

Source Description and Location

Source Name: Robert D. Loose Funeral Home, Inc.
Source Location: 200 West 53rd Street, Anderson, IN 46013
County: Madison
SIC Code: 7261 (Funeral Service and Crematories)
Registration No.: R095-31781-00135
Permit Reviewer: Dominic Williams

On April 26, 2012, the Office of Air Quality (OAQ) received an application from Robert D. Loose Funeral Home, Inc. related to the construction and operation of new emission units and the continued operation of an existing stationary source for cremation of human and animal remains.

Existing Approvals

There have been no previous approvals issued to this source.

County Attainment Status

The source is located in Madison County.

Pollutant	Designation
SO ₂	Better than national standards.
CO	Unclassifiable or attainment effective November 15, 1990.
O ₃	Attainment effective October 19, 2007, for the 8-hour ozone standard. ¹
PM ₁₀	Unclassifiable effective November 15, 1990.
NO ₂	Cannot be classified or better than national standards.
Pb	Not designated.
¹ 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 PM _{2.5} .	

- (a) **Ozone Standards**
 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. Madison 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) **PM_{2.5}**
 Madison County has been classified as attainment for PM_{2.5}. On May 8, 2008 U.S. EPA promulgated the requirements for Prevention of Significant Deterioration (PSD) for PM_{2.5} emissions. These rules became effective on July 15, 2008. On May 4, 2011 the air pollution control board issued an emergency rule establishing the direct PM_{2.5} significant level at ten (10) tons per year. This rule became effective, June 28, 2011. Therefore, direct PM_{2.5} and SO₂ emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability – Entire Source section.

- (c) Other Criteria Pollutants
Madison County has been classified as attainment or unclassifiable in Indiana for SO₂, CO, PM₁₀, and Pb. 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, hazardous air pollutants, and greenhouse gases are counted toward the determination of 326 IAC 2-5.1-2 (Registrations) applicability.

Background and Description of Emission Units and Pollution Control Equipment

The Office of Air Quality (OAQ) has reviewed an application, submitted by Robert D. Loose Funeral Home, Inc. on April 26, 2012, relating to the operation of a stationary source for cremation of human and animal remains.

The source consists of the following existing emission unit(s):

- (a) One (1) crematory incinerator for human remains, a B & L Human Crematory N20AA, identified as 01, constructed in 2003, with a maximum capacity of 150 pounds per hour, consisting of a primary chamber and a secondary chamber that fire natural gas at a total maximum heat input rate of 1.5 million British thermal units per hour (MMBtu/hr), exhausting to the atmosphere;
- (b) One (1) crematory incinerator for animal remains, a B & L Animal Crematory BLP-500, identified as 02, constructed in 2007, with a maximum capacity of 150 pounds per hour, consisting of a primary chamber and a secondary chamber that fire natural gas at a total maximum heat input rate of 1.5 million British thermal units per hour (MMBtu/hr), exhausting to the atmosphere;
- (c) Paved roads and parking lots.

The following is a list of the new emission unit:

- (d) One (1) crematory incinerator for animal remains, a Matthews Animal Crematory IE B Series-20, identified as 03, approved for construction in 2012, with a maximum capacity of 150 pounds per hour, consisting of a primary chamber and a secondary chamber that fire natural gas at a total maximum heat input rate of 1.5 million British thermal units per hour (MMBtu/hr), exhausting to the atmosphere;

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 – Registration

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*	PM2.5	SO ₂	NO _x	VOC	CO	GHGs as CO ₂ e**	Total HAPs	Worst Single HAP
Incineration	6.90	6.90	6.90	2.46	2.96	2.96	9.86	2003.40	7.13	6.87 (HCl)
Natural Gas Combustion	0.04	0.15	0.15	0.012	1.93	0.11	1.62	2332.94	0.036	0.035 (Hexane)
Paved Roads	1.07	0.21	0.05	0.0	0.0	0.0	0.0	0.0	0.0	--
Total PTE of Entire Source	8.01	7.26	7.10	2.48	4.89	3.06	11.48	4336.33	7.17	6.87 (HCl)
Exemptions Levels**	5	5	5	10	10	10	25	100,000	25	10
Registration Levels**	25	25	25	25	25	25	100	100,000	25	10
-- = 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". **The 100,000 CO ₂ e threshold represents the Title V and PSD subject to regulation thresholds for GHGs in order to determine whether a source's emissions are a regulated NSR pollutant under Title V and PSD.										

Criteria Pollutants (PM10, PM2.5, SO₂, NO_x, VOC, and CO)

- (a) The potential to emit (PTE) (as defined in 326 IAC 2-1.1-1) of PM, PM10, and PM2.5 are within the ranges listed in 326 IAC 2-5.1-2(a)(1). The PTE of all other regulated criteria pollutants are less than the ranges listed in 326 IAC 2-5.1-2(a)(1). Therefore, the source is subject to the provisions of 326 IAC 2-5.1-2 (Registrations). A Registration will be issued.

Hazardous Air Pollutants

- (b) The potential to emit (PTE) (as defined in 326 IAC 2-1.1-1) 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

Greenhouse Gases (GHGs) as CO₂e

- (c) The potential to emit (PTE) (as defined in 326 IAC 2-1.1-1) greenhouse gases (GHGs) is less than the Title V subject to regulation threshold of one hundred thousand (100,000) tons of CO₂ equivalent emissions (CO₂e) per year. Therefore, the source is not subject to the provisions of 326 IAC 2-7.

Federal Rule Applicability Determination

New Source Performance Standards (NSPS)

- (a) The requirements of the New Source Performance Standards for Hospital/Medical/ Infectious Waste Incinerators, 40 CFR 60.50, Subpart Ec (326 IAC 12), are not included in this registration, because each of the crematory incinerators (01, 02, and 03) is not a Hospital/Medical/ Infectious Waste Incinerator as defined by 40 CFR 60.51c. Pursuant to the definitions under 40 CFR 60.51c, "hospital waste" and "medical/infectious waste" do not include remains that are intended for cremation.

- (b) The requirements of the following New Source Performance Standards (NSPS) are not included in this registration, because each of the crematory incinerators (01, 02, and 03) is not considered a Municipal Waste Combustor and does not burn municipal type waste:
- (1) 40 CFR 60, Subpart E (60.50 through 60.54), Standards of Performance for Standards of Performance for Incinerators (326 IAC 12);
 - (2) 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);
 - (3) 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);
 - (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 the New Source Performance Standard (NSPS) 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, 40 CFR 60, Subpart CCCC (60.2000 through 60.2265) (326 IAC 12), are not included in this registration, because each of the crematory incinerators (01, 02, and 03) is not considered a Commercial and Industrial Solid Waste Incineration (CISWI) Unit as defined 40 CFR 60.2265. Pursuant to the definitions under 40 CFR 60.2265, a CISWI unit does not include any of the fifteen types of units described in 40 CFR 60.2555. Pursuant to 40 CFR 60.2555(a), incineration units burning 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 waste as defined in 40 CFR 60.2875 are not subject to this subpart if you meet the following two requirements specified in paragraphs (a)(1) and (2) of 40 CFR 60.2555.
- (1) Notify the Administrator that the unit meets these criteria.
 - (2) Keep records on a calendar quarter basis of the weight of pathological waste, low-level radioactive waste, and/or chemotherapeutic waste burned, and the weight of all other fuels and wastes burned in the unit.

Pursuant to 40 CFR 60.2555(a)(1) and 40 CFR 60.2555(a)(2), in order to demonstrate that each of the crematory incinerators (01, 02, and 03) is not subject to the requirements of the New Source Performance Standard (NSPS) 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, 40 CFR 60, Subpart CCCC (326 IAC 12), the source shall comply with the following:

- (1) The Registrant shall notify the IDEM, OAQ that each crematory incinerator burns 90% or more by weight of pathological waste, excluding the weight of the auxiliary fuel and combustion air. The Registrant shall submit the notification to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

- (2) The Registrant shall maintain records on a calendar quarter basis of the weight of pathological waste burned (excluding the weight of auxiliary fuel and combustion air) and the weight of all other fuels and wastes burned each crematory incinerator.
 - (3) Pursuant to 40 CFR 60.2875, pathological waste means waste material consisting of only human or animal remains, anatomical parts, and/or tissue, the bags/containers used to collect and transport the waste material, and animal bedding (if applicable).
 - (4) All records shall be retained for a period of at least five (5) years from the date of the measurement. These records shall be physically present or electronically accessible at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Registrant, the Registrant shall furnish the records to the Commissioner within a reasonable time.
- (d) The requirements of the New Source Performance Standards for Other Solid Waste Incineration Units for Which Construction is Commenced After December 9, 2004 or for Which Modification or Reconstruction is commenced on or After June 16, 2006, 40 CFR 60, Subpart EEEE (60.2280 through 60, 2891), are not included in this registration, because each of the crematory incinerators (01, 02, and 03) is not considered an Other Solid Waste Incineration (OSWI) unit as defined by 40 CFR 60.2977. Each of the crematory incinerators (01, 02, and 03) does not burn municipal solid waste or institutional waste as defined in 40 CFR 60.2977.
- (e) There are no New Source Performance Standards (NSPS) (326 IAC 12 and 40 CFR Part 60) included in the registration for this source.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

- (f) The requirements of the National Emission Standards for Hazardous Waste Combustors, 40 CFR 63, Subpart EEE (63.1200 through 63.1214) (326 IAC 20-28), are not included in this registration, because each of the crematory incinerators (01, 02, and 03) is not considered a hazardous waste incinerator and the source is not a major source of HAPs.
- (g) The requirements of the National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR 63, Subpart DDDDD, are not included in this registration, because this source is not a major source of HAPs as defined in 40 CFR 63.2 and does not contain any boilers or process heaters.
- (h) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Industrial, Commercial, and Institutional Boilers Area Sources, 40 CFR 63, Subpart JJJJJJ, are not included in included in this registration, because this source does not contain any boilers.
- (i) There are no National Emission Standards for Hazardous Air Pollutants (NESHAP) (326 IAC 14, 20 and 40 CFR Part 61, 63) included in the registration for this source.

Compliance Assurance Monitoring (CAM)

- (j) Pursuant to 40 CFR 64.2, Compliance Assurance Monitoring (CAM) is not included in the registration, 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.

State Rule Applicability Determination

The following state rules are applicable to the source:

326 IAC 2-5.1-2 (Registrations)

Registration applicability is discussed under the Permit Level Determination – Registration section above.

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.

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.

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.

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.

326 IAC 6.5 (PM Limitations Except Lake County)

This source is not subject to 326 IAC 6.5 because it is not located in Clark, Dearborn, Dubois, Howard, Marion, St. Joseph, Vanderburgh, Vigo or Wayne County and it does not have the potential to emit particulate matter is equal to or greater than 10 tons per year.

326 IAC 6.8 (Particulate Matter Limitations for Lake County)

This source is not subject to 326 IAC 6.8 because it is not located in Lake County and it does not have the potential to emit particulate matter is equal to or greater than 10 tons per year.

326 IAC 6.8-10 (Lake County: Fugitive Particulate Matter)

The source is not subject to the requirements of 326 IAC 6.8-10, because it is not located in Lake County and it does not have potential fugitive particulate emissions greater than 5 tons per year.

326 IAC 12 (New Source Performance Standards)

See Federal Rule Applicability Section of this TSD.

326 IAC 20 (Hazardous Air Pollutants)
See Federal Rule Applicability Section of this TSD.

Crematory Incinerators (01, 02, and 03)

326 IAC 4-2 (Incinerators)

Pursuant to 326 IAC 4-2-2 (Incinerators), the Registrant shall comply with the following:

- (a) All incinerators shall comply with the following requirements:
 - (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 subsection (c).
 - (5) Not emit particulate matter in excess of one (1) of the following:
 - (A) Three-tenths (0.3) pound 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 a maximum solid waste capacity of greater than or equal to two hundred (200) pounds per hour.
 - (B) 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 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.
- (b) An incinerator is exempt from subsection (a)(5) if subject to a more stringent particulate matter emission limit in 40 CFR 52 Subpart P, State Implementation Plan for Indiana.
- (c) An owner or operator developing an operation and maintenance plan pursuant to subsection (a)(4) must comply with the following:
 - (1) The operation and maintenance plan must be designed to meet the particulate matter emission limitation specified in subsection (a)(5) and include the following:
 - (A) Procedures for receiving, handling, and charging waste.
 - (B) Procedures for incinerator startup and shutdown.
 - (C) Procedures for responding to a malfunction.
 - (D) Procedures for maintaining proper combustion air supply levels.
 - (E) Procedures for operating the incinerator and associated air pollution control systems.

- (F) Procedures for handling ash.
 - (G) A list of wastes that can be burned in the incinerator.
 - (2) Each incinerator operator shall review the plan before initial implementation of the operation and maintenance plan and annually thereafter.
 - (3) The operation and maintenance plan must be readily accessible to incinerator operators.
 - (4) The owner or operator of the incinerator shall notify the department, in writing, thirty (30) days after the operation and maintenance plan is initially developed pursuant to this section.
- (d) The owner or operator of the incinerator must make the manufacturer's specifications or the operation and maintenance plan available to the department upon request.

326 IAC 6-2 (Particulate Emission Limitations for Sources of Indirect Heating)

Each of the crematory incinerators (01, 02, and 03) is not subject to the requirements of 326 IAC 6-2, because each unit is not an indirect heating unit.

326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes)

Pursuant to 326 IAC 6-3-1(a)(2), each of the crematory incinerators (01, 02, and 03) is exempt from the requirements of 326 IAC 6-3.

326 IAC 7-1 (Sulfur dioxide emission limitations: Applicability)

Each of the crematory incinerators (01, 02, and 03) is not subject to the requirements of 326 IAC 7-1, because each has potential and actual emissions of sulfur dioxide are less than twenty-five (25) tons per year and ten (10) pounds per hour respectively.

326 IAC 8-1-6 (VOC rules: General Reduction Requirements for New Facilities)

Each of the crematory incinerators (01, 02, and 03) is not subject to the requirements of 326 IAC 8-1-6, since each has unlimited VOC potential emissions of less than twenty-five (25) tons per year.

There are no other 326 IAC 8 Rules that are applicable to the crematory incinerators.

326 IAC 8-7 (VOC Rules: Specific VOC Reduction Requirements for Lake, Porter, Clark, and Floyd Counties)

Pursuant to 326 IAC 8-7-2(a), this source is not subject to the requirements of 326 IAC 8-7, since it is not located in Lake, Porter, Clark, or Floyd County.

326 IAC 8-19 (VOC Rules: Control of Volatile Organic Compound Emissions from Process Vents in Batch Operations)

Pursuant to 326 IAC 8-19-1, this source is not subject to the requirements of 326 IAC 8-18, since it is not located in Lake or Porter County and does not have the potential to emit VOC greater than or equal to one hundred (100) tons per year from a batch process train associated with any of the SIC Codes listed under 326 IAC 8-19-1(a).

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 each of the crematory incinerators (01, 02, and 03) burns pathological waste and does not burn refuse consisting of more than 50 percent municipal type waste (household, commercial/retail, and/or institutional waste).

326 IAC 10-1-1 (Nitrogen Oxides Control)

Each of the crematory incinerators (01, 02, and 03) is not subject to the requirements of 326 IAC 10-1-1 (Nitrogen Oxides Control), because the source is not located in Clark or Floyd counties.

326 IAC 11-6 (Hospital/Medical/Infectious Waste Incinerators)

Pursuant to 326 IAC 11-6, each of the crematory incinerators (01, 02, and 03) is not subject to the requirements of 326 IAC 11-6, because each unit is not a hospital/medical/ infectious waste incinerator and each unit was not constructed on or before June 20, 1996.

326 IAC 11-7 (Emission Limitations for Municipal Waste Combustors)

Pursuant to 326 IAC 11-7, each of the crematory incinerators (01, 02, and 03) is not subject to the requirements of 326 IAC 11-7, since each unit is considered a pathological waste combustor and not a municipal waste combustor, and each unit was not constructed on or before September 20, 1994.

326 IAC 11-8 (Commercial and Industrial Solid Waste Incineration Units)

Pursuant to 326 IAC 11-8, each of the crematory incinerators (01, 02, and 03) is not subject to the requirements of 326 IAC 11-8, because each unit is not considered a commercial and industrial solid waste incineration (CISWI) unit as defined 40 CFR 60.2875, and each unit was not constructed on or before November 30, 1999.

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 April 26, 2012.

The construction and operation of this source shall be subject to the conditions of the attached proposed Registration No. R095-31781-00135. The staff recommends to the Commissioner that this Registration be approved.

IDEM Contact

- (a) Questions regarding this proposed permit can be directed to Dominic Williams 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) 234-6555 or toll free at 1-800-451-6027 extension 4-6555.
- (b) A copy of the findings is available on the Internet at: <http://www.in.gov/ai/appfiles/idem-caats/>
- (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

**TSD Appendix A: Emission Calculations
Emission Summary**

Company Name: Robert D. Loose Funeral Home, Inc.
Source Address: 200 West 53rd Street, Anderson, IN 46013
Registration No.: 095-31781-00135
Reviewer: Dominic Williams

Category	Uncontrolled Potential Emissions (tons/year)					
	Emissions Generating Activity					
	Pollutant	Incineration	Natural Gas Combustion	Paved Roads (fugitive)	TOTAL	
Criteria Pollutants	PM	6.90	0.04	1.07	8.01	
	PM10	6.90	0.15	0.21	7.26	
	PM2.5	6.90	0.15	0.05	7.10	
	SO2	2.46	0.012	0.0	2.48	
	NOx	2.96	1.93	0.0	4.89	
	VOC	2.96	0.11	0.0	3.06	
	CO	9.86	1.62	0.0	11.48	
	GHGs as CO2e	2003.40	2332.94	0.0	4336.33	
Hazardous Air Pollutants	Arsenic	5.85E-03	3.86E-06	0.0	5.86E-03	
	Benzene	0.0	4.06E-05	0.0	4.06E-05	
	Cadmium (Cd)	1.07E-02	2.13E-05	0.0	1.08E-02	
	Chromium (Cr)	0.014	2.71E-05	0.0	0.014	
	Dichlorobenzene	0.0	2.32E-05	0.0	2.32E-05	
	CDD/CDF*	7.14E-05	0.0	0.0	7.14E-05	
	Formaldehyde	0.0	1.45E-03	0.0	1.45E-03	
	Hydrogen Chloride (HCl)	6.87	0.0	0.0	6.87	
	Lead (Pb)	0.21	9.66E-06	0.0	0.21	
	Manganese (Mn)	0.0	7.34E-06	0.0	7.34E-06	
	Mercury (Hg)	5.52E-03	0.0	0.0	0.006	
	n-Hexane	0.0	0.035	0.0	0.035	
	Nickel (Ni)	0.018	4.06E-05	0.0	0.018	
	Toluene	0.0	6.57E-05	0.0	6.57E-05	
	Totals	7.13	0.036	0.0	7.17	
	Worse Case HAP	Hydrogen Chloride (HCl)				6.87

Potential Emissions based on maximum capacity at 8,760 hours per year.

*CDD/CDF = total tetra- through octa- chlorinated dibenzo-p-dioxin/chlorinated dibenzofurans, 2,3,7,8-tetrachlorodibenzo-p-dioxin, and dibenzofurans

**Appendix A: Emission Calculations
Crematory Incinerators 01, 02, and 03**

Company Name: Robert D. Loose Funeral Home, Inc.
Source Address: 200 West 53rd Street, Anderson, IN 46013
Registration No.: 095-31781-00135
Reviewer: Dominic Williams

To estimate the potential to emit for the incineration of human or animal remains, it is assumed that emissions from a crematory incinerator is similar to emissions from combusting refuse in a multiple chamber commercial incinerator

Unit	Potential Throughput (lbs/hr)	Potential Throughput (tons/yr)
01	150	657
02	150	657
03	150	657
Total	450	1971

Criteria Pollutants

Pollutant	PM	PM10**	PM2.5**	SO2	NOx	VOC	CO
Emission Factor in lb/ton*	7.0	7.0	7.0	2.5	3.0	3.0	10.0
Potential Emissions in ton/yr	6.90	6.90	6.90	2.46	2.96	2.96	9.86

Hazardous Air Pollutants (HAPs)

Pollutant	As	Cd	Cr	Hg	Ni	Pb	HCl	CDD/CDF
Emission Factor in lb/ton***	5.94E-03	1.09E-02	1.40E-02	5.60E-03	1.81E-02	2.13E-01	6.97E+00	7.25E-05
Potential Emissions in ton/yr	0.006	0.011	0.014	0.006	0.018	0.21	6.87	7.1E-05

Potential to Emit Total HAPs (tons/year) **7.13**

Methodology

Potential Throughput (tons/yr) = [Potential Throughput (lbs/hr)] * [8,760 hrs/yr] * [ton/2000 lb]
 Potential to Emit (tons/yr) = [Potential Throughput (tons/yr)] * [Emission Factor (lb/ton)] * [ton/2,000 lb]
 *Emission factors are from AP 42 for Refuse Combustion (5th Edition 10/96) Table 2.1-12 (Uncontrolled emission factors for industrial/commercial refuse combustors, multiple chamber
 Note: There are no AP 42 emission factors for incineration of human or animal remains. Therefore, it is assumed that emission from a crematory incinerator is similar to emissions from combusting refuse in a multiple chamber commercial incinerator
 **No emission factor for PM10 and PM2.5 available (assume PM = PM10= PM2.5)
 ***There are no hazardous air pollutant (HAP) emission factors for refuse combustors in AP 42 Table 2.1-12. Therefore, the potential to emit (PTE) of HAPs was conservatively estimated using the worst case emission factors for all listed HAP from AP 42 Tables 2.1-1 through 2.1-9

Greenhouse Gases

Greenhouse Gas	CO2	CH4	N2O
Emission Factor (kg/MMBtu)*	90.7	3.20E-02	4.20E-03
High Heat Value (MMBtu/ton)**	9.95	9.95	9.95
Emission Factor (lb/ton)	1989.6	0.70	0.09
Potential to Emit (tons/yr)	1960.73	0.69	0.09
Summed Potential Emissions in tons/yr	1961.51		
CO2e Total in tons/yr	2003.40		

Methodology

*Under AP 42 Chapter 1.2 Refuse Combustion (5th Edition 10/96), there are no emission factors for CH4 and N2O and the emission factor for CO2 in AP 42 Table 2.1-9 (Modular Starved-Air Combustors) is less than the emission factor calculated from Table C-4 of 40 CFR Part 98, Subpart C (for Municipal Solid Waste). Therefore, CO2, CH4, and N2O emission factors are from Table C-1 and Table C-2, 40 CFR Part 98, Subpart C (for Municipal Solid Waste). In addition, there are no emission factors in 40 CFR Part 9 Subpart C for combustion of human or animal remains. Therefore, it is assumed that CO2, CH4, and N2O emissions from incineration of human or animal remains are similar to CO2, CH4, and N2O emissions from combustion of municipal solid waste
 **The High Heat Value (HHV) corresponds to municipal solid waste
 Greenhouse Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A
 Emission Factor (lb/ton) = [Emission Factor (kg/MMBtu)] * [2.2046 lb/kg] * [High Heat Value (MMBtu/ton)]
 Potential to Emit (tons/yr) = [Potential Throughput (tons/yr)] * [Emission Factor (lb/ton)] * [ton/2,000 lb]
 CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (21) + N2O Potential Emission ton/yr x N2O GWP (310).

Abbreviations

PM = Particulate Matter	As = Arsenic	CO2 = Carbon Dioxide
PM10 = Particulate Matter (<10 um)	Cd = Cadmium	CH4 = Methane
PM2.5 = Particulate Matter (<2.5 um)	Cr = Chromium	N2O = Nitrous Oxide
SO2 = Sulfur Dioxide	Hg = Mercury	CO2e = CO2 equivalent emissions
NOx = Nitrous Oxides	Ni = Nickel	
VOC = Volatile Organic Compounds	Pb = Lead	
CO = Carbon Monoxide	HCl = hydrogen chloride	
CDD/CDF = total tetra- through octa- chlorinated dibenzo-p-dioxin/chlorinated dibenzofurans, 2,3,7,8-tetrachlorodibenzo-p-dioxin, and dibenzofuran		

**Appendix A: Emission Calculations
Natural Gas Combustion Only
Capacity <100 MMBtu/hr
Crematory Incinerators 01, 02, and 03**

Company Name: Robert D. Loose Funeral Home, Inc.
Source Address: 200 West 53rd Street, Anderson, IN 46013
Registration No.: 095-31781-00135
Reviewer: Dominic Williams

Unit	Maximum Heat Input Capacity (MMBtu/hr)	High Heat Value (MMBtu/MMscf)	Potential Throughput (MMcf/yr)
01	1.50	1020	12.88
02	1.50	1020	12.88
03	1.50	1020	12.88
Totals	4.50		38.65

Criteria Pollutants

Pollutant	PM*	PM10*	PM2.5*	SO2	NOx**	VOC	CO
Emission Factor in lb/MMcf	1.9	7.6	7.6	0.6	100	5.5	84
Potential Emission in tons/yr	0.04	0.15	0.15	0.012	1.93	0.11	1.62

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined. PM2.5 assumed equal to PM10
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Hazardous Air Pollutants

Pollutant	HAPs - Organics*				
	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	4.06E-05	2.32E-05	1.45E-03	0.035	6.57E-05

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

Hazardous Air Pollutants

Pollutant	HAPs - Metals*						
	As	Cd	Cr	Hg	Mn	Ni	Pb
Emission Factor in lb/MMcf	2.0E-04	1.1E-03	1.4E-03	2.6E-04	3.8E-04	2.1E-03	5.0E-04
Potential Emission in tons/yr	3.86E-06	2.13E-05	2.71E-05	5.02E-06	7.34E-06	4.06E-05	9.66E-06

*The seven highest metal HAPs emission factors are provided above. Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Potential to Emit Total HAPs (tons/year) 0.036

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas
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
Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Greenhouse Gases (GHGs)

Greenhouse Gas	CO2	CH4	N2O
Emission Factor in lb/MMcf	120000	2.3	2.2
Potential Emission in tons/yr	2318.82	0.04	0.04
Summed Potential Emissions in tons/yr	2318.91		
CO2e Total in tons/yr	2332.94		

Methodology

The N2O Emission Factor for uncontrolled is 2.2. The N2O Emission Factor for low Nox burner is 0.64.
Emission Factors are from AP 42, Table 1.4-2 SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03.
Greenhouse Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton
CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (21) + N2O Potential Emission ton/yr x N2O GWP (310).

Abbreviations

PM = Particulate Matter	As = Arsenic	CO2 = Carbon Dioxide
PM10 = Particulate Matter (<10 um)	Cd = Cadmium	CH4 = Methane
PM2.5 = Particulate Matter (<2.5 um)	Cr = Chromium	N2O = Nitrous Oxide
SO2 = Sulfur Dioxide	Hg = Mercury	CO2e = CO2 equivalent emissions
NOx = Nitrous Oxides	Mn = Manganese	
VOC = Volatile Organic Compounds	Ni = Nickel	
CO = Carbon Monoxide	Pb = Lead	

**Appendix A: Emission Calculations
Fugitive Dust Emissions - Paved Roads**

**Company Name: Robert D. Loose Funeral Home, Inc.
Source Address: 200 West 53rd Street, Anderson, IN 46013
Registration No.: 095-31781-00135
Reviewer: Dominic Williams**

Paved Roads at Industrial Site

The following calculations determine the amount of emissions created by paved roads, based on 8,760 hours of use and AP-42, Ch 13.2.1 (1/2011).

Vehicle Information (Based on operations at a similar facility)

Type	Maximum number of vehicles per day	Number of one-way trips per day per vehicle	Maximum trips per day (trip/day)	Maximum Weight Loaded (tons/trip)	Total Weight driven per day (ton/day)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/day)	Maximum one-way miles (miles/yr)
Vehicle 1 (entering plant) (one-way trip)	160.0	1.0	160.0	2.0	320.0	600	0.114	18.2	6636.4
Vehicle 1 (leaving plant) (one-way trip)	160.0	1.0	160.0	2.0	320.0	600	0.114	18.2	6636.4
Total			320.0		640.0			36.4	13272.7

Average Vehicle Weight Per Trip = $\frac{2.0}{0.11}$ tons/trip
Average Miles Per Trip = $\frac{0.11}{0.11}$ miles/trip

Unmitigated Emission Factor, Ef = $[k * (sL)^{0.91} * (W)^{1.02}]$ (Equation 1 from AP-42 13.2.1)

	PM	PM10	PM2.5	
where k =	0.011	0.0022	0.00054	lb/VMT = particle size multiplier (AP-42 Table 13.2.1-1)
W =	2.0	2.0	2.0	tons = average vehicle weight (Based on vehicles observed at a similar facility)
sL =	9.7	9.7	9.7	g/m ² = silt loading value for paved roads at iron and steel production facilities - Table 13.2.1-3)

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor, Eext = $E * [1 - (p/4N)]$ (Equation 2 from AP-42 13.2.1)

Mitigated Emission Factor, Eext = $Ef * [1 - (p/4N)]$
where p = $\frac{125}{365}$ days of rain greater than or equal to 0.01 inches (see Fig. 13.2.1-2)
N = $\frac{365}{365}$ days per year

	PM	PM10	PM2.5	
Unmitigated Emission Factor, Ef =	0.176	0.035	0.0087	lb/mile
Mitigated Emission Factor, Eext =	0.161	0.032	0.0079	lb/mile

Process	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Unmitigated PTE of PM2.5 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM2.5 (tons/yr)
Vehicle 1 (entering plant) (one-way trip)	0.59	0.12	0.03	0.54	0.11	0.03
Vehicle 1 (leaving plant) (one-way trip)	0.59	0.12	0.03	0.54	0.11	0.03
	1.17	0.23	0.06	1.07	0.21	0.05

Methodology

Total Weight driven per day (ton/day) = [Maximum Weight Loaded (tons/trip)] * [Maximum trips per day (trip/day)]
Maximum one-way distance (mi/trip) = [Maximum one-way distance (feet/trip)] / [5280 ft/mile]
Maximum one-way miles (miles/day) = [Maximum trips per year (trip/day)] * [Maximum one-way distance (mi/trip)]
Average Vehicle Weight Per Trip (ton/trip) = SUM[Total Weight driven per day (ton/day)] / SUM[Maximum trips per day (trip/day)]
Average Miles Per Trip (miles/trip) = SUM[Maximum one-way miles (miles/day)] / SUM[Maximum trips per year (trip/day)]
Unmitigated PTE (tons/yr) = [Maximum one-way miles (miles/yr)] * [Unmitigated Emission Factor (lb/mile)] * (ton/2000 lbs)
Mitigated PTE (tons/yr) = [Maximum one-way miles (miles/yr)] * [Mitigated Emission Factor (lb/mile)] * (ton/2000 lbs)

Abbreviations

PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
PM2.5 = Particulate Matter (<2.5 um)
PTE = Potential to Emit



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

SENT VIA U.S. MAIL: CONFIRMED DELIVERY AND SIGNATURE REQUESTED

TO: Robert E Loose
Robert D. Loose Funeral Home, Inc.
200 W 53rd St
Anderson, IN 46013

DATE: May 22, 2012

FROM: Matt Stuckey, Branch Chief
Permits Branch
Office of Air Quality

SUBJECT: Final Decision
Registration
097-31781-00135

Enclosed is the final decision and supporting materials for the air permit application referenced above. Please note that this packet contains the original, signed, permit documents.

The final decision is being sent to you because our records indicate that you are the contact person for this application. However, if you are not the appropriate person within your company to receive this document, please forward it to the correct person.

A copy of the final decision and supporting materials has also been sent via standard mail to:
OAQ Permits Branch Interested Parties List

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178, or toll-free at 1-800-451-6027 (ext. 3-0178), and ask to speak to the permit reviewer who prepared the permit. If you think you have received this document in error, please contact Joanne Smiddie-Brush of my staff at 1-800-451-6027 (ext 3-0185), or via e-mail at jbrush@idem.IN.gov.

Final Applicant Cover letter.dot 11/30/07

Mail Code 61-53

IDEM Staff	CDENNY 5/22/2012 Robert D. Loose Funeral Home, Inc. 095-31781-00135 (final)		AFFIX STAMP HERE IF USED AS CERTIFICATE OF MAILING
Name and address of Sender	 Indiana Department of Environmental Management Office of Air Quality – Permits Branch 100 N. Senate Indianapolis, IN 46204	Type of Mail: CERTIFICATE OF MAILING ONLY	

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											Remarks
1		Robert E Loose Robert D. Loose Funeral Home, Inc. 200 W 53rd St Anderson IN 46013 (Source CAATS)									
2		Madison County Commissioners 16 E. 9th Suite 104 Anderson IN 46016 (Local Official)									
3		Anderson Town Council & Mayors Office P.O. Box 2100 Anderson IN 46018 (Local Official)									
4		Madison County Health Department 206 E 9th St Anderson IN 46016-1512 (Health Department)									
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