



Bureau of Air Quality Registration Permit Crematory Operations

Pursuant to the provisions of the *Pollution Control Act*, Sections 48-1-50(5) and 48-1-110(a), the *1976 Code of Laws of South Carolina*, as amended, and *South Carolina Regulation 61-62, Air Pollution Control Regulations and Standards*, the Bureau of Air Quality authorizes the operation of these sources in accordance with the plans, specifications and other information submitted in the Registration Permit Application for Crematory Operations. All official correspondence, plans, permit applications and written statements are an integral part of the permit. Any false information or misrepresentation in the application for any air quality permit may be grounds for permit revocation.

The operation of these sources is subject to and conditioned upon the terms, limitations, standards, and schedules contained herein or as specified by this permit and its accompanying attachments.

Issue Date: **August 1, 2012**

**Director, Engineering Services Division
Bureau of Air Quality**

Registration Permit for Crematory Operations

RECORD OF REVISIONS	
Revision Date	Description of Change
11/01/2013	Removal of the permit's expiration date; changes to the permit's format and layout; modification of conditions 2.2 and 4.1; and the addition of condition 3.2.
12/11/2015	Modification of condition C.2 and addition of condition C.5. Updated template language and format, and removed conditions 2.2 and 1.7. Condition 2.2 was already one of the criteria and this was just a redundant condition. And condition 1.7 was just a statement that is covered in the statement of basis. Some clarification changes were made to condition C.4.

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A. APPLICABILITY

Condition Number	Condition
A.1	<p>This registration permit applies to human and/or animal crematory operations. A crematory operation may only have the following sources at the facility:</p> <p style="text-align: center;">Crematory Incinerator(s), Processing Station, and Sources specific to the cremation process.</p> <p>The crematory incinerator must be one such that most of the necessary equipment required for cremation is sold in one package. Field assembly should be minimal; the unit should be pre-tested, pre-plumbed, and pre-wired at a factory. The unit shall be of the controlled atmosphere design, consisting of a primary chamber, controls, and burners. The unit may also consist of a secondary chamber and refractory lined stacks. Details of the unit's volumes, dimensions, and other requirements shall be accessible through manufacturer's data, maintenance manuals, and/or operating instructions.</p>
A.2	<p>A facility may operate under the conditions contained herein if it meets the following criteria:</p> <ol style="list-style-type: none"> 1. A newly constructed crematory incinerator must provide a copy of a stack test performed on an identical unit or do a source test on newly constructed crematory. 2. Each crematory incinerator is allowed to use natural gas, propane, diesel, or a Department approved fuel. 3. The combined rated heat input of each crematory incinerator's primary and secondary chambers shall be less than 10 million BTU/hr. 4. The crematory incinerator(s) shall only process human or animal remains and associated materials. The incinerator(s) shall not process Hospital / Medical / Infectious Waste as defined in SC Regulation 61-62.1, Section I including but not limited to: <ol style="list-style-type: none"> a. Human/animal carcasses or bedding that has been exposed to or contaminated with pathogens in research or in the production of pharmaceuticals; b. Sharps; or c. Human/animal remains that were known to have been exposed to infectious agents during research, isolation wastes or any other waste that could be defined as hospital/medical/infectious waste per 40 CFR 60 Subpart Ec and S.C. Regulation 61-62.60, Subpart Ec. 5. A crematory incinerator located at an agricultural facility and used solely for agricultural cremation does not qualify for coverage under this registration permit.
A.3	<p>No crematory operation covered under this permit shall be potentially major for Prevention of Significant Deterioration (PSD), Nonattainment New Source Review (NA NSR), and/or Title V.</p>

B. FACILITY WIDE REQUIREMENTS

Condition Number	Condition
B.2	<p>The owner/operator of a new, modified, or reconstructed crematory incinerator shall submit a copy of a stack test performed on an identical unit to the Director of the Engineering Services Division within 30 days of startup, or the facility may be required to perform a source test of its unit in</p>

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B. FACILITY WIDE REQUIREMENTS

Condition Number	Condition
	accordance with S.C. Regulation 61-62.1, Section IV, "Source Tests."
B.3	Fugitive particulate matter (PM) emissions from material handling or process equipment will be minimized to the maximum extent possible. Fugitive emissions from dust buildup will be controlled by proper housekeeping and/or wet suppression.
B.4	Unless specified elsewhere within this permit, the primary chamber (burner) of each crematory incinerator is permitted to burn only natural gas, propane, and/or diesel as fuel. The use of any other substance as fuel is prohibited without prior written approval from the Bureau of Air Quality.
B.5	Unless specified elsewhere within this permit, the secondary chamber (afterburner) of each crematory incinerator is permitted to burn only natural gas, propane, and/or diesel as fuel and must be operating properly prior to and at all times that human/animal remains are being cremated in the incinerator. The use of any other substance as fuel is prohibited without prior written approval from the Bureau of Air Quality.
B.6	In accordance with S.C. Regulation 61-62.5, Standard No. 3 - Waste Combustion and Reduction, Section III.C, no crematory incinerator shall discharge into the ambient air smoke which exceeds an opacity of 10%.
B.7	In accordance with SC Regulation 61-62.5, Standard No. 4 - Emissions from Process Industries, Section IX - Visible Emissions (Where Not Specified Elsewhere): <ul style="list-style-type: none"> a) Where construction or modification began after December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 20%; or b) Where construction or modification began on or before December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 40%.

C. LIMITATIONS/STANDARDS AND MONITORING

Condition Number	Conditions
C.1	<p>In accordance with S.C. Regulation 61-62.5, Standard No. 3 - Waste Combustion and Reduction, Section VI.C.2, the owner or operator shall record the daily waste charge rates and hours of operation.</p> <p>Each human crematory operation is limited to the following operating limits in order to comply with S.C. Regulation 61-62.5, Standard No. 8. Any increase in the allowable emission rate must be approved by the Department and may require modeling to demonstrate compliance with S.C. Regulation 61-62.5, Standard No. 8.</p> <ul style="list-style-type: none"> i) Incinerator(s) with uncapped stacks: The facility shall not cremate more than 9 bodies (facility wide) per day. ii) Incinerators with capped stacks: The facility shall not cremate more than 2 bodies (facility wide) per day (unless the device is designed to automatically open when the incinerator is operating). <p>The owner/operator shall record the total daily cremation rate and the facility's hours of operation. Each human crematory operation shall record the daily cremation rate in bodies per day. Each animal crematory operation shall record the daily cremation rate in pounds per day. Records of the daily</p>

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C. LIMITATIONS/STANDARDS AND MONITORING

Condition Number	Conditions
	cremation rate and the facility's hours of operation shall be maintained on site in written or electronic logs.
C.2	<p>In accordance with S.C. Regulation 61-62.5, Standard 3 - Waste Combustion and Reduction, Section IX.C, all incinerator operators shall be trained as to proper operating practices and procedures of the incinerator. An incinerator operating training program should include but is not limited to:</p> <ol style="list-style-type: none"> 1. A summary of the applicable standards under this Standard; 2. A description of basic combustion theory applicable to an incinerator; 3. Procedures for receiving, handling, and feeding waste as appropriate; 4. Incinerator startup, shutdown, and malfunction procedures; 5. Procedures for maintaining proper combustion air supply levels; 6. Procedures for operating the incinerator within the standards established under this Standard; 7. Procedures for responding to periodic upset or off-specification conditions; 8. Procedures for minimizing particulate matter carryover; 9. Procedures for handling ash; 10. Procedures for monitoring incinerator emissions; and 11. Reporting and recordkeeping procedures outside of maintenance and malfunctions. <p>Manufacturer's training and certification may be accepted if it matches the requirements stated above.</p> <p>The owner/operator of each crematory operation shall:</p> <ol style="list-style-type: none"> 1. Maintain a copy of its training program and supporting documentation on site. 2. Develop a best management operating plan and maintain a copy on site. This plan shall include, at a minimum, the following information: <ol style="list-style-type: none"> a. A maintenance schedule for the incinerator and maintenance records maintained on site. b. A fugitive particulate matter (dust) control procedure for the processing station. c. Corrective actions for greater than normal visible emissions (smoke). d. A procedure for large remains based upon manufacturer specification or operational history with approval from the Department. e. If applicable, a maintenance schedule shall be developed for the pollution monitoring system with records of all maintenance and malfunctions shall be maintained on site. 3. Submit any change to the Operator Training Manual to the Engineering Services Division within 30 days of the change.
C.3	<p>In accordance with S.C. Regulation 61-62.5, Standard No. 3, Section IX all incinerator operators shall be trained based on criteria contained in S.C. Regulation 61-62.5, Standard No. 3, Section IX.C as to proper operating practices and procedures of the incinerator.</p> <p>For any new, reconstructed, modified, or replacement crematory incinerator, the content of the training program, in addition to a list of trained personnel, shall be submitted within 30 days of startup. The incinerator shall not be operated without a trained operator on site, who has a certificate verifying satisfactory completion of the training program.</p>
C.4	The owner/operator shall install, operate, and maintain primary chamber (burner) and/or secondary

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C. LIMITATIONS/STANDARDS AND MONITORING

Condition Number	Conditions
	<p>chamber (afterburner) temperature indicators on the incinerator. All temperature indicators shall be readily accessible for verification by operating personnel and Department personnel (i.e., on ground level or easily accessible roof level).</p> <p>Temperature readings shall be recorded hourly during source operation. Maintenance checks for proper temperature indicator operation shall be conducted in accordance with manufacturer's specifications at least once annually. Records of monitoring data (Temperature) and Maintenance checks, including corrective actions shall be maintained on site in written or electronic logs.</p> <p>Operational ranges for the monitored parameters shall be established to provide a reasonable assurance of compliance. These operational ranges for the monitored parameters shall be derived from stack test data, vendor certification, and/or operational history and visual inspections, which demonstrate the proper operation of the equipment in compliance. Operational ranges shall be made available for triggering corrective actions and assuring proper operation in accordance with manufacturer's specifications. These ranges, with supporting documentation and quality assurance procedures, shall be maintained on site. Any updates to the operating ranges shall be maintained on site.</p>
C.5	<p>Within thirty (30) minutes of start-up of unit for processing each case, stack emissions shall be visually checked for any greater than normal visible emissions. If abnormal visible emissions are observed from the stack, implementation of the best management operating plan shall be executed.</p> <p>The owner/operator shall record the results of each inspection along with any corrective actions taken. These records shall be maintained on site in written or electronic logs for at least five (5) years.</p>

D. RECORD KEEPING

Condition Number	Conditions
D.1	<p>(S.C. Regulation 61-62.1, Section II.J.1.g) A copy of the Department issued construction and/or operating permit must be kept readily available at the facility at all times. The owner or operator shall maintain such operational records; make reports; install, use, and maintain monitoring equipment or methods; sample and analyze emissions or discharges in accordance with prescribed methods at locations, intervals, and procedures as the Department shall prescribe; and provide such other information as the Department reasonably may require. All records required to demonstrate compliance with the limits established under this permit shall be maintained on site for a period of at least 5 years from the date the record was generated and shall be made available to a Department representative upon request.</p>
D.2	<p>The owner/operator shall record the make, model, source of material to be cremated, installation date, fuel(s) combusted, rated waste capacity, and total rated heat input capacity of any incinerator installed to replace a crematory incinerator. Records for the installation of the replacement crematory incinerator shall be maintained on site in written or electronic logs. The replacement cremation unit</p>

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D. RECORD KEEPING

Condition Number	Conditions
	<p>must meet the following criteria:</p> <ol style="list-style-type: none"> 1. The unit will not result in any emissions that will exceed any limit in this permit. 2. The unit does not trigger a new regulation or regulatory requirement. 3. The unit does not result in a change in a permit term, condition, or limit. 4. The unit does not result in a new permit term, condition, or limit.
D.3	<p>(S.C. Regulation 61-62.1, Section II.J) For sources not required to have continuous emissions monitors, any malfunction of air pollution control equipment or system, process upset or other equipment failure which results in discharges of air contaminants lasting for one hour or more and which are greater than those discharges described for normal operation in the permit application shall be reported to the Department's local Environmental Quality Control Regional office within 24 hours after the beginning of the occurrence. The contact information for the local EQC Regional office can be found at http://www.scdhec.gov.</p> <p>The owner or operator shall also submit a written report within 30 days of the occurrence. This report shall be submitted to the Manager of the Technical Management Section, Bureau of Air Quality and shall include, at a minimum, the following:</p> <ol style="list-style-type: none"> 1. The identity of the stack and/or emission point where the excess emissions occurred; 2. The magnitude of excess emissions expressed in the units of the applicable emission limitation and the operating data and calculations used in determining the excess emissions; 3. The time and duration of excess emissions; 4. The identity of the equipment causing the excess emissions; 5. The nature and cause of such excess emissions; 6. The steps taken to remedy the malfunction and the steps taken or planned to prevent the recurrence of such malfunction; 7. The steps taken to limit the excess emissions; and, 8. Documentation that the air pollution control equipment, process equipment, or processes were at all times maintained and operated, to the maximum extent practicable, in a manner consistent with good practice for minimizing emissions.

E. GENERAL REQUIREMENTS

Condition Number	Condition
E.1	Any revisions to this registration permit will supersede any existing versions of this registration permit. The Department reserves the right to revise this registration permit as deemed necessary.
E.2	This permit may be reopened by the Department for cause or to include any new standard or regulation which becomes applicable to a source during the life of the permit. This permit may be modified by the Department for cause, to include any applicable requirement or to add or alter a permit's expiration date.
E.3	This permit only covers equipment while physically present at the indicated facility. Unless the permit specifically provides for the equipment relocation, this permit is void for an item of equipment on the day it is removed from the permitted facility.

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E. GENERAL REQUIREMENTS

Condition Number	Condition
E.4	The permittee shall pay permit fees to the Department in accordance with the requirements of S.C. Regulation 61-30, Environmental Protection Fees.
E.5	<p>In the event of an emergency, as defined in S.C. Regulation 61-62.1, Section II.L, the owner or operator shall demonstrate the affirmative defense of an emergency through properly signed, contemporaneous operating logs, and other relevant evidence that verify:</p> <ol style="list-style-type: none"> 1. An emergency occurred, and the owner or operator can identify the cause(s) of the emergency; 2. The permitted source was at the time the emergency occurred being properly operated; 3. During the period of the emergency, the owner or operator took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and 4. The owner or operator gave a verbal notification of the emergency to the Department within 24 hours of the time when emission limitations were exceeded, followed by a written report within 30 days. The written report shall include, at a minimum, the information required by S.C. Regulation 61-62.1, Section II.J.1.c.i through viii. The written report shall contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken. <p>In any enforcement action, the owner or operator seeking to establish the occurrence of an emergency has the burden of proof. This provision is in addition to any emergency, or upset provision contained in any applicable requirement.</p>
E.6	<p>(S.C. Regulation 61-62.1, Section II.O) Upon presentation of credentials and other documents as may be required by law, the owner or operator shall allow the Department or an authorized representative to perform the following:</p> <ol style="list-style-type: none"> 1. Enter the facility where emissions-related activity is conducted, or where records must be kept under the conditions of the permit. 2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit. 3. Inspect any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit. 4. As authorized by the Federal Clean Air Act and/or the S.C. Pollution Control Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit or applicable requirements.
E.7	The owner or operator shall comply with S.C. Regulation 61-62.2 "Prohibition of Open Burning."
E.8	The owner or operator shall comply with S.C. Regulation 61-62.3 "Air Pollution Episodes."
E.9	The owner or operator shall comply with S.C. Regulation 61-62.4 "Hazardous Air Pollution Conditions."