



## 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: 022007-011 Project Number: 2006-10-102

Parent Company: Curators Of The University Of Missouri

Parent Company Address: #8 Research Park Development Building  
Columbia, MO 65211

Installation Name: University of Missouri - Columbia

Installation Address: #8 Research Park Development Building  
Columbia, MO 65211

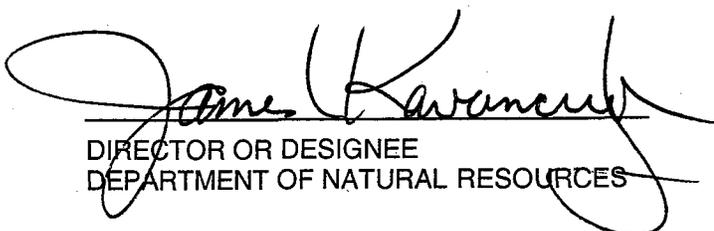
Location Information: Boone County, S18, T48N, R12W

Application for Authority to Construct was made for:  
Installation of ThermTec, Model A-8-P-S, animal incinerator. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

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

FEB 22 2007

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 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."*

University of Missouri - Columbia  
Boone County, S18, T48N, R12W

### Process Requirements

1. University of Missouri - Columbia will burn non-infectious animal bodies or body parts or no more than ten (10) percent (%) infectious animal bodies or body parts not in containers and non-infectious animal bodies or body parts or no more than 10% infectious animal bodies or body parts in containers not containing chlorine. University of Missouri – Columbia shall keep records on a calendar-quarter basis of the weight of infectious waste combusted, and the weight of all other wastes combusted at the incinerator.
2. University of Missouri - Columbia shall not open the door to the primary chamber until the burn cycle is complete and shall not charge any material during the burn cycle.
3. The incinerator shall be equipped with a continuous chart recorder which is able to monitor, display and record the temperature in the final combustion chamber to an accuracy of plus or minus two percent (2%). The operators shall maintain the final combustion chamber at a temperature of no less than the baseline temperature which will be established during performance testing as outlined in Special Condition 9.
4. The incinerator shall have a minimum combustion efficiency of 99.9% determined from the carbon dioxide concentration divided by the sum of the carbon monoxide and carbon dioxide concentrations.

### Record Keeping Requirements

5. University of Missouri - Columbia shall maintain an accurate record of the amount and type of waste combusted at this installation. University of Missouri - Columbia shall record the monthly amount of waste combusted at this facility. University of Missouri - Columbia shall use Attachment A, "Waste Tracking Sheet" or an equivalent form for this purpose. University of Missouri - Columbia shall maintain records on-site for the most recent 60 months of all records

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### SPECIAL CONDITIONS:

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

required by this permit and shall immediately make such records available to any Missouri Department of Natural Resources' personnel upon verbal request.

#### Opacity

6. The incinerator shall have opacity of less than ten percent (10%) at all times.

#### Operator Requirements

7. 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.
8. The incinerator operator shall have the essential steps necessary for satisfactory operation of the incinerator readily available to him in an easy to read and follow manual.

#### Performance Testing

9. University of Missouri - Columbia shall conduct performance tests on the Therm-Tec Model A-8-P-S to determine that it meets the criterion of 99.9% combustion efficiency, less than ten percent (10%) opacity, and to determine its particulate emission concentration. 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 10 through 12.
10. A completed Proposed Test Plan Form (enclosed) 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.
11. Two (2) 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

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**SPECIAL CONDITIONS:**

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

instrument laboratory data, and complete sample calculations from the required U.S. EPA Method for at least one (1) sample run.

12. 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 regulation.

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

Project Number: 2006-10-102  
Installation ID Number: 019-0047  
Permit Number:

University of Missouri - Columbia  
#8 Research Park Development Building  
Columbia, MO 65211

Complete: October 23, 2006  
Reviewed: December 5, 2006

Parent Company:  
Curators Of The University Of Missouri  
#8 Research Park Development Building  
Columbia, MO 65211

Boone County, S18, T48N, R12W

REVIEW SUMMARY

- University of Missouri - Columbia has applied for authority to install a ThermTec, Model A-8-P-S, animal incinerator.
- Hazardous air pollutants (HAPs) will be emitted from this installation. HAP emissions will include lead and other metals. However, since this unit is burning pathological waste, HAP emissions are not expected to be significant.
- None of the New Source Performance Standards (NSPS) apply to this installation. Subparts Ce and Ec do not apply to this installation as it is combusting only 10% hospital or medical/infectious waste.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) or currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment.
- No air pollution control equipment is being used in association with the new equipment.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. All incinerators are required to obtain a permit from the Air Pollution Control Program as mandated in 10 CSR 10-6.060. Potential emissions are less than de minimis levels.
- 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 not performed since potential emissions of the application are below de minimis levels.
- Emissions testing is required for the equipment.
- Addition of the equipment in this permit qualifies as an off-permit change to your Part 70 Operating Permit.
- Approval of this permit is recommended with special conditions.

### INSTALLATION DESCRIPTION

University of Missouri - Columbia, Facility Number 019-0047, includes the UMC Campus and Hospital. The facility is a major source operating under a Part 70 Operating Permit (OP1999-031) issued on March 18, 1999. An application for the Part 70 Operating Permit Renewal was received on September 17, 2003 and is currently in technical review.

The following construction permits have been issued to University of Missouri – Columbia from the Air Pollution Control Program.

Permit Number	Description
1181-003	Installation of one (1) incinerator.
0990-004	Replacement of incinerator.
0697-025	Installation of ten (10) cold solvent parts washers.
0697-024	Installation of a 169 KVA emergency generator w/ a 500-gallon diesel tank.
0299-013	Installation of two (2) 900 kW diesel emergency generators w/ a 4,000 gallon tank.
1299-022	Installation of a 2.6 MMBtu/hr emergency generator.
042000-009	Installation of a 240 kW emergency generator.
032002-002	Installation of a paint booth and two (2) solvent parts washers.
012003-005	Installation of a 300 kW emergency generator, a 750 kW emergency diesel generator, and two (2) diesel tanks.
032003-028	Installation of a 450 kW Emergency diesel generator w/ 300-gallon fuel tank.
112005-002	Installation of a paint spray booth located in the MU Quarterdeck Building.

### PROJECT DESCRIPTION

The ThermTec, Model A-8-P-S, incinerator is capable of burning 0.4 tons of carcasses per hour and has a maximum design rate of 5.6 million BTU/hr (fired by natural gas). Performance testing results for the same model used at B.C. Agricultural Centre in Abbotsford, British Columbia, Canada was submitted with the application. However, the Air Pollution Control Program Compliance Test Unit found this test to be inadequate. The Compliance Test Unit recommended that emission testing of the newly installed unit be required to show that it meets the criterion of 99.9% combustion efficiency, to determine its particulate emission concentration, and to establish a baseline temperature at which satisfactory performance can be expected. Therefore, as a

condition of this permit, University of Missouri - Columbia is required to conduct performance tests.

The University of Missouri proposed to replace their existing incinerator at the Veterinary Medical Diagnostic laboratory with this new ThermTec A-8-P-S. The existing incinerator will be left in place but the controls, gas supply, and power will be removed after the successful start-up of the new incinerator.

### EMISSIONS/CONTROLS EVALUATION

The emission factors used in this review were obtained from the stack test performed on the same model used at B.C. Agricultural Centre in Abbotsford, British Columbia, Canada. Although these emission factors were used in this permit, University of Missouri - Columbia is still required to perform performance testing as mentioned above. The emission factor used in the analysis of HAP emissions was obtained from the Factor Information Retrieval (FIRE) Data System Version 6.23 for SCC 3-15-021-01. No pollution control equipment is in use with this incinerator.

Potential emissions were calculated based on the maximum hourly design rate of the incinerator operating at 8,760 hours annually. Existing potential emissions are from the previous issued permits (Permit Numbers 032003-028 & 112005-002). Existing actual emissions are from the 2005 Emissions Inventory Questionnaire (EIQ). The following table provides an emissions summary for this project.

Table 1: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2005 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM <sub>10</sub>	15.0	133.31	N/A	10.37	N/A
SO <sub>x</sub>	40.0	45.40	N/A	13.14	N/A
NO <sub>x</sub>	40.0	874.01	N/A	6.24	N/A
VOC	40.0	283.23	5.31	17.87	N/A
CO	100.0	318.47	N/A	5.17	N/A
HAPs	10.0/25.0	156.6	N/D	1.66	N/A

\*N/A = Not Applicable; N/D = Not Determined

### PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. All incinerators are required to obtain a permit from the Air Pollution Control Program as mandated in 10 CSR 10-6.060. Potential emissions are less than de minimis levels.

## APPLICABLE REQUIREMENTS

University of Missouri - Columbia 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 April 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*

## 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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Fuad Wadud  
Environmental Engineer

\_\_\_\_\_  
Date

### PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated October 18, 2006, received October 23, 2006, designating Curators Of The University Of Missouri as the owner and operator of the installation.
- Stack Test Report.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Northeast Regional Office Site Survey, dated November 11, 2006.



Mr. Peter C. Ashbrook  
Director, Environmental Health & Safety  
University of Missouri - Columbia  
#8 Research Park Development Building  
Columbia, MO 65211

RE: New Source Review Permit - Project Number: 2006-10-102

Dear Mr. Ashbrook:

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. 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. Operation in accordance with the special conditions of this permit, your new source review permit application and with your operating permit is necessary for continued compliance.

The installation of this equipment qualifies as an off-permit change for your Part 70 Operating Permit. As specified in 10 CSR 10-6.065 paragraph (6)(C)9, an off-permit change requires "written notice of the change to this permitting authority and to the administrator." This construction permit serves as notification to the operating permit authority.

In order to fulfill the notification requirement to the administrator, please send a written notice to Tamara Freeman, Environmental Protection Agency Region VII, 901 N. 5<sup>th</sup> Street, Kansas City, KS 66101. As detailed in 10 CSR 10-6.065 paragraph (6)(C)9.B, ". . . the written notice shall describe each change, including the date, any change in emissions, pollutants emitted and any applicable requirements that would apply as a result of the change." Please send this notification at least 30 but not more than 60 days prior to anticipated start up of this air contaminant source.

If you have any questions regarding this permit, please do not hesitate to contact me at (573) 751-4817, or you may write to the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale  
New Source Review Unit Chief

KBH: fwl

Enclosures

c: Northeast Regional Office  
PAMS File 2006-10-102

Permit Number: