



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: 122011-002

Project Number: 2011-11-003
Installation Number: 019-0104

Parent Company: RFSC, Inc. dba Parker Funeral Service & Crematory

Parent Company Address: 22 North 10th Street, Columbia, MO 65201

Installation Name: RFSC, Inc. dba Parker Funeral Service & Crematory

Installation Address: 22 North 10th Street, Columbia, MO 65201

Location Information: Boone County, S7, T48N, R12W

Application for Authority to Construct was made for:

The installation of a Millennium III human crematory that is rated at 150 pound per hour.

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.

DEC 02 2011

EFFECTIVE DATE

Nancy Vit for Kyrle Moore

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 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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Project No.	2011-11-003

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."

RFSC, Inc. dba Parker Funeral Service & Crematory
Boone County, S7, T48N, R12W

1. Process Requirements for the Human Crematory
 - A. RFSC, Inc. dba Parker Funeral Service & Crematory will burn exclusively non-infectious human bodies or body parts (as defined in the Project Description) and containers not containing chlorine.
 - B. Charging of waste between burn cycles is prohibited.
 - C. Remains shall be incinerated at an average rate not exceeding 150.0 pounds per hour.
 - D. Attachment A or a form approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Condition 1.C.
 - E. The crematory 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.
 - F. RFSC, Inc. dba Parker Funeral Service & Crematory shall maintain the temperature in the final combustion chamber at or above 1600 Fahrenheit.
 - G. RFSC, Inc. dba Parker Funeral Service & Crematory shall maintain an accurate record of the number of cremation and the total mass of remains cremated at this installation per month.
2. Opacity
The crematory (Emission Point 01) shall have opacity of less than ten percent at all times.
3. Requirements for Operators of the Human Crematory
 - A. All crematory operators shall attend a training program equivalent to that developed by the American Society of Mechanical Engineers (ASME), by

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SPECIAL CONDITIONS:

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

the crematory manufacturer or by an individual with more than one 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.

4. 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 RFSC, Inc. dba Parker Funeral Service & Crematory submit within ten days a corrective action plan adequate to timely and significantly mitigate the odors. RFSC, Inc. dba Parker Funeral Service & Crematory 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: 2011-11-003
Installation ID Number: 019-0104
Permit Number:

RFSC, Inc. dba Parker Funeral Service & Crematory Complete: November 1, 2011
22 North 10th Street
Columbia, MO 65201

Parent Company:
RFSC, Inc. dba Parker Funeral Service & Crematory
22 North 10th Street
Columbia, MO 65201

Boone County, S7, T48N, R12W

REVIEW SUMMARY

- RFSC, Inc. dba Parker Funeral Service & Crematory has applied for authority to install a Millennium III human crematory that is rated at 150 pound per hour.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment. The HAP of concern from this process is mercury.
- 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.
- Afterburners installed by the manufacturer are being used in association with the new equipment as control devices.
- 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.
- This installation is located in Boone County, an attainment area for all 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 performed to determine the ambient impact of mercury. The potential mercury emissions are above the Screen Modeling Action

Level (SMAL), so the ambient air quality modeling was conducted using SCREEN3. The ambient impact of mercury is below the Risk Assessment Level (RAL).

- Emissions testing are not required for the equipment. Stack testing was conducted on a similar unit and approved by the Air Pollution Control Program.
- A revised Basic Operating Permit application is required to be submitted to the Air Pollution Control Program within 30 days of equipment startup according to 10 CSR 10-6.065 Operating Permits (1)(B).
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

RFSC, Inc. dba Parker Funeral Service & Crematory (herein known as Parker Funeral Service & Crematory) is an existing burial services company, located at 22 North 10th Street in Columbia, Missouri. It is an existing de minimis source under construction permits and is has a basic operating permit.

The following permits have been issued to Parker Funeral Service & Crematory from the Air Pollution Control Program.

Table 1: Permit History

Permit Number	Description
0182-002	Installation of an All Crematory Corp./L-1701 human crematory

PROJECT DESCRIPTION

Parker Funeral Service & Crematory is installing one Millennium III human crematory, serial number 103, which is rated at 150 pound per hour. This unit has a primary and secondary/afterburner chamber and is fired by natural gas. This Millennium III human crematory is replacing the current crematory that is used at this installation, model L-1701, made by the All Crematory Corporation. The current crematory will be dismantled and removed upon the installation of the Millennium III human crematory.

The Air Pollution Control Program has previously permitted other Millennium III human crematories using test data from a stack test on the Millennium II human crematory because this crematory is similar in design to the Millennium III human crematory (permits 102002-005 and 112003-008). This stack test was conducted on June 2, 8, and 9, 2000, in Tulsa, Oklahoma. New stack testing was submitted with the Application for Authority to Construct for this project. This new stack testing was performed on a similar Millennium III human crematory on January 6, 2010, in Tulsa, Oklahoma, at a maximum rate of 150 pounds per hour.

The Air Pollution Control Program's Enforcement Section has approved this new stack testing for the permitting of this crematory. At this time, a full test report has not been submitted to the Air Pollution Control Program, but because the tested emission rates are comparable to the tested emission rates from the June 2000 stack test on the Millennium II human crematory, it is believed this stack test demonstrates the crematory will achieve a combustion efficiency of 99.9%, that the maximum particulate concentration in the crematory's stack gas is less than 0.09 grains per dry standard cubic feet and that the crematory's opacity does not exceed 10%.

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 Crematories for Which Construction is Commenced After June 20, 1996." The rule defines medical/infectious waste as:

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 hazardous waste identified or listed under the regulations in part 261 of this chapter; household waste, as defined in §261.4(b)(1) of this chapter; ash from incineration of medical/infectious waste, once the incineration process has been completed; human corpses, remains, and anatomical parts that are intended for interment mation; and domestic sewage materials identified in §261.4(a)(1) of this chapter.

- (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 emission rates for particulate matter (PM), nitrogen oxides (NO_x), carbon monoxide (CO), and sulfur oxides (SO_x) used in this review were obtained from a stack test performed on a similar crematory on January 6, 2010, in Tulsa, Oklahoma. The emission rates for particulate matter less than ten (10) microns in aerodynamic diameter (PM₁₀) and particulate matter less than 2.5 microns in aerodynamic diameter (PM_{2.5}) will not exceed the emissions of PM and are therefore assumed to be equal to the PM emission rates. The emission rates for volatile organic compounds (VOCs) and hazardous air pollutants (HAPs) used in this review were obtained from the Internet version of Factor Information Retrieval (FIRE), the Environmental Protection Agency's emission rate database commonly known as webFIRE. The VOC emission rates were calculated using the Source Classification Code (SCC) 5-02-001-01 and the HAPs emission rates were calculated using the SCC 3-15-021-01.

The existing potential emissions of this installation are taken from Permit Number 0182-002. The existing actual emissions were taken from the previous year's Emissions Inventory Questionnaire (EIQ). 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)

Pollutant	Regulatory De Minimis Levels	Existing Potential Emissions	Existing Actual Emissions (2010 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM	25.0	0.1345	N/A	0.39	N/A
PM ₁₀	15.0	N/A	0.14	0.39	N/A
PM _{2.5}	10.0	N/A	0.03	0.39	N/A
SO _x	40.0	N/A	0.03	0.26	N/A
NO _x	40.0	N/A	0.13	1.40	N/A
VOC	40.0	N/A	N/A	0.99	N/A
CO	100.0	N/A	0.47	0.00	N/A
HAPs	10.0/25.0	N/A	N/A	0.33	N/A
Mercury	¹ 0.01	N/A	N/A	0.014	N/A

N/A = Not Applicable

¹ Screening Model Action Level (SMAL)

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 criteria pollutants are below de minimis levels. Section (1)(B) requires all crematories to obtain construction permits.

APPLICABLE REQUIREMENTS

Parker Funeral Service & Crematory 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).
- *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 10-6.165

AMBIENT AIR QUALITY IMPACT ANALYSIS

Ambient air quality modeling was performed to determine the ambient impact of mercury. The potential mercury emissions are above the Screen Modeling Action Level, so the ambient air quality modeling was conducted by SCREEN3. The stack parameters are included in Table 3, and the results of the analysis are included in Table 4. The stack parameters used in SCREEN3 were taken from the stack test. The analysis showed that the Risk Assessment Level for elemental mercury will not be exceeded.

Table 3: Stack Parameters

Stack Height (m)	Stack Inside Diameter (m)	Stack Gas Velocity (m/s)	Stack Gas Temperature (K)
6.4	0.55	3.49	1113.15

Table 4: Ambient Air Quality Analysis Results

Pollutant	Modeled Impact ($\mu\text{g}/\text{m}^3$)	Risk Assessment Level ($\mu\text{g}/\text{m}^3$)	Time Period
Mercury	0.032	0.14	24 hour
	0.0064	0.07	Annual

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.

Daronn Williams
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated October 31, 2011, received November 1, 2011, designating RFSC, Inc. as the owner and operator of the installation.
- Northeast Regional Office Site Survey, dated November 16, 2011.
- WebFIRE, last updated on Tuesday, November 29, 2011
<http://cfpub.epa.gov/oarweb/index.cfm?action=fire.main>

Mr. Bruce B. Rice
President
Parker Funeral Service & Crematory
22 North 10th Street
Columbia, MO 65201

RE: New Source Review Permit - Project Number: 2011-11-003

Dear Mr. Rice:

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 amended 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 contact Daronn Williams, 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

Susan Heckenkamp
New Source Review Unit Chief

SH:dwl

Enclosures

c: Northeast Regional Office
PAMS File: 2011-11-003

Permit Number: