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: 032017-016  Project Number: 2017-01-069
Installation Number: 053-0036

Parent Company: Angel Paws Crematory
Parent Company Address: P.O. Box 107, Columbia, MO 65205
Installation Name: Angel Paws Crematory
Installation Address: 24687 Highway 179, Booneville, MO 65233
Location Information: Cooper County, S7, T48N, R15W

Application for Authority to Construct was made for:
The installation of a new diesel fueled R & K Model 37-1 Burn Easy incinerator for the purpose of cremating animals. 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.

Prepared by
Hans Robinson
New Source Review Unit

Director or Designee
Department of Natural Resources
MAR 30 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 startup 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 startup 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."

Angel Paws Crematory
Cooper County, S7, T48N, R15W

1. Process Requirements for the Animal Crematory
   A. Angel Paws Crematory will 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 between 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 (±2%).

   D. Angel Paws Crematory shall maintain the temperature in the final combustion chamber at or above 1300 degrees Fahrenheit.

   E. Angel Paws Crematory's animal crematory shall be equipped with an afterburner.

   F. Remains shall be incinerated at a rate not exceeding 100.0 lbs/hour from the R&K Burn Easy Model 37-1 Incinerator.

   G. Batch weight shall not exceed 500 lbs for the R&K Burn Easy Model 37-1 Incinerator.

   H. Angel Paws Crematory 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 Model 37-1 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. Angel Paws Crematory shall burn exclusively ultra-low sulfur diesel fuel in
their Model 37-1 incinerator with a sulfur content less than or equal to
0.0015% by weight (15 parts per million by weight).

   B. Angel Paws Crematory 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

   C. Angel Paws Crematory shall keep the records required by Special
Condition 4.B with the unit and make them available for Department of
Natural Resources' employees upon request.

5. Restriction of Emission of Odors
   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 Angel Paws
Crematory submit, within ten days, a corrective action plan adequate to timely
and significantly mitigate the odors. Angel Paws Crematory shall implement any
such plan immediately upon its approval by the Director. Failure to either submit
or implement such a plan shall be in violation of this permit.

6. Record Keeping and Reporting Requirements
   A. Angel Paws Crematory shall maintain all records required by this permit
for not less than five (5) years and shall make them available immediately
to any Missouri Department of Natural Resources' personnel upon
request.
SPECIAL CONDITIONS:
The permittee is authorized to construct and operate subject to the following special conditions:

B. Angel Paws Crematory shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten days after the end of the month during which any record required by this permit show an exceedance of a limitation imposed by this permit.
Installation Address: Angel Paws Crematory  
24687 Highway 179  
Booneville, MO 65233

Parent Company: Angel Paws Crematory  
P.O. Box 107  
Columbia, MO 65205

Cooper County, S7, T48N, R15W

REVIEW SUMMARY

• Angel Paws Crematory has applied for authority to construct a new diesel fueled R & K Model 37-1 Burn Easy incinerator for the purpose of cremating animals. Currently the site operates a single propane fueled R & K Model 36 Burn Easy incinerator.

• The application was deemed complete on 2/8/2017.

• 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 Cooper 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 not 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

Angel Paws Crematory is an existing installation which currently operates a single propane fueled R & K Model 36 Burn Easy animal incinerator. With the issuance of this permit, the facility will also operate a new diesel fueled R & K Model 37-1 Burn Easy incinerator alongside the existing incinerator. As with the previous incinerator, the new incinerator will be a de minimis source. No operating permit has been issued for this facility. Angel Paws Crematory will be located in Boonville, Missouri.

The following New Source Review permits have been issued to Angel Paws Crematory from the Air Pollution Control Program.

<table>
<thead>
<tr>
<th>Permit Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>072011-007</td>
<td>Installation of a propane fueled R &amp; K Model 36 Burn Easy animal incinerator</td>
</tr>
</tbody>
</table>

PROJECT DESCRIPTION

Angel Paws Crematory is installing a new diesel fueled R & K Model 37-1 Burn Easy animal incinerator. The manufacture maximum hourly design rate of the incinerator is 100 pounds per hour of animal weight. The main burner has a burner rating of 0.195 MMBtu/hr (1.50 gallons/hour) and the afterburner has a burner rating of 0.156 MMBTU per hour (1.20 gallons/hour). Therefore the combined maximum burner rate is 0.351 MMBtu/hr (2.70 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 500 gallon drum diesel fuel that will be located near the incinerators. Stack testing performed on an R & K Model 36 Burn Easy Incinerator on December 1, 1998 was previously submitted to the Air Pollution Control Program and also used for Construction Permits 072011-007, 012010-014, and 052013-013. The R & K Model 37-1 Burn-Easy will be able to combust 100 lbs/hour compared the R & K Model 36 Burn-Easy incineration rate of 75 lbs/hour. Thus emissions were reevaluated using the model 36 emission factors at 100 lbs/hour. The resulting emission calculations are based on the assumption that the Model 37-1 is about 1 foot longer than the Model 36 and can therefore operate with an additional 25 lb/hour capacity (all other design specifications being the same).

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 biologics 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 (PM$_{10}$) 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 SO$_2$ 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. Existing potential emissions and EIQ information are not available since this is a new installation. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year).
Table 2: Emissions Summary (tpy)

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Regulatory De Minimis Levels</th>
<th>Existing Potential Emissions</th>
<th>Existing Actual Emissions</th>
<th>Potential Emissions of the Project</th>
<th>New Installation Conditioned Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM</td>
<td>25.0</td>
<td>0.075</td>
<td>N/A</td>
<td>0.143</td>
<td>0.218</td>
</tr>
<tr>
<td>PM10</td>
<td>15.0</td>
<td>0.075</td>
<td>N/A</td>
<td>0.143</td>
<td>0.218</td>
</tr>
<tr>
<td>PM2.5</td>
<td>10.0</td>
<td>0.075</td>
<td>N/A</td>
<td>0.143</td>
<td>0.218</td>
</tr>
<tr>
<td>SOx</td>
<td>40.0</td>
<td>0.920</td>
<td>N/A</td>
<td>0.478</td>
<td>1.398</td>
</tr>
<tr>
<td>NOx</td>
<td>40.0</td>
<td>0.490</td>
<td>N/A</td>
<td>0.657</td>
<td>1.147</td>
</tr>
<tr>
<td>VOC</td>
<td>40.0</td>
<td>0.490</td>
<td>N/A</td>
<td>0.657</td>
<td>1.147</td>
</tr>
<tr>
<td>CO</td>
<td>40.0</td>
<td>0.026</td>
<td>N/A</td>
<td>0.035</td>
<td>0.061</td>
</tr>
<tr>
<td>HAPs</td>
<td>10.0/25.0</td>
<td>0.160</td>
<td>N/A</td>
<td>0.213</td>
<td>0.373</td>
</tr>
</tbody>
</table>

N/A = Not Applicable

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

Angel Paws Crematory shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved.

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)(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 1/26/2017, received 1/27/2017, designating Angel Paws Crematory as the owner and operator of the installation.
Attachment A – Incineration Rate Compliance Worksheet

Angel Paws Crematory
Cooper County, S7, T48N, R15W
Project Number: 2017-01-069
Installation ID Number: 053-0036
Permit Number: 032017-016

This sheet covers the period from _______ to _______.

<table>
<thead>
<tr>
<th>(a) Date</th>
<th>(b) Batch Weight (pounds)</th>
<th>(c) Incineration Time (minutes)</th>
<th>(d) Incineration Rate (pounds per hour)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EX: 04/03/16</td>
<td>400.0</td>
<td>360</td>
<td>66.7</td>
</tr>
</tbody>
</table>

a) Record the Date
b) Record the total batch weight (lbs). A value less than 500.0 pounds implies compliance with Special Condition 1.G.
c) Record the incineration time in minutes
d) Calculate using the following equation: (d) = 60*(b)/(c). A value less than 100.0 pounds implies compliance with Special Condition 1.F.
APPENDIX A

Abbreviations and Acronyms

% ............ percent
°F ............ degrees Fahrenheit
acfm .......... actual cubic feet per minute
BACT ...... Best Available Control Technology
BMPs ...... Best Management Practices
Btu .......... British thermal unit
CAM ...... Compliance Assurance Monitoring
CAS .......... Chemical Abstracts Service
CEMS ...... Continuous Emission Monitor System
CFR .......... Code of Federal Regulations
CO .......... carbon monoxide
CO₂ .......... carbon dioxide
CO₂e ........ carbon dioxide equivalent
COMS ...... Continuous Opacity Monitoring System
CSR .......... Code of State Regulations
dscf .......... dry standard cubic feet
EIQ .......... Emission Inventory Questionnaire
EP .......... Emission Point
EPA .......... Environmental Protection Agency
EU .......... Emission Unit
fps .......... feet per second
ft .......... feet
GACT ...... Generally Available Control Technology
GHG ........ Greenhouse Gas
gpm .......... gallons per minute
gr .......... grains
GWP ...... Global Warming Potential
HAP .......... Hazardous Air Pollutant
hr .......... hour
hp .......... horsepower
lb .......... pound
lbs/hr ...... pounds per hour
MACT ...... Maximum Achievable Control Technology
µg/m³ ...... micrograms per cubic meter
m/s ............. meters per second
Mgal ........ 1,000 gallons
MW .......... megawatt
MHDR ...... maximum hourly design rate
MMBtu .... Million British thermal units
MMCF ..... million cubic feet
MSDS ...... Material Safety Data Sheet
NAAQS .... National Ambient Air Quality Standards
NESHAPs National Emissions Standards for Hazardous Air Pollutants
NOₓ .......... nitrogen oxides
NSPS ...... New Source Performance Standards
NSR .......... New Source Review
PM .......... particulate matter
PM_{2.5} .... particulate matter less than 2.5 microns in aerodynamic diameter
PM_{10} .... particulate matter less than 10 microns in aerodynamic diameter
ppm .......... parts per million
PSD .......... Prevention of Significant Deterioration
PTE .......... potential to emit
RACT ...... Reasonable Available Control Technology
RAL .......... Risk Assessment Level
SCC .......... Source Classification Code
scfm .......... standard cubic feet per minute
SDS .......... Safety Data Sheet
SIC .......... Standard Industrial Classification
SIP .......... State Implementation Plan
SMAL ...... Screening Model Action Levels
SOₓ .......... sulfur oxides
SO₂ .......... sulfur dioxide
tph .......... tons per hour
tpy .......... tons per year
VMT ...... vehicle miles traveled
VOC .......... Volatile Organic Compound
Emissions Calculation Worksheet

2017-01-069 Angel Paws Crematory

PTE SUMMARY

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>lb/hr</th>
<th>tpy</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM2.5</td>
<td>0.0327</td>
<td>0.1431</td>
</tr>
<tr>
<td>PM10</td>
<td>0.0327</td>
<td>0.1431</td>
</tr>
<tr>
<td>CO</td>
<td>0.0080</td>
<td>0.0360</td>
</tr>
<tr>
<td>SOx</td>
<td>0.1091</td>
<td>0.4778</td>
</tr>
<tr>
<td>NOx</td>
<td>0.1500</td>
<td>0.6570</td>
</tr>
<tr>
<td>VOC</td>
<td>0.1500</td>
<td>0.6570</td>
</tr>
<tr>
<td>*HAP</td>
<td></td>
<td>0.2129</td>
</tr>
</tbody>
</table>

PM10 and CO emission rates from Model 36 stack test. It was assumed that all PM10 to be PM2.5

NOx & CO emissions are from webFIRE SCC 5-02-001-01 (multi chamber incinerators)

HAPs from webFIRE SCC 3-15-02-01 (Healthcare crematory stacks)

*speciated emission factors and emission rates on next page

HAP calculations on next page DO NOT include Mercury because small animals will not have any Mercury emissions

SOx emissions sum of uncontrolled SO2 emissions medical waste incineration and diesel fuel combustion

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>lb/1000 gal</th>
<th>Firing Rate</th>
<th>Emission</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOx</td>
<td>0.216</td>
<td>2.7</td>
<td>0.00058</td>
</tr>
</tbody>
</table>

*SOx emissions AP-42 Table 1.3-1 (diesel fuel)

<table>
<thead>
<tr>
<th>SOx</th>
<th>lb SO2/ton incinerated</th>
<th>lbs/hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOx</td>
<td>2.17</td>
<td>0.10850</td>
</tr>
</tbody>
</table>

*SOx emissions AP-42 Table 2.3-1 (uncontrolled SO2 emissions medical waste incineration and diesel fuel combustion)

<table>
<thead>
<tr>
<th>Model 36 Incinerator</th>
<th>EF (lb/ton waste)</th>
<th>Cremony MHD (tons/hour)</th>
<th>Emission (lbs/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOx</td>
<td>3.00</td>
<td>0.05</td>
<td>0.15</td>
</tr>
<tr>
<td>VOC</td>
<td>3.00</td>
<td>0.95</td>
<td>0.15</td>
</tr>
</tbody>
</table>

PM10, PM2.5, and CO EF are based on stack test emission rates.

STACK TESTING SUMMARY

<table>
<thead>
<tr>
<th></th>
<th>avg lb/hr</th>
<th>avg tpy</th>
</tr>
</thead>
<tbody>
<tr>
<td>lb/hr</td>
<td>0.006</td>
<td>0.0253</td>
</tr>
<tr>
<td>lb/hr</td>
<td>0.0245</td>
<td>0.1073</td>
</tr>
</tbody>
</table>

*Stack data (12-2-98) provided by then applicant, for 75 lbs/hour incineration rate

Burner MHDRI 1.35 gal/hr nozzle lbs (incinerator and after-burner) x 2 x 137,000 BTU/gal / 1,000,000 =

(Below is diesel Sulfur emissions calculations from ultra-low sulfur fuel)

142S + 2S =144S (Table 1.3-1)

S= weight % of sulfur in ultra low diesel = .0015 (15 ppm)

144*.0015 = 0.216 lb/10^3 gallon

0.3699 MMBtu/hr

(Model 37-1, in comparison, has a 5% lower
0.351 MMBtu/hr)
<table>
<thead>
<tr>
<th>CAS</th>
<th>POLLUTANT</th>
<th>FACTOR</th>
<th>SMAL</th>
<th>PTE(tery) @ pollutant lb/body burned</th>
<th>PTE(tery) @ MHDR of R&amp;K Model 36</th>
</tr>
</thead>
<tbody>
<tr>
<td>83-32-9</td>
<td>Acenaphthene</td>
<td>1.11E-07</td>
<td>0.01</td>
<td>4.86E-07</td>
<td>3.24E-07</td>
</tr>
<tr>
<td>208-96-8</td>
<td>Acenaphthylene</td>
<td>1.22E-07</td>
<td>0.01</td>
<td>5.34E-07</td>
<td>3.56E-07</td>
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<tr>
<td>120-12-7</td>
<td>Anthracene</td>
<td>3.24E-07</td>
<td>0.01</td>
<td>1.42E-06</td>
<td>9.46E-07</td>
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<tr>
<td>7440-36-0</td>
<td>Antimony</td>
<td>3.02E-05</td>
<td>5</td>
<td>1.32E-04</td>
<td>8.82E-05</td>
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<tr>
<td>7440-38-2</td>
<td>Arsenic</td>
<td>3.00E-05</td>
<td>0.005</td>
<td>1.31E-04</td>
<td>8.76E-05</td>
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<tr>
<td>56-55-3</td>
<td>Benzo (a) anthracene</td>
<td>9.76E-09</td>
<td>0.01</td>
<td>4.27E-08</td>
<td>2.85E-08</td>
</tr>
<tr>
<td>50-32-8</td>
<td>Benzo (a) pyrene</td>
<td>2.91E-08</td>
<td>0.01</td>
<td>1.27E-07</td>
<td>8.50E-08</td>
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<tr>
<td>205-99-2</td>
<td>Benzo (b) fluoranthene</td>
<td>1.59E-08</td>
<td>0.01</td>
<td>6.96E-08</td>
<td>4.64E-08</td>
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<tr>
<td>191-24-2</td>
<td>Benzo (g,h,i) perylene</td>
<td>2.91E-07</td>
<td>0.01</td>
<td>1.27E-07</td>
<td>8.50E-08</td>
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<tr>
<td>207-08-9</td>
<td>Benzo (k) fluoranthene</td>
<td>1.42E-08</td>
<td>0.01</td>
<td>6.22E-08</td>
<td>4.15E-08</td>
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<tr>
<td>7440-41-7</td>
<td>Beryllium</td>
<td>1.37E-06</td>
<td>0.008</td>
<td>6.00E-06</td>
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<tr>
<td>7440-43-9</td>
<td>Cadmium</td>
<td>1.11E-05</td>
<td>0.01</td>
<td>4.86E-05</td>
<td>3.24E-05</td>
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<tr>
<td>7440-47-3</td>
<td>Chromium</td>
<td>2.99E-05</td>
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<td>1.31E-04</td>
<td>8.73E-05</td>
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<td>18540-29-9</td>
<td>Chromium (VI)</td>
<td>1.35E-05</td>
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<td>3.94E-05</td>
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<td>218-01-9</td>
<td>Chrysene</td>
<td>5.40E-08</td>
<td>0.01</td>
<td>2.37E-07</td>
<td>1.58E-07</td>
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<tr>
<td>7440-48-4</td>
<td>Cobalt</td>
<td>1.75E-06</td>
<td>0.1</td>
<td>7.67E-06</td>
<td>5.11E-06</td>
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<tr>
<td>53-70-3</td>
<td>Dibenzo(a,h) anthracene</td>
<td>1.27E-08</td>
<td>0.01</td>
<td>5.56E-08</td>
<td>3.71E-08</td>
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<tr>
<td>206-44-0</td>
<td>Fluoranthene</td>
<td>2.05E-07</td>
<td>0.01</td>
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<td>5.98E-07</td>
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<tr>
<td>86-73-7</td>
<td>Fluorene</td>
<td>4.17E-07</td>
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<td>1.83E-06</td>
<td>1.22E-06</td>
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<tr>
<td>19408-74-3</td>
<td>1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin</td>
<td>4.92E-10 **</td>
<td>2.15E-09</td>
<td>1.44E-09</td>
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<tr>
<td>7647-01-0</td>
<td>Hydrogen chloride</td>
<td>7.20E-02</td>
<td>10</td>
<td>3.15E-01</td>
<td>2.10E-01</td>
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<tr>
<td>7664-39-3</td>
<td>Hydrogen fluoride</td>
<td>6.55E-04</td>
<td>0.1</td>
<td>2.87E-03</td>
<td>1.91E-03</td>
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<tr>
<td>193-39-5</td>
<td>Indeno(1,2,3-cd)pyrene</td>
<td>1.54E-08</td>
<td>0.01</td>
<td>6.75E-08</td>
<td>4.50E-08</td>
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<tr>
<td>7439-92-1</td>
<td>Lead</td>
<td>6.62E-05</td>
<td>0.01</td>
<td>2.90E-04</td>
<td>1.93E-04</td>
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<tr>
<td>7439-97-6</td>
<td>Mercury</td>
<td>3.29E-03</td>
<td>0.01</td>
<td>Total HAP EF (lb/ton animals burned)</td>
<td>9.72E-01</td>
</tr>
</tbody>
</table>

Units lb/per 150 body burned (average body weight 150 lbs)
MHDR of R&K Incinerator Model 36 is 75 lb per hour
Dear Mr. Ziv:

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 are 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.
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: Northeast Regional Office
PAMS File: 2017-01-069

Permit Number: 032017-016