

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: **052015-005** Project Number: 2014-12-052

Parent Company: Trimble Funeral Home

Parent Company Address: 3210 North 10 Mile Drive, Jefferson City, MO 65109

Installation Name: Dulle-Trimble Funeral Home

Installation Number: 051-0087

Installation Address: 3210 North 10 Mile Drive, Jefferson City, MO 65109

Location Information: Cole County, S3, T44N, R12W

Application for Authority to Construct was made for:  
a two-chamber Facultative Technologies FT II SE human cremator. 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.

**MAY 12 2015**

EFFECTIVE DATE

*Handwritten signature of Kayra L. 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.

Page No.	3
Permit No.	
Project No.	2014-12-052

**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."*

Dulle-Trimble Funeral Home  
Cole County, S3, T44N, R12W

1. Mercury Emission Limitation
  - A. Dulle-Trimble Funeral Home shall emit less than 0.01 tons of mercury from the human crematory (EP-01) in any 12-month period.
  - B. Attachment A or equivalent forms, such as electronic forms, 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)
  - A. Dulle-Trimble Funeral Home will burn exclusively non-infectious human bodies or body parts (as defined in the Installation Description) and containers not containing chlorine.
  - B. Charging of waste during burn cycles is prohibited.
  - C. 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 ( $\pm 2\%$ ).
  - D. Dulle-Trimble Funeral Home shall maintain the temperature in the final combustion chamber at or above 1600 degrees Fahrenheit.
  - E. Dulle-Trimble Funeral Home shall maintain an accurate record of the number of cremations and the total mass of remains cremated at this installation per month.
3. Opacity

The crematory (EP-01) shall have opacity of less than ten percent (10%) at all times.

Page No.	4
Permit No.	
Project No.	2014-12-052

#### SPECIAL CONDITIONS:

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

4. Requirements for Operators of the Human Crematory (EU-01)
  - 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 Emission 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 Dulle-Trimble Funeral Home submit within ten days a corrective action plan adequate to timely and significantly mitigate the odors. Dulle-Trimble Funeral Home 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: 2014-12-052  
Installation ID Number: 051-0087  
Permit Number:

Dulle-Trimble Funeral Home  
3210 North 10 Mile Drive  
Jefferson City, MO 65109

Complete: February 9, 2015

Parent Company:  
Trimble Funeral Home  
3210 North 10 Mile Drive  
Jefferson City, MO 65109

Cole County, S3, T44N, R12W

REVIEW SUMMARY

- Dulle-Trimble Funeral Home has applied for authority to install a two-chamber Facultatieve Technologies FT II SE human cremator.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment. HAPs of concern from this process are Dioxin, PAH, TEQ, Mercury (Hg), HCl, HF, and other heavy metals (in trace amounts). HAP emissions are also expected from the combustion of natural gas in the primary and secondary burners; however, HAPs emitted during the combustion process are below the respective screening model action levels (SMALs).
- None of the New Source Performance Standards (NSPS) apply to the installation.
  - NSPS Subpart CCCC & Subpart EEEE do not apply to this installation because the permitted incinerator is not classified as commercial, industrial, or medical; furthermore, exclusively non-hazardous waste, in the form of human remains, will be burned.
- 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.
- No air pollution control equipment 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. Potential emissions of Mercury (Hg) are conditioned below its screening model action level (SMAL), and the dioxins are indirectly conditioned below its SMAL. All other remaining pollutants are below their de minimis levels.

- This installation is located in Cole 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 not performed since potential emissions of the application are conditioned below de minimis levels.
- Emissions testing is not required for the equipment. Stack testing was conducted on a similar unit and approved by the Air Pollution Control Program.
- A Basic Operating Permit complete application is required for this installation within 30 days of equipment startup.
- Approval of this permit is recommended with special conditions.

#### INSTALLATION DESCRIPTION

Dulle-Trimble Funeral Home is established in Jefferson City, Missouri 65109. This installation provides human cremation services for those who seek this service in lieu of earth burial. This installation has never been permitted by Missouri Air Pollution Control Program. This permit, pertaining to project #2014-12-052, will be issued as a Section (5) de minimis permit. Dulle-Trimble Funeral Home will need to submit an application for a basic operating permit within 30 days of this permit being issued.

#### PROJECT DESCRIPTION

Dulle-Trimble Funeral Home is installing a Facultatieve Technologies FT II SE human cremator. This cremation unit is two-chambered, each chamber powered by a natural gas burner, and has a maximum hourly design rate (MHDR) of 200 pounds per hour (equivalent to 16 cremations per 24 hours). The primary burner has an MHDR of 0.922 MMBtu/hr, and the secondary burner has and MHDR of 1.195 MMBtu/hr. The internal oxygen content within the chambers, and in the flue gas prior to being emitted, is less than or equal to 6 percent (%); this aids in preventing visible emissions/keeping the opacity sufficiently below the 10% requirement. This oxygen regulation is an upstream/preventative control method rather than a downstream/reactive control method. For ash removal after the incineration process is complete, the ashes are hand-raked into a cooling bin, and then the ashes are allowed to cool before removal from the closed system occurs; there is a HEPA filter in place to prevent excess particulate matter from being emitted during the ash removal process. There are no additional control devices in place to reduce emissions from this installation.

On behalf of Dulle-Trimble Funeral Home, Facultatieve Technologies submitted stack test results from two different performance tests in order to demonstrate compliance with the program requirements for human crematory incinerator units. These requirements include that the crematory 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%. These requirements were developed to ensure proper combustion, which ensures destruction of HAPs.

The two performance tests that were submitted to the Missouri Air Pollution Control Program were compiled in order to determine whether or not this incinerator is an approved unit. The tests were also submitted in order to avoid requirements for additional/recurring performance testing. One performance test was done at the Swan Point Crematory in Providence, Rhode Island on February 5<sup>th</sup> and 6<sup>th</sup> of 2015; the other performance test was done at the Cremation Center of Arizona in Phoenix, Arizona on December 16 of 2014. Each test neglected a different one of the three measured parameters, but the Testing and Emissions Unit of Missouri Air Pollution Control Program—through a combined analysis of the two performance tests—concluded that there was sufficient data to qualify this incinerator as an approved unit for future determinations.

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." 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; 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 include 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 factors and control efficiencies used in this analysis were obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition. The emission rates for particulate matter less than ten (10) microns in aerodynamic diameter (PM<sub>10</sub>), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), volatile organic compounds (VOCs), mercury (Hg), dioxins (all dioxin derivatives), and hydrochloric acid (HCl) were calculated using emission factors from the performance tests submitted by Facultatieve Technologies (FT) for this model of incinerator.

Because the emissions provided in the performance tests submitted by FT did not account for *all* potentially emitted HAPs, the emission factors used in the analysis of combined HAPs were 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. Emissions due to the combustion of natural gas in the two burners (0.922 MMBtu/hr and

1.195 MMBtu/hr) are based on continuous operations, and are accounted for in the submitted performance test results. Table 1 lists the emission factors used for each of the pollutants accounted for in the performance test submitted by FT.

Table1: Provided Emission Factors

Pollutant <sup>1</sup>	Emission Factor (lb/hr)	Emission Factor <sup>2</sup> (lb/body)
PM <sub>10</sub>	0.198	0.298
SOx	0.198	0.298
NOx	0.992	1.488
VOC	0.0397	0.0595
CO	0.198	0.298
Mercury (Hg)	0.00992	0.0148
Dioxins	2.0 x 10 <sup>-6</sup>	3.0 x 10 <sup>-6</sup>
Hydrochloric Acid (HCl)	0.397	0.595

<sup>1</sup>Emission factors for pollutants that are not listed in Table 1 were taken from FIRE for SCC 3-15-021-01.

<sup>2</sup>Pounds per body emission factor calculations are based on MHDR of 16 bodies per day cremated.

Table 2 lists the emissions summary of this construction permit application for this new installation. There are no existing potential emissions and no previous emissions inventory questionnaires (EIQ) because this is a new facility that has never been permitted before. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year.) New installation conditioned potential emissions account for the indirect limitations of additional pollutants which are established by the direct mercury emission limitation of 0.01 tons per year (20 pounds per year). The following table provides an emissions summary for this project.

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> / SMAL Levels	Existing Potential Emissions	Existing Actual Emissions (2013 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM <sub>10</sub>	15.0	N/A	N/A	0.77	0.19
SOx	40.0	N/A	N/A	0.77	0.19
NOx	40.0	N/A	N/A	3.87	0.97
VOC	40.0	N/A	N/A	0.15	0.04
CO	100.0	N/A	N/A	0.77	0.19
Combined HAPs	25.0	N/A	N/A	1.60	0.40
<i>*Mercury (Hg)</i>	0.01	N/A	N/A	0.04	< 0.01
<i>*Dioxin</i>	6 x 10 <sup>-7</sup>	N/A	N/A	8.76 x 10 <sup>-7</sup>	2.19 x 10 <sup>-7</sup>
<i>*HCl</i>	10.0	N/A	N/A	1.55	0.39

N/A = Not Applicable

*\*Individual HAPs listed in italics, and the respective SMALs are in column 2.*

## 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 Mercury (Hg) are conditioned below its SMAL, and the dioxins are indirectly conditioned below its SMAL. All other remaining pollutants are below their de minimis levels.

## APPLICABLE REQUIREMENTS

Dulle-Trimble Funeral Home 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 10-3.0906.165

## 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.

---

Jordan Hindman  
New Source Review Unit

---

Date

### PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated December 30, 2014, received December 30, 2014, designating Trimble Funeral Home 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 .



Mr. Kyle Trimble  
Funeral Director  
Dulle-Trimble Funeral Home  
3210 North 10 Mile Drive  
Jefferson City, MO 65109

RE: New Source Review Permit - Project Number: 2014-12-052

Dear Mr. Trimble:

Enclosed with this letter is your permit to construct. Please study it carefully and refer to Appendix A for a list of common abbreviations and acronyms used in the permit. Also, note the special conditions 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 were adversely affected by this permit decision, you may be entitled to pursue an appeal before the administrative hearing commission pursuant to Sections 621.250 and 643.075.6 RSMo. To appeal, you must file a petition with the administrative hearing commission within thirty 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 administrative hearing commission, Administrative Hearing Commission, 573-751-2422, website: [www.oa.mo.gov/ahc](http://www.oa.mo.gov/ahc).

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

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp  
New Source Review Unit Chief

SH:jhl

Enclosures

c: Northeast Regional Office  
PAMS File: 2014-12-052

Permit Number: