

STATE OF MISSOURI

PERMIT BOOK



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: 092011-007 Project Number: 2011-06-058

Parent Company: Broder Cremation Services

Parent Company Address: 3421 Ehlmann Road, St. Charles, MO 63301

Installation Name: Broder Cremation Services

Installation Number: 183-0248

Installation Address: 3421 Ehlmann Road, St. Charles, MO 63301

Location Information: St. Charles County, LG291

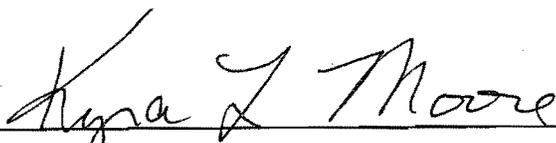
Application for Authority to Construct was made for:  
A human crematory equipped with three cremation units. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

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

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

SEP 30 2011

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/18 months 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/18 months 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 Departments' Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available within 30 days of actual startup. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located within 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."*

Broder Cremation Services  
St. Charles County, LG291

1. Mercury Emission Limitation
  - A. Broder Cremation Services shall emit less than 0.01 tons (20 pounds) of mercury from the human crematory (EU-01, EU-02, and EU-03) in any consecutive 12-month period.
  - B. Attachment A, or an equivalent form such as an electronic form approved by the Air Pollution Control Program, shall be used to demonstrate compliance with Special Conditions 1.A.
2. Process Requirements for the Human Crematory (EU-01, EU-02, and EU-03)
  - A. Broder Cremation Services will burn exclusively non-infectious human bodies or body parts (as defined in the Installation Description) and containers not containing chlorine.
  - B. Charging of remains during a burn cycle is prohibited.
  - C. Opening the door during a burn cycle is prohibited.
  - D. Each cremation unit (EU-01, EU-02, and EU-03) shall be equipped with a continuous chart recorder that monitors, displays, and records the temperature in the final combustion chamber with an accuracy of two percent ( $\pm 2\%$ ) to demonstrate compliance with Special Condition 2.E. and 2.F.
  - E. Broder Cremation Services shall maintain the temperature in the final combustion chamber of cremation units EU-01 and EU-02 at or above 1,600 degrees Fahrenheit.
  - F. Broder Cremation Services shall maintain the temperature in the final combustion chamber of cremation unit EU-03 at or above the minimum temperature necessary to achieve proper combustion. This temperature shall be established during the stack testing required in Special Condition 6.

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### SPECIAL CONDITIONS:

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

3. **Opacity**  
The cremation units (EU-01, EU-02, and EU-03) shall have opacity of less than ten percent (10%) at all times.
4. **Requirements for Operators of the Human Cremation units (EU-01, EU-02, EU-03)**
  - A. All crematory operators shall attend a training program equivalent to that developed by the American Society of Mechanical Engineers (ASME), by the crematory manufacturer or by an individual with more than one (1) year experience in the operation of the crematory. The training shall include basic combustion theory, operating procedures, monitoring of combustion control parameters and all emergency procedures to be followed if the crematory should malfunction or exceed operating parameters.
  - B. The crematory operator shall have the essential steps necessary for satisfactory operation of the crematory readily available to him or her in an easy to read and follow manual.
5. **Restriction of Odors**  
If a continued situation of verified nuisance odors exists in violation of 10 CSR 10-6.165, the Director may require through written notice that Name submit within ten days a corrective action plan adequate to timely and significantly mitigate the odors. Name 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.
6. **Performance Testing**
  - A. Broder Cremation Services shall conduct performance tests on the American Crematory Equipment Company Model A-200-HT (EU-03) to verify that it meets the criterion of 99.9% combustion efficiency and less than ten percent (10%) opacity. Combustion efficiency is the carbon dioxide (CO<sub>2</sub>) concentration divided by the sum of the carbon monoxide (CO) and CO<sub>2</sub> concentrations.
  - B. These tests shall be performed within 60 days after achieving the maximum production rate of the installation, but not later than 180 days after initial start-up for commercial operation and shall be conducted in accordance with the Stack Test Procedures outlined Special Conditions 6.C. through 6.E.

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**SPECIAL CONDITIONS:**

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

- C. A completed Proposed Test Plan Form must be submitted to the Air Pollution Control Program 30 days prior to the proposed test date so that the Air Pollution Control Program may arrange a pretest meeting, if necessary, and assure that the test date is acceptable for an observer to be present. The Proposed Test Plan may serve the purpose of notification and must be approved by the Director prior to conducting the required emission testing. The form can be found at the following website [http://www.dnr.mo.gov/forms/proposed\\_test\\_plan.rtf](http://www.dnr.mo.gov/forms/proposed_test_plan.rtf)
- D. Two copies of a written report of the performance test results shall be submitted to the Director within 30 days of completion of any required testing. The report must include legible copies of the raw data sheets, analytical instrument laboratory data, and complete sample calculations from the required U.S. EPA Method for at least one sample run.
- E. The test report is to fully account for all operational and emission parameters addressed both in the permit conditions as well as in any other applicable state or federal rules or regulations.
- F. In lieu of performance testing, Broder Cremation Services may obtain test results that demonstrate compliance with the combustion efficiency specified in special condition 6.A. from the supplier of the cremation unit (EU-03).
  - 1. Broder Cremation Services shall have 90 days from the initial start of operation to submit the test results to the New Source Review Unit of the Air Pollution Control Program and request in writing a waiver to perform the performance testing required by Special Condition 6.B.
  - 2. If a performance testing waiver is granted, the waiver shall be considered an amendment and must be attached to this permit.

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

Project Number: 2011-06-058  
Installation ID Number: 183-0248  
Permit Number:

Broder Cremation Services  
3421 Ehlmann Road  
St. Charles, MO 63301

Complete: August 22, 2011

Parent Company:  
Broder Cremation Services  
3421 Ehlmann Road  
St. Charles, MO 63301

St. Charles County, LG291

REVIEW SUMMARY

- Broder Cremation Services has applied for authority to construct a human crematory equipped with three cremation units.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment. HAPs of concern from this process are from the incineration of human remains and the combustion of natural gas. Potential emissions of mercury and dioxins/furans are conditioned below the Screening Model Action Levels (SMALs).
- None of the New Source Performance Standards (NSPS) apply to the installation.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) apply to this installation. None of the currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment.
- A secondary combustion chamber is being used to control the emissions from the equipment in this permit.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. A construction permit is required for all incinerators.
- This installation is located in St. Charles County, a nonattainment area for the 8-hour ozone standard and the PM<sub>2.5</sub> standard and an attainment area for all other criteria pollutants.
- This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250 tons per year and fugitive emissions are not counted toward major source applicability.

- Ambient air quality modeling was not performed since the potential emissions of the application are below de minimis levels and SMALs.
- Emissions testing are required for the cremation unit EU-03.
- A Basic Operating Permit application is required for this installation within 30 days of equipment startup. An operating permit is required for all incinerators.
- Approval of this permit is recommended with special conditions.

### INSTALLATION/PROJECT DESCRIPTION

Broder Cremation Services is relocating its operations within the city of St. Charles from 1339 Harvestowne Drive (183-0221) to 3421 Ehlmann Road (183-0241). As part of the relocation activities, Broder Cremation Services will be moving two of its previously permitted crematory units (EU-01 and EU-02) and installing a new unit (EU-03). Since construction permits are site-specific, this review evaluates all three of the human crematory units as new for construction permitting purposes. The new location (183-0241) is a greenfield site, and therefore no other permits have been issued to this location from the Air Pollution Control Program. The following table lists all emission units considered for this review.

**Table 1: Emission Unit Summary**

| ID    | Make                             | Model        | Fuel | Burner Capacity (mmBtu/hr) | Cremation Capacity (lbs/hr) |
|-------|----------------------------------|--------------|------|----------------------------|-----------------------------|
| EU-01 | B&L Systems                      | N-20AA       | NG   | 1.3                        | 150                         |
| EU-02 | B&L Systems                      | Phoenix II-1 | NG   | 1.5                        | 150                         |
| EU-03 | American Crematory Equipment Co. | A-200-HT     | NG   | 1.5                        | 150                         |

NG=Natural gas

In order to ensure adequate combustion techniques, the Air Pollution Control Program has developed a set of minimum requirements that apply to all human and animal cremation units. These minimum requirements include: a combustion efficiency of 99.9%, a maximum particulate concentration in the stack gas of less than 0.09 grains per dry standard cubic foot, and a maximum opacity of 10% for each stack. Combustion efficiency is the carbon dioxide (CO<sub>2</sub>) concentration divided by the sum of the carbon monoxide (CO) and CO<sub>2</sub> concentrations. Although the applicant provided a stack test report for each unit listed in Table 1 above. The stack test report for EU-03 did not include a combustion efficiency or an opacity analysis. Therefore, a special condition of this permit requires stack testing to determine the combustion efficiency and opacity of EU-03.

The crematory is permitted to cremate non-infectious human bodies and body parts. The Air Pollution Control Program's definition of this term is human bodies and body parts that do not fit the definition of medical/infectious waste as defined in the Code of Federal Regulations, 40 CFR 60.51, *Standards of Performance for New Stationary Sources*, Subpart Ec—"Standards of Performance for Hospital/Medical/Infectious Waste Incinerators for Which Construction is Commenced After June 20, 1996." Therefore, the cremation units (EU-01, EU-02, and EU-03) are not permitted to burn remains that meet the following definition:

Medical/infectious waste means any waste generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals that are listed in paragraphs (1) through (7) of this definition. The definition of medical/infectious waste does not include human corpses, remains, and anatomical parts that are intended for interment.

- (1) Cultures and stocks of infectious agents and associated biologicals, including: cultures from medical and pathological laboratories; cultures and stocks of infectious agents from research and industrial laboratories; wastes from the production of biologicals; discarded live and attenuated vaccines; and culture dishes and devices used to transfer, inoculate, and mix cultures.
- (2) Human pathological waste, including tissues, organs, and body parts and body fluids that are removed during surgery or autopsy, or other medical procedures, and specimens of body fluids and their containers.
- (3) Human blood and blood products including:
  - (i) Liquid waste human blood;
  - (ii) Products of blood;
  - (iii) Items saturated and/or dripping with human blood; or
  - (iv) Items that were saturated and/or dripping with human blood that are now caked with dried human blood; including serum, plasma, and other blood components, and their containers, which were used or intended for use in either patient care, testing and laboratory analysis or the development of pharmaceuticals. Intravenous bags are also included in this category.
- (4) Sharps that have been used in animal or human patient care or treatment or in medical, research, or industrial laboratories, including hypodermic needles, syringes (with or without the attached needle), pasteur pipettes, scalpel blades, blood vials, needles with attached tubing, and culture dishes (regardless of presence of infectious agents). Also included are other types of broken or unbroken glassware that were in contact with infectious agents, such as used slides and cover slips.
- (5) Animal waste including contaminated animal carcasses, body parts, and bedding of animals that were known to have been exposed to infectious agents during research (including research in veterinary hospitals), production of biologicals or testing of pharmaceuticals.

- (6) Isolation wastes including biological waste and discarded materials contaminated with blood, excretions, exudates, or secretions from humans who are isolated to protect others from certain highly communicable diseases, or isolated animals known to be infected with highly communicable diseases.
- (7) Unused sharps including the following unused, discarded sharps: hypodermic needles, suture needles, syringes, and scalpel blades.

### EMISSIONS/CONTROLS EVALUATION

The potential emissions for EU-01 and EU-02 were obtained from construction permits 122004-014 and 122006-008. The potential emissions for EU-03 were calculated using the emission factors obtained from the EPA database for recommended emission factors, Factor Information Retrieval (FIRE) Data System (version 6.25) for the following Source Classification Codes (SCC) 5-02-001-01 and SCC 3-15-021-01. 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 2: Emissions Summary (tons per year)**

| <b>Pollutant</b>  | <b>Regulatory De Minimis Levels<sup>[1]</sup></b> | <b>Existing Potential Emissions</b> | <b>Existing Actual Emissions</b> | <b>Potential Emissions of the Application</b> | <b>Installation Conditioned Potential<sup>[2]</sup></b> |
|-------------------|---|-------------------------------------|----------------------------------|---|---|
| PM <sub>2.5</sub> | 10.0  | N/A                                 | N/A                              | 1.25  | 0.29  |
| PM <sub>10</sub>  | 15.0  | N/A                                 | N/A                              | 1.25  | 0.29  |
| SO <sub>x</sub>   | 40.0  | N/A                                 | N/A                              | 1.78  | 0.41  |
| NO <sub>x</sub>   | 40.0  | N/A                                 | N/A                              | 4.31  | 1.00  |
| VOC               | 40.0  | N/A                                 | N/A                              | 1.01  | 0.23  |
| CO                | 100.0   | N/A                                 | N/A                              | 3.39  | 0.78  |
| Combined HAPs     | 25.0  | N/A                                 | N/A                              | 1.00  | 0.23  |
| Mercury Compounds | 0.01  | N/A                                 | N/A                              | 0.043   | <0.01   |
| Dioxins/Furans    | 6.00E-7   | N/A                                 | N/A                              | 7.73E-07                                      | 1.79E-07  |

N/A = Not Applicable

<sup>1</sup>For individual HAPs, the value represents the SMAL.

<sup>2</sup>Installation conditioned potential represents the potential emissions of the installation considering a limit on emissions of mercury compounds to less than the SMAL. All other emissions proportionately reduced.

## 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 pollutants are below de minimis levels. A construction permit is required for all incinerators.

## APPLICABLE REQUIREMENTS

Name 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 a hardcopy EIQ is required by April 1 for the previous year's emissions. Otherwise, submission of an electronic EIQ via MOEIS is required by May 1.
- *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 Odors*, 10 CSR 10-6.165

## 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.

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Kathi Jantz  
Environmental Engineer

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Date

### PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated June 16, 2011 received June 21, 2011 designating Broder Cremation Services as the owner and operator of the installation.
- Stack test report, entitled "Compliance Source Emissions Test Report #08025" dated, April 12, 2008.



Mr. Joe Broder  
Owner  
Broder Cremation Services  
3421 Ehlmann Road  
St. Charles, MO 63301

RE: New Source Review Permit - Project Number: 2011-06-058

Dear Mr. Broder:

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 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 Kathi Jantz, at the Department's Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale  
New Source Review Unit Chief

KBH:kjl

Enclosures

c: St. Louis Regional Office  
PAMS File: 2011-06-058

Permit Number: