



DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: **032009-003** Project Number: 2008-12-033

Parent Company: Columbia Cremation Care Center

Parent Company Address: 206 Haywood Court, Columbia, MO 65203

Installation Name: Columbia Cremation Care Center

Installation Address: 4101 S. Providence Road, Columbia, MO 65203

Location Information: Boone County, S36, T48N, R13W

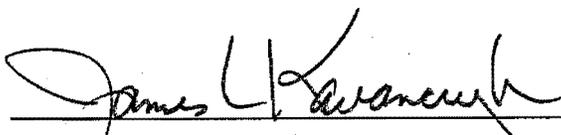
Application for Authority to Construct was made for:

The installation of a new Term-Tec Model SQC-300 human crematorium. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

-
- Standard Conditions (on reverse) are applicable to this permit.
- Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

MAR 10 2009

EFFECTIVE DATE


DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the department's Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available not more than 60 days but at least 30 days in advance of this date. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located with 15 days after the actual start up of this (these) air contaminant source(s).

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

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SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

Columbia Cremation Care Center
Boone County, S36, T48N, R13W

1. Process Requirements for the Human Crematory (EU-01)
 - A. Columbia Cremation Care Center shall burn exclusively non-infectious human bodies or body parts not in containers and non-infectious human bodies or body parts in containers not containing chlorine.
 - B. The batch-type incinerator shall have an operable door lockout mechanism that prohibits the charging of waste between burn cycles.
 - C. The incinerator shall be equipped with a continuous chart recorder that is able to monitor, display and record the temperature in the final combustion chamber to an accuracy of plus or minus two percent (2%).
 - D. The operators shall maintain the incinerator at a temperature of no less than 1,500 degrees Fahrenheit.
2. Record Keeping Requirements
Columbia Cremation Care Center shall maintain an accurate record of the monthly amount and type of waste combusted at this installation. The installation shall use Attachment A or other equivalent form(s) approved by the Air Pollution Control Program for this purpose. Columbia Cremation Care Center shall maintain records on-site for the most recent 60 months of all records required by this permit and shall make such records available to any Missouri Department of Natural Resources' personnel upon request.
3. Opacity
The incinerator (EU-01) shall have opacity of less than ten percent (10%) at all times.

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SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

4. **Operator Requirements for the Human Crematory (EP-01)**
 - A. All incinerator operators shall attend a training program equivalent to that developed by the American Society of Mechanical Engineers (ASME), by the incinerator manufacturer or by an individual with more than one (1) year experience in the operation of the incinerator. The training shall include basic combustion theory, operating procedures, monitoring of combustion control parameters and all emergency procedures to be followed if the incinerator should malfunction or exceed operating parameters.
 - B. The incinerator operator shall have the essential steps necessary for satisfactory operation of the incinerator readily available to him or her in an easy to read and follow manual.
5. **Restriction of Odors**

If a continued situation of demonstrated nuisance odors exists in violation of 10 CSR 10-3.090, the Director may require through written notice that Columbia Cremation Care Center submit a corrective action plan within ten days adequate to timely and significantly mitigate the odors and Columbia Cremation Care Center shall implement any such plan immediately upon its approval by the Director. Failure to either submit or implement such a plan shall be in violation of this permit.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW

Project Number: 2008-12-033
Installation ID Number: 019-0117
Permit Number:

Columbia Cremation Care Center
4101 S. Providence Road
Columbia, MO 65203

Complete: December 15, 2009

Parent Company:
Columbia Cremation Care Center
206 Haywood Court
Columbia, MO 65203

Boone County, S36, T48N, R13W

REVIEW SUMMARY

- Columbia Cremation Care Center has applied for authority to install a new Therm-Tec SQC-300 human crematorium.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment but at insignificant levels (i.e. below their respective Screening Model Action Levels (SMAL)).
- None of the New Source Performance Standards (NSPS) apply to the proposed equipment.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) or currently promulgated Maximum Achievable Control Technology (MACT) regulations applies to the proposed equipment.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of criteria pollutants are below de minimis levels. Section (1)(B) requires all incinerators to obtain construction permits.
- This installation is located in Boone County, an attainment area for all criteria air pollutants.
- This installation is not on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2].
- Ambient air quality modeling was performed for mercury in accordance with 10 CSR 10-6.060 paragraph (5)(D)2.

- Emissions testing is not required for the equipment. Stack testing was performed on a Therm-Tec SQC-300 human cremation system at another installation (Lower Columbia Crematory, Inc., Vancouver, WA) and approved by the Air Pollution Control Program.
- A Basic Operating Permit application is required for this installation within 30 days of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Columbia Cremation Care Center proposes to construct a new installation to provide cremation services for handling human remains. All incinerators are required to obtain both a construction permit and an operating permit from the Air Pollution Control Program as mandated in 10 CSR 10-6.060(1)(B) and 10 CSR 10-6.065 (1)(B). A basic operating permit will be required for this installation.

PROJECT DESCRIPTION

Columbia Cremation Care Center has applied for authority to construct one Therm-Tec Model SQC-300 incinerator. The human crematory is a multiple chamber design and has a rated capacity of 100 pounds per hour. The crematory will be fired solely by natural gas. The burner for the crematory's main chamber is rated at 1.36 MMBtu per hour and the burner for the secondary chamber is rated at 2.4 MMBtu per hour.

EMISSIONS/CONTROLS EVALUATION

The emission rates for particulate matter less than ten (10) microns in aerodynamic diameter (PM₁₀) and carbon monoxide (CO) used in this review were obtained from a stack test performed on a Therm-Tec SQC-300 crematory at another installation in Vancouver, WA. Emissions of sulfur dioxide (SO₂) were calculated using the emission factor from AP-42 Table 1.4-2 in Chapter 1.4, *Natural Gas Combustion (7/98)*. Nitrogen Oxide (NO_x) emissions were calculated using an emission factor from FIRE SCC 5-02-001-02. Volatile organic compounds (VOCs) were calculated using emission factor from the Factor Information Retrieval (FIRE) Data System Version 6.24 for SCC 5-02-001-01. The emission factors used in the analysis of HAP emissions was obtained from FIRE for SCC 3-15-021-01. The composite emission factor of HAPs listed in FIRE was 0.076 pounds of HAP per body cremated. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year.) The following table provides an emissions summary for this project.

Table 1: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> / <i>SMAL</i> Levels	Existing Potential Emissions	Existing Actual Emissions (EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM ₁₀	15.0	N/A	N/A	0.36	N/A
SO _x	40.0	N/A	N/A	0.04	N/A
NO _x	40.0	N/A	N/A	2.85	N/A
VOC	40.0	N/A	N/A	0.66	N/A
CO	100.0	N/A	N/A	0.18	N/A
Mercury	0.01 ¹	N/A	N/A	0.01 ²	N/A
Total HAPs	10.0/25.0	N/A	N/A	0.22	N/A

N/A = Not Applicable

¹Screening Model Action Level (SMAL)

²Calculations show an annual emission of 0.0096 tons. Rounded up to 0.01 tons.

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all criteria pollutants are below de minimis levels. All incinerators must be permitted as required by 10 CSR 10-6.060 Section (1)(B).

APPLICABLE REQUIREMENTS

Columbia Cremation Care Center shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit.

GENERAL REQUIREMENTS.

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required June 1 for the previous year's emissions.
- *Operating Permits*, 10 CSR 10-6.065

- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-3.090

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400
- *Restriction of Emission of Sulfur Compounds*, 10 CSR 10-6.260

AMBIENT AIR QUALITY ANALYSIS

In accordance with Missouri State Rules 10 CSR-6.060 paragraph (5)(D)2., an ambient air quality analysis for mercury was performed. The analysis was performed using the Lakes Environment software package *Screen View*, version 2.5.0, which uses Screen3 dispersion modeling. The analysis shows that the maximum concentration of mercury for both the annual and twenty-four (24) hour averaging times are expected to be less than the Risk Assessment Levels (RAL).

Table 2: Ambient Impact Analysis of Mercury

Averaging Time	Risk Assessment Levels ($\mu\text{g}/\text{m}^3$)	Modeled Impact ($\mu\text{g}/\text{m}^3$)
24-hour	0.14	0.0023
Annual	0.07	0.0116

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

Chia-Wei Young
Environmental Engineer

Date

PERMIT DOCUMENTS

- The following documents are incorporated by reference into this permit:
- The Application for Authority to Construct form, dated December 11, 2008, received December 15, 2008, designating Columbia Cremation Care Center as the owner and operator of the installation.
- U.S. EPA document AP-42, Compilation of Air Pollutant Emission Factors, Fifth Edition.
- Northeast Regional Office Site Survey, dated December 24, 2008.
- Stack test report from testing of a Term-Tec SQC-300 Crematory at Lower Columbia Crematory, Inc. in Vancouver, WA dated June 13, 2006.

Attachment A: Monthly Materials Record Keeping Sheet

Installation Name: Columbia Cremation Care Center
Installation Address: 4101 S. Providence Road, Columbia, MO 65203
Project Number: 2008-12-033

This sheet covers the month of _____ for the year of _____
 (Copy this sheet as needed)

Date	Type of Material	Daily Amount Incinerated (lbs)
1		
2		
3		
4		
5		
6		
7		
8		
9		
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11		
12		
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23		
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27		
28		
29		
30		
31		
¹Amount Incinerated for This Month =		

Note 1: Sum of the Daily Amount Incinerated (lbs)

Mr. Brian Gardner
President
Columbia Cremation Care Center
4101 S. Providence Road, Columbia, MO 65203

RE: New Source Review Permit - Project Number: 2008-12-033

Dear Mr. Gardner:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions, if any, on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files. Operation in accordance with these conditions, your new source review permit application and with your operating permit, once issued, is necessary for continued compliance.

The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you have any questions regarding this permit, please do not hesitate to contact Chai-Wei Young at the departments' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102, or by telephone at (573) 751-4817. Thank you for your time and attention to this matter.

Thank you,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale
New Source Review Unit Chief

KBH:cwyk

Enclosures

c: Northeast Regional Office
PAMS File 2008-12-033

Permit Number: