

MISSOURI
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: **07 2 0 1 7 - 0 1 2**

Project Number: 2017-03-064
Installation Number: 077-0191

Parent Company: Precious Pets Crematory

Parent Company Address: 8073 W Farm Rd 168, Republic, MO 65738

Installation Name: Precious Pets Crematory #2

Installation Address: 8073 W Farm Road 168, Republic, MO 65738

Location Information: Greene County, S9, T28N, R23W

Application for Authority to Construct was made for:

Installation of a Diesel Eco-Concepts 250 burner for small pet cremations. 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.

Hans Robinson

Prepared by
Hans Robinson
New Source Review Unit

Kyra L. Moore

Director or Designee
Department of Natural Resources

JUL 20 2017

Effective Date

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 Enforcement and Compliance Section of 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 Enforcement and Compliance Section of 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 within 30 days of actual startup. Also, you must notify the Department's 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 the permit application and this permit and permit review shall be kept at the installation address and shall be made available to Department's 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 using the contact information below.

Contact Information:

Missouri Department of Natural Resources
Air Pollution Control Program
P.O. Box 176
Jefferson City, MO 65102-0176
(573) 751-4817

The regional office information can be found at the following website:
<http://dnr.mo.gov/regions/>

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."

Precious Pets Crematory #2
Greene County, S9, T28N, R23W

1. Process Requirements for the Animal Crematory
 - A. Precious Pets Crematory #2 shall burn exclusively non-infectious animal bodies or body parts (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) and containers not containing chlorine.
 - B. Charging of waste during burn cycles is prohibited.
 - C. The crematory shall be equipped with a continuous graph or chart recorder that monitors, displays and records the temperature in the final combustion chamber with an accuracy of two percent ($\pm 2\%$).
 - D. Precious Pets Crematory #2 shall maintain the temperature in the final combustion chamber at or above 1100 degrees Fahrenheit.
 - E. Precious Pets Crematory #2 ECO-250 animal incinerator shall be equipped with an afterburner.
 - F. Remains shall be incinerated at a rate not exceeding 100.0 lbs/hour from the ECO-250 incinerator.
 - G. Batch weight shall not exceed 250 lbs for the ECO-250 Incinerator.
 - H. Precious Pets Crematory #2 shall maintain an accurate record of the number of cremation and the total mass of remains cremated at this installation per month.
 - I. Attachment A or equivalent forms, such as electronic forms, approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Condition 1.F, 1.G, and 1.H.
2. Opacity
The ECO-250 incinerator emissions shall have opacity of less than ten percent (10%) at all times.

SPECIAL CONDITIONS:

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

3. **Requirements for Operators of the Animal Crematory**
 - 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.
4. **Fuel Requirement-Incinerator**
 - A. Precious Pets Crematory #2 shall fuel their ECO-250 incinerator exclusively ultra-low sulfur diesel fuel with a sulfur content less than or equal to 0.0015% by weight (15 parts per million by weight).
 - B. Precious Pets Crematory #2 shall demonstrate compliance with Special Condition 4.A by obtaining records of the fuel's sulfur content from the vendor for each shipment of fuel received or by testing each shipment of fuel for the sulfur content in accordance with the method described in 10 CSR 10-6.040 *Reference Methods*.
5. **Restriction of Emission of Odors**
 - A. If a continued situation of verified nuisance odors exists in violation of 10 CSR 10-3.090, the Director may require through written notice that Precious Pets Crematory #2 submit, within ten days, a corrective action plan adequate to timely and significantly mitigate the odors. Precious Pets Crematory #2 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. **Record Keeping and Reporting Requirements**
 - A. Precious Pets Crematory #2 shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request.
 - B. Precious Pets Crematory #2 shall report to the Air Pollution Control Program's Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than 10 days after the end of the month during which any record required by this permit shows an exceedance of a limitation imposed by this permit.

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

Project Number: 2017-03-064
Installation ID Number: 077-0191
Permit Number: 07 2 0 1 7 - 0 1 2

Installation Address:

Precious Pets Crematory #2
8073 W Farm Road 168
Republic, MO 65738

Parent Company:

Precious Pets Crematory
8073 W Farm Rd 168
Republic, MO 65738

Greene County, S9, T28N, R23W

REVIEW SUMMARY

- Precious Pets Crematory #2 has applied for authority Installation of a Diesel Eco-Concepts 250 burner for small pet cremations.
- The application was deemed complete on 3/22/2017.
- HAP emissions are expected from the proposed equipment. HAPs of concern from this process are products of the combustion of diesel fuel and animal remains.
- None of the New Source Performance Standards (NSPS) apply to the installation.
- None of the NESHAPs apply to this installation. None of the currently promulgated MACT regulations apply to the proposed equipment.
- An afterburner 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 all pollutants are below de minimis levels.
- This installation is located in Greene 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 below de minimis levels.

- Emissions testing is no required for the equipment as a part of this permit.
- No Operating Permit is required for this installation.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Precious Pets Crematory is currently permitted to operate a SuperNova Model SN1000 Incinerator at 7523 West Farm Road 170. That incinerator is operated at Stringer Animal Clinic (roughly a mile away from 8073 W Farm Road 168). The ECO Concepts ECO-250 incinerator that will be installed as a part of this permit is being permitted as a as a separate installation from the Stringer Animal Clinic site. However, the Missouri Department of Natural Resources did not deem it necessary to officially determine whether both installations should be considered one installation. Since the total emissions from both incinerators will be less than de minimis, considering both incinerators as one installation does not affect the way the ECO-250 incinerator will be permitted.

No permits have been issued to Precious Pets Crematory #2 from the Air Pollution Control Program.

PROJECT DESCRIPTION

Precious Pets Crematory #2 is installing a new diesel fueled ECO Concepts ECO-250 animal incinerator. The manufacture designated maximum hourly design rate of the incinerator is 100 pounds per hour of animal weight. The main burner has a burner rating of 0.280 MMBtu/hr (1.022 gal/hour) and the afterburner has a burner rating of 0.240 MMBtu/hr (0.876 gallons/hour. Therefore the combined maximum burner rate is 0.520 MMBtu/hr (1.898 gallons/hour) of diesel fuel. The incinerator is equipped with an afterburner which helps control emissions from the cremation process. There will also be a 150 gallon diesel fuel drum that will be located near the incinerator.

Stack test requirements include that a 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.

The crematory is permitted to cremate non-infectious animal bodies and body parts, equivalent in regulation to cremating non-infectious human bodies and body parts. The Air Pollution Control Program's definition of this term is animal 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 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.
- (8) Infectious and non-infectious human bodies and body parts are not permitted to be cremated in this incinerator.

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, FIRE, and stack testing data. The emission rates for particulate matter less than ten (10) microns in aerodynamic diameter (PM₁₀) and carbon monoxide (CO) used in this review were obtained from a stack test performed on a similar incinerator (see first paragraph of the project description for stack test details). Emissions of SO_x compounds were calculated using the emission factors from AP-42 Table 1.3-1 (diesel fuel combustion) and Table 2.3-1 (uncontrolled SO₂ emissions from medical waste incineration). Nitrogen oxide (NO_x) and volatile organic compound (VOC) emissions were calculated using an emission factor from FIRE SCC 5-02-001-01. The emission factors used in the analysis of HAP emissions 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.

The following table provides an emissions summary for this project. Since the ECO Concepts ECO-250 animal incinerator, diesel fuel tank, and haul road (short driveway) will be the only emission point at the location, existing potential emissions and existing actual emissions were not evaluated. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year).

Table 2: Emissions Summary (tpy)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions	Potential Emissions of the Project	New Installation Conditioned Potential
PM	25.0	N/A	N/A	0.019	N/A
PM10	15.0	N/A	N/A	0.019	N/A
PM2.5	10.0	N/A	N/A	0.019	N/A
SO _x	40.0	N/A	N/A	0.477	N/A
NO _x	40.0	N/A	N/A	0.657	N/A
VOC	40.0	N/A	N/A	0.657	N/A
CO	40.0	N/A	N/A	0.090	N/A
HAPs	10.0/25.0	N/A	N/A	0.213	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*. Potential emissions of all pollutants are below de minimis levels.

APPLICABLE REQUIREMENTS

Precious Pets Crematory #2 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.

GENERAL REQUIREMENTS

- *Start-Up, Shutdown, and Malfunction Conditions*, 10 CSR 10-6.050
- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
 - Per 10 CSR 10-6.110(4)(B)2.B(II) and (4)(B)2.C(II) a full EIQ is required for the first full calendar year the equipment (or modifications) approved by this permit are in operation.
- *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

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400
- *Control of Sulfur Dioxide Emissions*, 10 CSR 10-6.261
- *Restriction of Particulate Matter Emissions From Fuel Burning Equipment Used for Indirect Heating*, 10 CSR 10-6.405

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*, it is recommended that this permit be granted with special conditions.

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated 3/16/2017, received 3/17/2017, designating Precious Pets Crematory as the owner and operator of the installation.

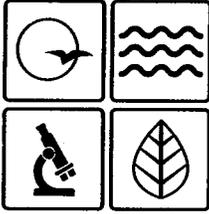
OTHER RELIED UPON DOCUMENTS

- Incinerator Specifications sheet for the ECO-250F obtained from the ECO Concepts website (www.ecoconcepts.org)
- *Engineering Test Report At Eco Concepts* stack test data supplied by the company Eco Concepts. The report was prepared by Advanced Industrial resources, Inc.

APPENDIX A

Abbreviations and Acronyms

%	percent	Mgal	1,000 gallons
°F	degrees Fahrenheit	MW	megawatt
acfm	actual cubic feet per minute	MHDR	maximum hourly design rate
BACT	Best Available Control Technology	MMBtu	Million British thermal units
BMPs	Best Management Practices	MMCF	million cubic feet
Btu	British thermal unit	MSDS	Material Safety Data Sheet
CAM	Compliance Assurance Monitoring	NAAQS	National Ambient Air Quality Standards
CAS	Chemical Abstracts Service	NESHAPs	National Emissions Standards for Hazardous Air Pollutants
CEMS	Continuous Emission Monitor System	NO_x	nitrogen oxides
CFR	Code of Federal Regulations	NSPS	New Source Performance Standards
CO	carbon monoxide	NSR	New Source Review
CO₂	carbon dioxide	PM	particulate matter
CO_{2e}	carbon dioxide equivalent	PM_{2.5}	particulate matter less than 2.5 microns in aerodynamic diameter
COMS	Continuous Opacity Monitoring System	PM₁₀	particulate matter less than 10 microns in aerodynamic diameter
CSR	Code of State Regulations	ppm	parts per million
dscf	dry standard cubic feet	PSD	Prevention of Significant Deterioration
EIQ	Emission Inventory Questionnaire	PTE	potential to emit
EP	Emission Point	RACT	Reasonable Available Control Technology
EPA	Environmental Protection Agency	RAL	Risk Assessment Level
EU	Emission Unit	SCC	Source Classification Code
fps	feet per second	scfm	standard cubic feet per minute
ft	feet	SDS	Safety Data Sheet
GACT	Generally Available Control Technology	SIC	Standard Industrial Classification
GHG	Greenhouse Gas	SIP	State Implementation Plan
gpm	gallons per minute	SMAL	Screening Model Action Levels
gr	grains	SO_x	sulfur oxides
GWP	Global Warming Potential	SO₂	sulfur dioxide
HAP	Hazardous Air Pollutant	tph	tons per hour
hr	hour	tpy	tons per year
hp	horsepower	VMT	vehicle miles traveled
lb	pound	VOC	Volatile Organic Compound
lbs/hr	pounds per hour		
MACT	Maximum Achievable Control Technology		
µg/m³	micrograms per cubic meter		
m/s	meters per second		



Missouri Department of dnr.mo.gov

NATURAL RESOURCES

Eric R. Greitens, Governor

Carol S. Comer, Director

JUL 20 2017

Mr. Cy Stringer
Owner
Precious Pets Crematory #2
8073 W Farm Rd 168
Republic, MO 65738

RE: New Source Review Permit - Project Number: 2017-03-064

Dear Mr. Stringer:

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 and your new source review permit application 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.

This permit may include requirements with which you may not be familiar. If you would like the department to meet with you to discuss how to understand and satisfy the requirements contained in this permit, an appointment referred to as a Compliance Assistance Visit (CAV) can be set up with you. To request a CAV, please contact your local regional office or fill out an online request. The regional office contact information can be found at the following website: <http://dnr.mo.gov/regions/>. The online CAV request can be found at <http://dnr.mo.gov/cav/compliance.htm>.

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, whose contact information is: Administrative Hearing Commission, United States Post Office Building, 131 West High Street, Third Floor, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422, fax: 573-751-5018, website: www.oa.mo.gov/ahc.



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Mr. Cy Stringer
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If you have any questions regarding this permit, please do not hesitate to contact Hans Robinson at the Department of Natural Resources' 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:hrj

Enclosures

c: Southwest Regional Office
PAMS File: 2017-03-064

Permit Number: **07 2017 - 012**