

Missouri Department of Natural Resources  
Missouri Air Conservation Commission  
Air Pollution Control Program

**PERMIT  
TO  
CONSTRUCT**  
PERMIT BY RULE

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct and operate the air contaminant source(s) described below, in accordance with the laws, rules, and conditions set forth here in.

042010-012

**Construction Permit Number:**  
**Project Number:** 2010-04-030  
**Installation ID:** 187-0086

**Installation Name and Address**

Veterinary Clinic of the Mineral Area  
4730 Flat River Road  
Farmington, MO 64640  
St. Francis County

**Parent Company's Name and Address**

Veterinary Clinic of the Mineral Area  
4730 Flat River Road  
Farmington, MO 64640  
St. Francis County

**Installation Description:**

Pet Cremation Services for Domestic Animals

APR 20 2010

Effective Date

Director or Designee  
Department of Natural Resources

#### STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within 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 and 10 CSR 10-6.062 if you fail to adhere to the specifications and conditions listed in your permit by rule application and this permit.** Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Department of Natural Resources Regional office responsible for the area within which the equipment is located within 15 days after the actual start up of this air contaminant source.

A copy of this permit and permit notification 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 as provided in RSMo 643.075. If you choose to appeal, the Air Pollution Control Program must receive your written declaration within 30 days of receipt of this permit.

If you choose not to appeal, this certificate, the project review, your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant sources(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 Department of Natural Resources has established the Outreach and Assistance Center to help in completing future applications or fielding complaints about the permitting process. You are invited to contact them at 1-800-361-4827 or (573) 526-6627, or you can write to the Outreach and Assistance Center, P.O. Box 176, Jefferson City, Missouri 65102-0176.

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 Air Pollution Control Program, P.O. Box 176, Jefferson City, Missouri 65102-0176, attention: Construction Permit Unit.

RECEIVED

2010 APR -7 AM 11:37

AIR POLLUTION  
CONTROL PGM



March 23, 2010

Department of Natural Resources  
Air Pollution Control Program  
Permit-By-Rule  
P.O. Box 176  
Jefferson City, Missouri 65102

**Re: Veterinary Clinic of the Mineral  
4730 Flat River Road  
Farmington, MO 64640  
Crawford C500P Animal Crematory**

To whom it may concern:

Attached is a copy for the application for the authority to construct for the above referenced source.

**Application Summary**

The scope of the application is to install a new C-500P animal crematory at the above referenced location. The maximum firing rate for this crematory is 1.5 MMBtu/hr. The potential to emit for this crematory is as follows:

<b>CO</b>	<b>1.09 TPY</b>
<b>PM</b>	<b>1.71 TPY</b>
<b>SO<sub>2</sub></b>	<b>0.41 TPY</b>
<b>NO<sub>x</sub></b>	<b>0.49 TPY</b>
<b>TOC</b>	<b>0.49 TPY</b>

Animal crematories are not considered sources of hazardous air pollutants

Should you have any questions please call me at (407) 574-2021.

Respectfully submitted,  
AI ENVIRONMENTAL CONSULTING SERVICES, INC.

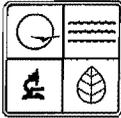
A handwritten signature in black ink, appearing to read 'Luis Llorens', is written over a set of horizontal lines.

Luis Llorens  
President/Project Manager

Air Permit Application - 2 Copies

cc: Ben Rothlisberger- Veterinary Clinic of the Mineral Area

1870096



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
 AIR POLLUTION CONTROL PROGRAM  
 P.O. BOX 176, JEFFERSON CITY, MO 65102-0176  
**APPLICATION FOR AUTHORITY TO CONSTRUCT  
 PERMIT BY RULE NOTIFICATION**  
**CREMATORIES AND ANIMAL INCINERATORS**

**APCP USE ONLY**

CHECK NO. 24344	CHECK RECEIVED (MM/DD/YY) 4.7.10
CHECK AMOUNT \$ 700.00	CHECK DATE (MM/DD/YY) 4.5.10
PROJECT NO. 2010-04-030	PERMIT NO.

MO

**SECTION A: GENERAL NOTIFICATION INFORMATION – ALL NOTIFICATIONS MUST BE ACCOMPANIED BY A \$700 FEE.**

**SECTION A-1: GENERAL INSTALLATION INFORMATION**

1. INSTALLATION NAME Veterinary Clinic of the Mineral Area		2. FIPS NA	3. PLANT NO. N/A
4. INSTALLATION STREET ADDRESS 4730 Flat River Road, Farmington, MO 64640			
5. INSTALLATION MAILING ADDRESS Same as Above			
6. CITY Farmington	STATE MO	ZIP CODE 64640	
7. COUNTY NAME St. Francis	8. 1/4, of 1/4, of	SECTION 23	TOWNSHIP 36 RANGE 5
9. PARENT COMPANY Not Applicable			
10. PARENT COMPANY MAILING ADDRESS			
11. CITY		STATE	ZIP CODE
12. INSTALLATION CONTACT PERSON Dr. Ben Rothlisberger		13. CONTACT PERSON'S TITLE Owner	
14. CONTACT PERSON'S MAILING ADDRESS 4730 Flat River Road, Farmington, MO 64640			
15. INSTALLATION CONTACT TELEPHONE NO. ( ) 573-756-9400		16. INSTALLATION CONTACT FAX NO. ( )	
17. INSTALLATION CONTACT E-MAIL ADDRESS vetclinicofmineral@sbcglobal.net			
18. PROJECTED DATE TO COMMENCE CONSTRUCTION April - May 2010		19. PROJECT DATE OF OPERATION STARTUP April - May 2010	

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 APR - 7 AM 11:30  
 AIR POLLUTION  
 CONTROL PROGRAM

**SECTION A-2: INSTALLATION DESCRIPTION**

20. Veterinary Clinic of the Mineral Area provides pet cremation services for domestic animals. They propose to install a gas fired Crawford Model C500P animal crematory. Technical literature and engineering drawings for the C500P are included in Attachment 2 of this application and in Attachment 3 we have included an area map. The C500P is a multi-chamber unit having an average 75 lbs/hr animal (approximately 1,000 Btu/lb) cremation rate. The primary chamber burner is rated at 500,000 Btu/hr, and the secondary chamber burner is rated at The equipment is fired with natural gas. After Construction, the facility is going to be in full compliance with the conditions of the permit-by-rule requirements.

**SECTION A-3: CERTIFICATION STATEMENT**

I certify that I have personally examined and am familiar with the information in this application and believe that the information submitted is accurate and complete. I am aware that making a false statement or misrepresentation in this application is grounds for denying or revoking this permit.

21. SIGNATURE OF RESPONSIBLE OFFICIAL <i>Ben Rothlisberger</i>	22. DATE 4/5/10
23. TYPE OR PRINT NAME OF RESPONSIBLE OFFICIAL Ben Rothlisberger, DVM	24. RESPONSIBLE OFFICIAL'S TELEPHONE NUMBER (573) 756-9400
25. TITLE OF RESPONSIBLE OFFICIAL Owner	

**SECTION B: SPECIAL CONDITIONS FOR CREMATORIES AND ANIMAL INCINERATORS**

Construction and operation of this new air pollution source is subject to the special conditions listed below. These special conditions are based on the authority granted to the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically RSMo. 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.062 "Construction Permits by Rule").

Please indicate by marking the appropriate box as to whether or not the emission source complies with the rule listed in the applicable emission limit or standard. If any of the applicable emission source boxes are checked no, your source is not eligible for a crematories and animal incinerators permit by rule.

This Permit By Rule applies only to Crematories and Animal Incinerators constructed after October 31, 2003.

SPECIAL CONDITION	EMISSION SOURCE COMPLY?	APPLICABLE EMISSION LIMIT OR STANDARD	METHOD OF COMPLIANCE
10 CSR 10-6.062(3)(B)2.A.	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	The materials to be disposed of shall be limited to noninfectious human materials removed during surgery, labor and delivery, autopsy, or biopsy including body parts, tissues and fetuses, organs, bulk blood and body fluids, blood or tissue laboratory specimens, and other noninfectious anatomical remains or animal carcasses in whole or in part. The owner or operator shall minimize the amount of packaging fed to the incinerator, particularly plastic containing chlorine. The incinerators shall not be used to dispose of other non-biological medical wastes including, but not limited to, sharps, rubber gloves, intravenous bags, tubing, and metal parts.	Proper work practice.
10 CSR 10-6.062(3)(B)2.B.	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	The manufacturer's rated capacity (burn rate) shall be two hundred (200) pounds per hour or less.	Proper work practice.
10 CSR 10-6.062(3)(B)2.C.	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	The incinerator shall be a dual-chamber design.	Proper work practice.
10 CSR 10-6.062(3)(B)2.D.	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	Burners shall be located in each chamber, sized to manufacturer's specifications, and operated as necessary to maintain the minimum temperature requirements of subparagraph 10 CSR 10-6.062(3)(B)2.E. at all times when the unit is burning waste.	Proper work practice.
10 CSR 10-6.062(3)(B)2.E.	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	Excluding crematories, the second chamber must be designed to maintain a temperature of one thousand six hundred degrees Fahrenheit (1,600°F) or more with a gas residence time of one-half (1/2) second or more. The temperature shall be monitored with equipment that is accurate to plus or minus two percent ( $\pm 2\%$ ) and continuously recorded. The thermocouples or radiation pyrometers shall be fitted to the incinerator and wired into a manual reset noise alarm such that if the temperature of either of the two (2) chambers falls below the minimum temperature above, the alarm will sound at which time plant personnel shall take immediate measures to either correct the problem or cease operation of the incinerator until the problem is corrected.	Proper work practice and maintenance of proper alarm records. These records shall be maintained for not less than five (5) years, and they shall be immediately available to any Missouri Department of Natural Resources personnel upon request.
10 CSR 10-6.062(3)(B)2.F.	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	There shall be no obstruction to stack flow, such as by rain caps, unless such devices are designed to automatically open when the incinerator is operated. Properly installed and maintained spark arresters are not considered obstructions.	Proper work practice.

**SECTION B: SPECIAL CONDITIONS FOR CREMATORIES AND ANIMAL INCINERATORS (CONTINUED)**

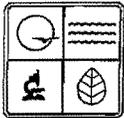
SPECIAL CONDITION	EMISSION SOURCE COMPLY?	APPLICABLE EMISSION LIMIT OR STANDARD	METHOD OF COMPLIANCE
10 CSR 10-6.062(3)(B)2.G.	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	Each incinerator operator shall be trained in the incinerator operating procedures as developed by the American Society of Mechanical Engineers (ASME), by the incinerator manufacturer, or by a trained individual with more than one (1) year experience in the operation of the incinerator that the trainee will be operating. Minimum training shall include basic combustion control parameters of the incinerator and all emergency procedures to be followed should the incinerator malfunction or exceed operating parameters. An operator who meets the training requirements of this condition shall be on duty and immediately accessible during all periods of operation. The manufacturer's operating instructions and guidelines shall be posted at the unit and the unit shall be operated in accordance with these instructions.	Proper work practice and maintenance of proper operator training records. These records shall be maintained for not less than five (5) years, and they shall be immediately available to any Missouri Department of Natural Resources personnel upon request.
10 CSR 10-6.062(3)(B)2.H.	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	The incinerator shall have an opacity of less than ten percent (10%) at all times.	Proper work practice such that no opacity violations are noted.
10 CSR 10-6.062(3)(B)2.I.	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	Heat shall be provided by the combustion of natural gas, liquid petroleum gas, or Number 2 fuel oil with less than three-tenths percent (0.3%) sulfur by weight, or by electric power.	Proper work practice.
10 CSR 10-6.062(3)(B)2.J.	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	The operator shall maintain a log of all alarm trips and the resulting action taken. A written certification of the appropriate training received by the operator, with the date of training, that includes a list of the instructor's qualifications or ASME certification school shall be maintained for each operator. The operator shall maintain an accurate record of the monthly amount and type of waste combusted.	Determined through proper alarm and operator training record keeping. These records shall be maintained for not less than five (5) years, and they shall be immediately available to any Missouri Department of Natural Resources personnel upon request.

**SECTION C: OTHER POTENTIALLY APPLICABLE REQUIREMENTS**

This section is intended to identify regulations that may apply to this installation. There may be others not listed that apply. To determine rule applicability and specific standards please consult the appropriate sections in the Code of Federal Regulations (CFR) and Code of State Regulations (CSR) for the full text of the applicable requirements.

Please note: this 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.

REGULATION OR CONSTRUCTION PERMIT REFERENCE	APPLICABLE EMISSION LIMIT OR STANDARD	METHOD OF COMPLIANCE
10 CSR 10-2.100, 10-3.030, or 10-4.090, 10-5.070 Open Burning Restrictions	Shall not conduct, cause, permit or allow a salvage operation, the disposal of trade wastes or burning of refuse by open burning.	Any person intending to engage in open burning shall submit a request to the Director.
10 CSR 10-2.070, 10-3.090 or 10-4.070, Restriction of Emission of Odors	No person may cause, permit or allow the emission of odorous matter in concentrations and frequencies or for durations that odor can be perceived when air is diluted to 1:7 volumes of odorous to odor-free air for 2 separate trails not less than 15 minutes apart within 1 hour.	No odor violations noted, if and when scintometer readings are taken.
10 CSR 10-5.160 Control of Odors in the Ambient Air	No person shall emit odorous matter as to cause an objectionable odors unless within the limits established by this rule.	No odor violations noted, if an when scintometer readings are taken.
10 CSR 10-5.170 Control of Odors From Processing Animal Matter	No person shall operate or use any device, machine, equipment, or other contrivance for the reduction of animal matter unless all gases, vapors, and gas-entrained effluents from the facility are incinerated at a temperature of not less than 1,200°F for a period of not less than 0.3 seconds and otherwise in compliance with this rule.	Proper work practice.
10 CSR 10-6.050, Start-up, Shutdown and Malfunction Conditions	Shall not commence construction or modification of any installation subject to this rule; begin operation after construction or modification; or begin operation of any installation which has been shut down longer than 5 years without first obtaining a permit.	In the event of a malfunction, which results in excess emissions that exceed 1 hour, the permittee shall implement corrective action and submit reports.
10 CSR 10-6.065, Operating Permits	The permittee shall comply with all applicable requirements identified in the operating permit (OP); file for timely renewal of this OP; and retain a copy of the OP on-site and make available to any MDNR personnel upon request.	The permittee shall submit an annual compliance certification in accordance with the regulation. The permittee shall maintain a current equipment list on-site with the date of installation of the equipment.
10 CSR 10-6.110, Submission of Emission Data, Emission Fees and Process Information	Submittal of Emission Inventory Questionnaire (EIQ) and emission fees by frequency noted in 10 CSR 10-6.110.	The permittee shall complete and submit an EIQ in accordance with 10 CSR 10-6.110.
10 CSR 10-6.200 Hospital, Medical, Infectious Waste Incinerators	No owner or operator shall cause to be discharged into the atmosphere any gases that contain stack emissions in excess of those listed in 10 CSR 10-6.200(3)(A).	Proper work practice and maintenance of appropriate performance test results.
10 CSR 10-6.070 New Source Performance Regulations	The following federal NSPS standards may apply: (Ec) Medical Waste Incinerators. Standards of Performance for Incinerators.	As required by regulations.



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
AIR POLLUTION CONTROL PROGRAM  
**APPLICATION FOR AUTHORITY TO CONSTRUCT  
PERMIT BY RULE NOTIFICATION  
CREMATORIES AND ANIMAL INCINERATORS**

**INSTRUCTIONS**

By submitting your notification, you are accepting all conditions and terms stated in this form. If you find the special conditions listed in Section B unacceptable, you may choose to submit a construction permit application and undergo a case-by-case review.

Please refer to the following line-by-line instructions to complete the notification. The notification, along with the \$700.00 fee, should be mailed to:

Air Pollution Control Program  
Permit-By-Rule  
P.O. Box 176  
Jefferson City, Missouri 65102

You must also retain a copy of the notification at the installation and make it immediately available to any inspector.

Once the fee and notifications have been mailed or hand-delivered, you are free to begin construction of your project under the special conditions that you have accepted.

The Air Pollution Control Program will send you a letter acknowledging receipt of your notification with a permit number and a project number for agency tracking purposes.

A copy of this electronic package may be obtained from the Department of Natural Resources Air and Land Protection Division's web site at: <http://www.dnr.mo.gov/alpd/apcp/PermitInfo.htm>.

If you have any questions about the notification form or the permit-by-rule notification procedure, please feel free to contact the Permit Section at (573) 751-4817.

**NOTIFICATION FORM INSTRUCTIONS**

- 1.) **Installation Name:** Enter the official company name and/or plant designation for the installation that is making the permit-by-rule notification.
- 2.) **FIPS Number:** Enter the official FIPS Number (3 digit code) which corresponds to the county name for the county in which the installation is located. Please refer to <http://www.itl.nist.gov/fipspubs/co-codes/mo.txt> for a listing. The FIPS number in combination with the Plant Number provides the identification/tracking information for the installation in the State/Federal databases.
- 3.) **Plant Number:** Enter the official Plant Number that has been assigned to the installation by the respective State or Local Agencies. If you do not know your plant number, please leave blank.
- 4.) **Installation Street Address:** Enter the street address of the physical location of installation.
- 5.) **Installation Mailing Address:** Enter the mailing address if that address is different from the street address.
- 6.) **City, State and Zip Code:** Enter the City, State and Zip Code of the physical location of the installation.
- 7.) **County:** Enter the county in which the installation is located.
- 8.) **Section, Township, Range:** Enter the appropriate information on the Section, Township and Range in which the installation is located.
- 9.) **Parent Company:** Complete this block if this installation is totally or partially owned by another company.
- 10.) **Parent Company Mailing Address:** Complete this block if this installation is totally or partially owned by another company.
- 11.) **Parent Company City, State and Zip Code:** Complete this block if this installation is totally or partially owned by another company.
- 12.) **Installation Contact Person:** Enter the name of the person who is most familiar with the operations of the installation and who can answer any questions regarding information about the installation.
- 13.) **Contact Person's Title:** Enter the title of the contact person.
- 14.) **Contact Person's Mailing Address:** Enter the mailing address for the Contact Person.
- 15.) **Installation Contact Person's Telephone Number:** Enter the Contact Person's telephone number.
- 16.) **Installation Contact Person's Fax Number:** Enter the Contact Person's fax number.

**NOTIFICATION FORM INSTRUCTIONS (CONTINUED)**

- 17.) **Installation Contact Person's E-Mail Address:** Enter the Contact Person's e-mail address.
- 18.) **Projected Date to Commence Construction:** Enter the date you intend to commence construction of your installation.
- 19.) **Projected Date of Operation Startup:** Enter the date you plan to begin operation with the installation.
- 20.) **Installation Description:** Enter the general product manufactured, the material handled by your installation and principal activity that is performed at this installation.
- 21.) **Signature of Responsible Official:** Enter the signature of the installation's official, certifying that the notification is accurate and complete. Notifications without a signed certification are not considered complete. A responsible official is:
  1. The president, secretary, treasurer or vice-president of a corporation in charge of a principal business function, or any other person who performs similar policy and decision-making functions for the corporation or a duly authorization representative of this person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either-
    - a) The facilities employ more than 250 person or have a gross annual sales or expenditures exceeding twenty-five million dollars (in second quarter 1980 dollars); or
    - b) The delegation of authority to his representative is approved in advance by the permitting authority.
  2. A general partner in a partnership or the proprietor in a sole proprietorship.
  3. Either a principal executive officer or a ranking elected official in a municipality, state, federal, or other public agency. For the purpose of this part, a principal executive officer of a federal agency includes the chief executive officer having responsibility for the operations of a principal geographic unit of the agency; or
  4. The designated representative of an affected source insofar as actions, standards, requirements or prohibitions under Title IV of the Clean Air Act or the regulations promulgated under the Act are concerned or the designated representative for any purposes under Part 70.
- 22.) **Date:** Enter the date that the Signature of the Responsible Official was obtained.
- 23.) **Type or Print Name of Responsible Official:** Type or print the name of the Responsible Official signing in item 21.
- 24.) **Responsible Official's Telephone Number:** Enter the telephone number where the Responsible Official may be contacted who signed in item 21.
- 25.) **Title of Responsible Official:** Enter the official title of the Responsible Official from item 21.

*Attachment 1*  
*Additional Information for Registration Applications*

### *Additional Information for Registration Applications*

- A. Process Description – Veterinary Clinic of the Mineral Area provides pet cremation services for domestic animals. They propose to install a gas fired Crawford Model C500P animal crematory. Technical literature and engineering drawings for the C500P are included in Attachment 2 of this application and in Attachment 3 we have included a site plan and area map. The C500P is a multi-chamber unit having an average 75 lbs/hr animal (approximately 1,000 Btu/lb) cremation rate. The primary chamber burner is rated at 500,000 Btu/hr, and the secondary chamber burner is rated at 1,000,000 Btu/hr, for a total of 1,500,000 Btu/hr. The equipment is fired with natural gas.
- B. Control of air pollution is achieved through the design of the C500P crematory, including its ability to operate the secondary chamber between 1600 - 1850 degrees Fahrenheit at a residence time in excess of 1.0 second. The design also includes fully automatic PLC based controls, independent fuel/air systems, preheated combustion air, secondary chamber temperature monitor and recorder, primary burner temperature interlock (prevents primary burner from firing prior to the secondary chamber reaching its set point temperature), UV continuous scanning flame detectors on burners, and an opacity sensor which can temporarily suspend operation of the primary chamber burner.
- Air pollution control is demonstrated through similar source stack testing results (please see Attachment 4 for emission calculations and Attachment 5 for identical source stack test).
- C. Regulatory Discussion - This source complies with the requirements of the permit by rule conditions of the application, Section C.
- D. Toxic and HAP emissions (concentrations) from animal cremation are very small and are typically considered negligible.
- E. Emission Summary and Calculations –. See Attachment 4 for tabular summary of emissions. Criteria pollutant emissions values, except CO and PM, are based on emission factors from AP-42, Table 2.1-12, and “Uncontrolled Emission Factors for Refuse Combustors Other Than Municipal Waste”. CO and PM are based on 100 PPM CO and 0.08 gr/dscfm.

*Attachment 2*  
*Crawford Model C500P Specifications and Engineering Drawings*

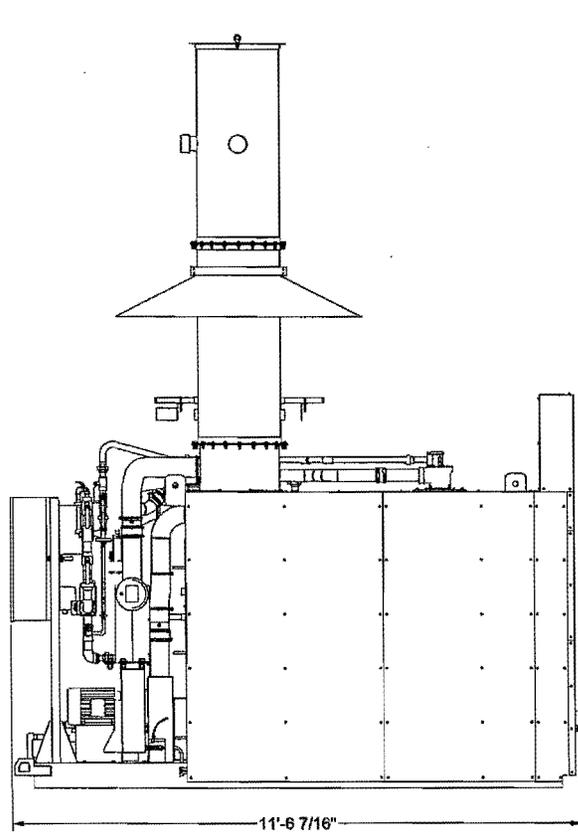
## CRAWFORD MODEL C500P SPECIFICATIONS

<b>Recognized Approvals:</b>	Underwriters Laboratory (U.L.) Listed (Control # 54E3)
<b>Capacity ratings:</b>	75 lb/hr. for type 4, pathological waste Recommended maximum initial charge: 240 lbs
<b>Overall dimensions:</b>	31'-6" L x 3'-8" W* x 7'-11" H (45'-1" W, w/ touch screen panel)
<b>Approx. system weight:</b>	10,000 lbs.
<b>Required fuel (NG/LPG): (light oil fired optional)</b>	Main Line - 1,500,000 BTU/hr @ 11-14" w.c. @ 1.5" header Pilot Line - 150,000 BTU/hr @ 5 psi, max. @ 3/8" regulator
<b>Required electrical supply:</b>	230 Volt, Single Phase, 60 Hz, 40 Amp @ single point connection (Three Phase 230/460 Volt, 60 or 50 Hz & alt. voltage available)
<b>Primary chamber volume:</b>	Primary - 26.25 cu. ft.
<b>Hearth Area:</b>	12.1 sq. ft. (60"L x 29"W)
<b>Secondary chamber volume:</b>	26.58 cu. ft. (provides in excess of one second retention time)
<b>Primary burner capacity:</b>	500,000 BTU/hr. (hi/lo modulated control)
<b>Secondary burner capacity:</b>	1,000,000 BTU/hr. (fully modulated control)
<b>Combustion air fan:</b>	900 scfm, 3 hp, 230 Volt, Single Phase, 60 Hz std. (Three phase, optional)
<b>Charging door:</b>	29"W x 25"H - electric-hydraulic powered
<b>Hydraulic power unit:</b>	1.5 hp, 230 Volt, Single Phase, 4.4 gpm, 500 psi, 1/2 gal. res.
<b>Steel construction:</b>	Heavy channel steel skid base, with angle, square tube, and plate steel structure, with sheet steel used for inner and outer casings
<b>Refractory &amp; insulation:</b>	
<b>Hearth:</b>	7" to 13" 3000°F abrasion resistant cast refractory
<b>Side walls:</b>	4.5" thick 2700°F dense fire brick 4.5" thick 2600°F insulating fire brick 1.25" 1900°F insulation backing
<b>PCC roof:</b>	6" 2800°F cast refractory with 2" 2400°F insulation cap
<b>SCC floor:</b>	5" 3000°F thick dense-insulating cast refractory
<b>Stack:</b>	20" od x 48"L sections (2 sections standard) 10 gauge steel shell with 2" 2400°F high-temperature refractory lining approx. weight - 91 lb/ft.
<b>Draft control:</b>	via "Induce-a-Cool" w/ temperature reduction to 875°F
<b>Controls (PLC based with):</b>	Touch screen operator interface Primary & secondary chamber temperature control Temperature actuated fuel and air control Burner interface, status and reset access** System status and alarm display Opacity alarm system with control intervention ** Discrete, UL, CBA, FM & IRI Burner monitoring / control w/ U.V. flame supervision provided for each burner

NOTE: WHAT IS SHOWN IS A MANUFACTURER'S REFERENCE HEIGHT.  
 INSTALLED HEIGHT IS SUBJECT TO SITE, BUILDING, PERMIT  
 CONDITIONS/RESTRICTIONS.

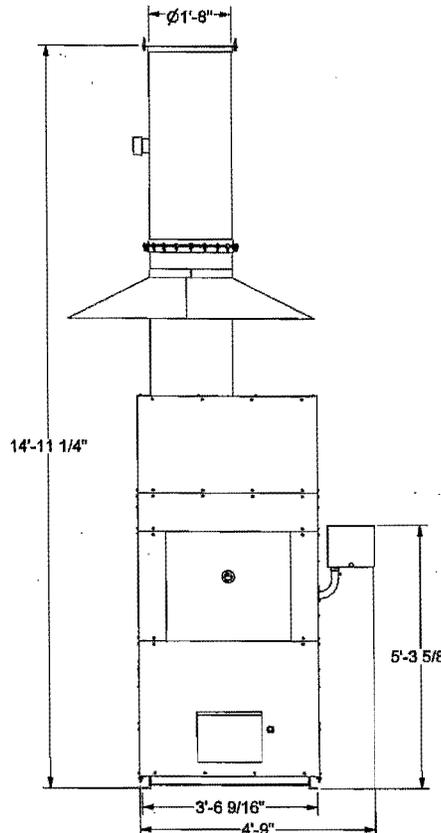
ELECTRICAL:  
 SINGLE POINT CONNECTION  
 230/460V, 3 PHASE, 60HZ, 40/30 AMP.  
 1 PHASE AND/OR 50HZ (OPTIONAL)

GAS REQUIREMENTS:  
 FUEL SUPPLY MUST BE CAPABLE OF FLOWING  
 MAIN 2 MMBTU/ HR @ 11-14" WC @ 2" HEADER  
 PILOT .2 MMBTU/ HR @ 5 PSIG MAX @ 3/8" REGULATOR.



11'-6 7/16"

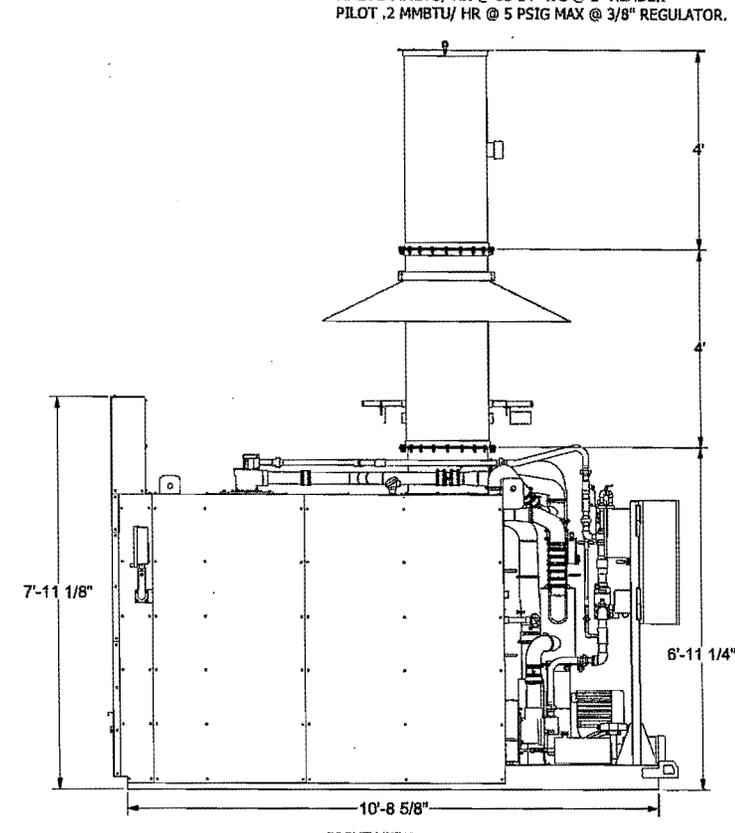
LEFT VIEW



14'-11 1/4"

3'-6 9/16"

FRONT VIEW



7'-11 1/8"

10'-8 5/8"

RIGHT VIEW

NOTE:  
 ALL ILLUSTRATIONS COVER THE GENERAL APPEARANCE OF NCE/CRAWFORD/EMCOTEK PRODUCTS  
 AT THE TIME OF PUBLICATION AND WE RESERVE THE RIGHT TO MAKE CHANGES IN DESIGN AND  
 CONSTRUCTION AT ANY TIME WITHOUT NOTICE.

REV.	DESCRIPTION	DATE	NAME	APPROVALS	DATE
2	CHANGED TO NYB	11/13/07	WM	Jim L.	3/8/2005
1	ADDED & CHANGED PARTS	6/13/2005	Chris G	Jim L.	
0	INITIAL RELEASE	3/8/2005	Jim L.		

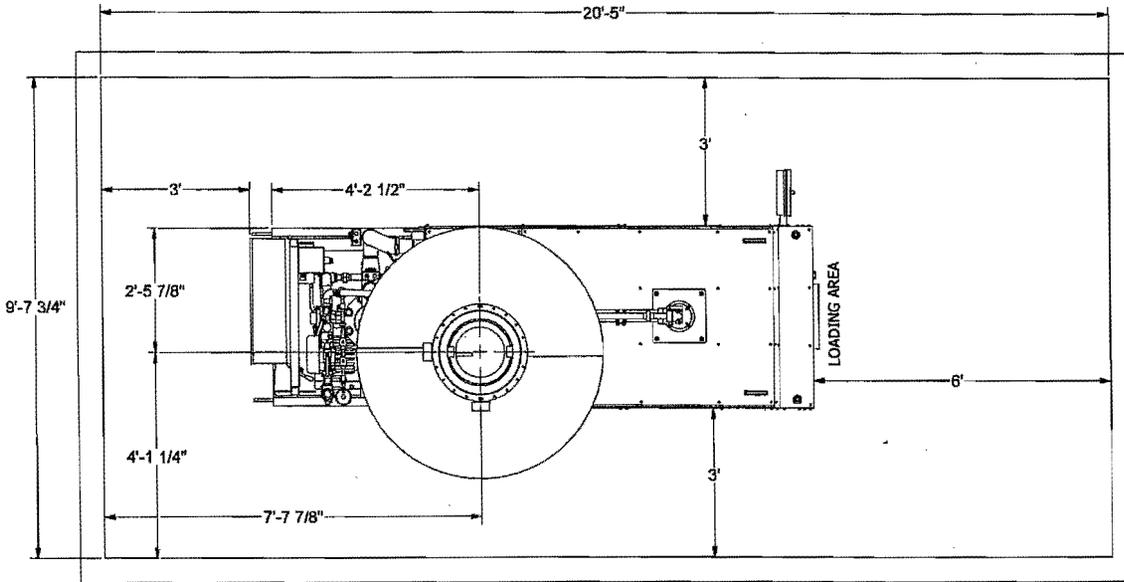
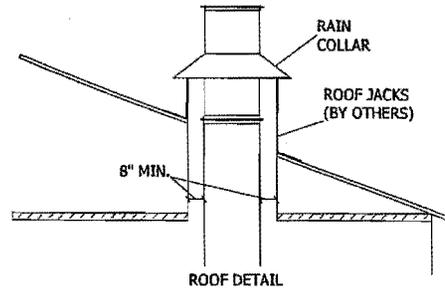
DRAFTER Jim L. DATE 3/8/2005		 THIRD ANGLE PROJECTION	 NCE Crawford Eucotek A service company with leading Technology	TITLE C500P	
PRODUCT MANAGER ENGINEER Chris G				UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES TOLERANCES	SCALE N/A
FRACTIONS DECIMALS ANGLES 1/16 0.0625 1/16 1/32 0.03125 1/32 1/64 0.015625 1/64		SIZE D	PROJECT NO. C500P	DWG NO. C500P	REV 1

MINIMUM UL CLEARANCE REQUIRED

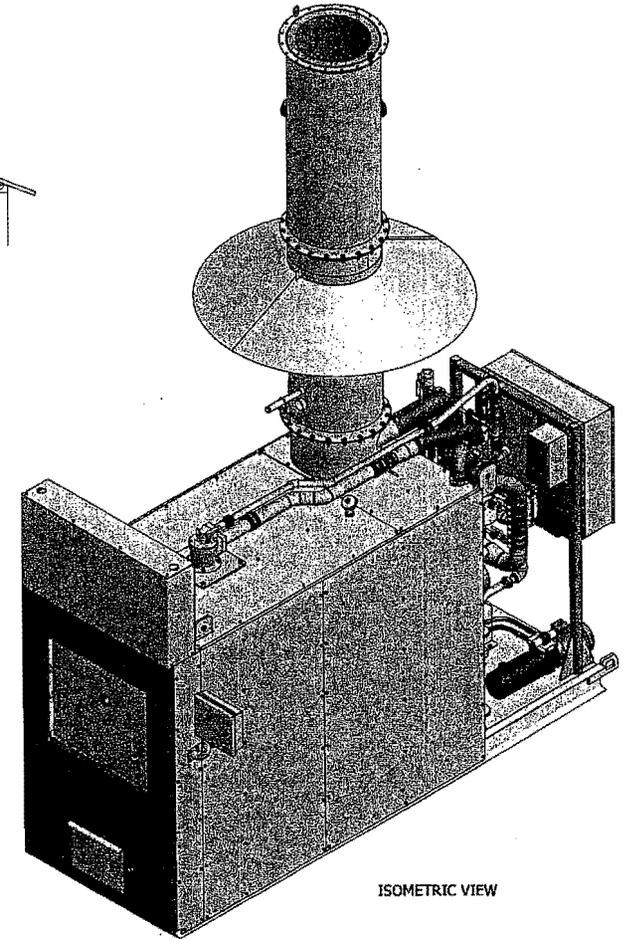
SIDES = 24"  
 REAR = 24"  
 TOP = 36"  
 STACK SIDES = 8"

FLOOR TYPE NONCOMBUSTABLE, LOAD BEARING TO SUPPORT 10,000LBS.  
 CONSULT LOCAL BUILDING CODES AND ORDINANCES FOR ANY  
 RESTRICTIONS WHICH MAY APPLY

COMBUSTION AIR:  
 MINIMUM 30" X 30" OUTSIDE AIR VENT  
 ( MAKE UP AIR ) - PASSIVE SYSTEM



TOP VIEW  
 RECOMMENDED CLEARANCES

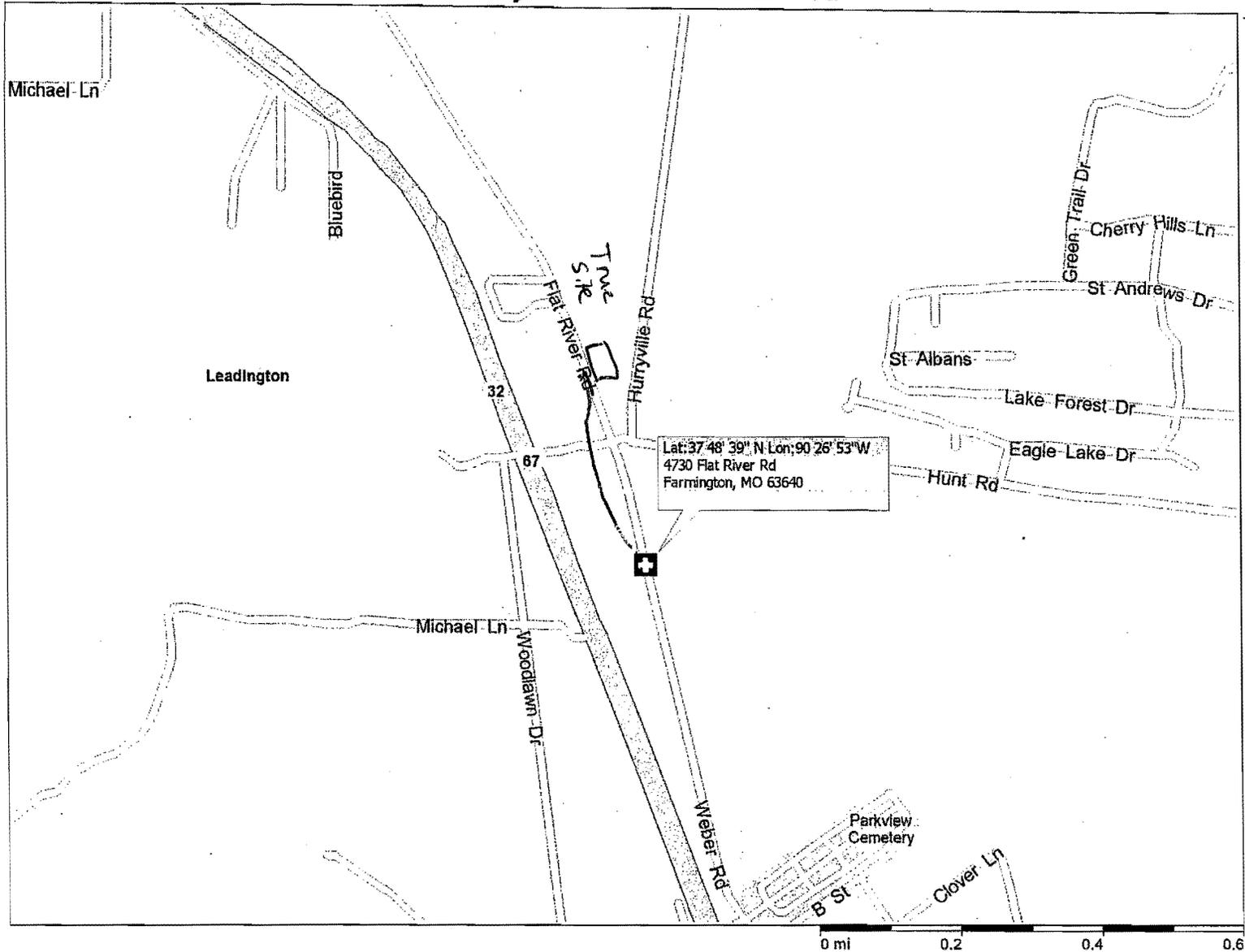


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 CONSTRUCTION AT ANY TIME WITHOUT NOTICE.

DRAFTER	DESIGNER	PRODUCT MANAGER	ENGINEER	SIZE	PROJECT NO.	DWG NO.	REV
3in L				D		C500P	1
				SCALE	SUBJECT: GENERAL ARRANGEMENT		SHEET 2 OF 2
				2			1

*Attachment 3*  
*Area Map*

# Veterinary Clinic of the Mineral Area



*Attachment 4*  
*Emission Calculations Spreadsheet*

<b>Pounds Cremated Per Hour (Average)</b>	<b>Hours Per Year</b>	<b>SO2 lb/ton</b>	<b>SO2 lb/hr</b>	<b>SO2 TPY</b>	<b>Nox lb/ton</b>	<b>Nox lb/hr</b>	<b>Nox TPY</b>	<b>TOC lb/ton</b>	<b>TOC lb/hr</b>	<b>TOC TPY</b>
75	8760	2.5	0.09	0.41	3	0.11	0.493	3	0.11	0.493

**CO = 100 PPM X 28 MW X 569 DSCFM X 2.595E-09 X 60 min/hr = 0.248 lb/hr CO**  
**0.248 lb/hr CO X 8760 hrs/yr X 1 ton/2000 lb = 1.09 TPY CO**

**PM = 0.08 gr/dscf X 1 pound/7000 gr X 569 DSCFM X 60 min/hr = 0.39 lb/hr PM**  
**0.39 lb/hr X 8760 hrs/yr X 1 ton/2000 lb = 1.71 TPY PM**

***Attachment 5***  
***Results from Identical Source Stack Test***

**Source Test for Particulate and CO Emissions  
EPA Methods 1 -5 and 10**

**Report 1175-S**

**January 13, 2005**

**prepared for**

**Broward Pet Cemetery  
Facility ID 0112078**



**Arlington Environmental Services, Inc.**

Post Office Box 657 ~ Okeechobee, Florida 34973 ~ Telephone (863) 467-0555

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## 1.0 Introduction

Broward Pet Cemetery, Inc. operates an animal crematory located at 11455 N.W. 8<sup>th</sup> Street in Plantation, FL. On January 13, 2005, source tests for particulate (EPA Methods 1-5) and Carbon Monoxide (EPA Method 10) were conducted on the exhaust stack servicing the crematory incinerator.

The tests were performed in order to comply with the conditions set forth by the Florida Department of Environmental Protection, and to determine compliance with Florida's Animal Crematory Rule 62-296.401(6), Florida Administrative Code.

Courtney Pitters of the Broward County Division of Environmental Protection, Air Quality Division was present for a portion of the tests.

On November 11, 2004, a Visible Emission Test was conducted on the above referenced facility and submitted to Broward County Department of Environmental Protection, Air Quality Division.

During the testing period, records of the plant processing data were maintained by Sandy Ketcham, Plant Manager, and are presented in Appendix C.

The average particulate emission rate, as determined by EPA Method 5, was 0.0392 gr/dscf. The allowable particulate emission rate is 0.080 gr./dscf.

The average carbon monoxide emission rate as determined by EPA Method 10, was 3.86 ppm. The allowable carbon monoxide emission rate is 100 ppm.

The results of this test verify compliance with the Florida Department of Environmental Protection, and the Code of Federal Regulations, part 60.92.

## 2.0 Certification of Test Results

Facility Tested: Broward Pet Cemetery, Inc.  
11455 N.W. 8<sup>th</sup> Street  
Plantation, FL 33325

Type Process - Dead Animal Crematory Incinerator, Crawford C500 P

Abatement Device - Afterburner

Rated Capacity - 75 lbs./hr.

Report 1175-S

January 13, 2005

Run Numbers 1, 2 and 3

Actual Particulate Emissions - 0.0392 gr/dscf (corrected to 7% O<sub>2</sub>)

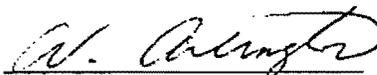
Allowable Particulate Emissions - 0.0800 gr./dscf (corrected to 7% O<sub>2</sub>)

Actual Carbon Monoxide Emissions - 3.86 ppm (corrected to 7% O<sub>2</sub>)

Allowable Carbon Monoxide Emissions - 100 ppm (corrected to 7% O<sub>2</sub>)

All testing and analysis were performed in accordance with the Florida Department of Environmental Protection and the Code of Federal Regulations, 40, part 60.

I hereby certify that to my knowledge, all information and data submitted in this report is true and correct.



William D. Arlington  
Project Director

### **3.0 Allowable Emission Determination**

The allowable emissions were determined in accordance with 62.296.401(6) F.A.C. Substantiating data and calculations are presented in the Appendix D.

### **4.0 Cyclonic Flow Determination**

Due to the configuration of the system, cyclonic flow was considered to be non-existent at the sampling site.

5.0 Summary of Results  
 Broward Pet Cemetery, Inc.  
 Crematory  
 Report 1175-S

	Run 1	Run 2	Run 3	Average
Date	1/13/2005	1/13/2005	1/13/2005	
Start Time	8:33	10:19	12:49	
Stop Time	9:38	11:23	13:51	
Process Rate (lbs/hr.)	74.0	74.0	76.5	74.8
Particulate Emission Rate (gr./dscf @ 7% O <sub>2</sub> )	0.0442	0.0377	0.0357	0.0392
Allowable Particulate Emission Rate (gr./dscf @ 7% O <sub>2</sub> )	0.080	0.080	0.080	0.080
Carbon Monoxide Emission Rate (ppm @ 7% O <sub>2</sub> )	5.14	3.83	2.62	3.86
Allowable Carbon Monoxide Emission Rate (ppm @ 7% O <sub>2</sub> )	100	100	100	100

6.0 Particulate Emission Results  
 Broward Pet Cemetery, Inc.  
 Crematory  
 Report 1175-S

	Run 1	Run 2	Run 3
Area (square feet)	0.92	0.92	0.92
Stack Pressure (inches Hg)	30.09	30.09	30.09
Meter Pressure (inches Hg)	30.20	30.22	30.22
Sample Volume (Std. Cu. Ft.)	38.249	41.074	41.013
Water Vapor (Cubic Feet)	1.97	2.58	3.14
Sample Moisture (percent)	4.89	5.90	7.12
Saturation Moisture (percent)	100.00	100.00	100.00
Molecular Weight (lbs/lb Mole wet)	28.32	28.19	28.04
Velocity (fpm)	2606	3107	3143
Volumetric Flow Rate (acfm)	2402	2864	2897
Volumetric Flow Rate (scfm)	1185	1276	1264
Concentration (gr/dscf)	0.0089	0.0095	0.0098
Concentration@7% O2 (gr/dscf)	0.0442	0.0377	0.0357
Mass Emission Rate (lbs./hr.)	0.09	0.10	0.11
Percent Isokinetic	102.19	101.89	102.69

**7.0 Carbon Monoxide Emission Results**  
**Broward Pet Cemetery, Inc.**  
**Crematory**  
**Report 1175-S**

	Run 1	Run 2	Run 3	Average
Date	1/13/2005	1/13/2005	1/13/2005	
Start Time	8:33	10:18	12:50	
Stop Time	9:33	11:18	13:50	
Percent Oxygen	18.1	17.3	17.1	
Carbon Monoxide (PPM)	1.03	0.99	0.72	
Carbon Monoxide Emissions (PPM @ 7% O <sub>2</sub> )	5.14	3.83	2.62	3.86
Carbon Monoxide Allowable ( PPM@ 7% O <sub>2</sub> )	100	100	100	100

7.1 Carbon Monoxide Bias Correction and Emission Factors  
 Broward Pet Cemetery, Inc.  
 Crematory  
 Report 1175-S

Run	Cal Gas Value	Pre Run		Post Run		Average		Run Average	Corrected Value
		Bias	Zero	Bias	Zero	Bias	Zero		
1	327	337.34	0.41	335.70	-1.51	336.52	-0.55	0.52	1.03
2	327	335.70	-1.51	327.27	0.49	331.49	-0.51	0.50	0.99
3	327	327.27	0.49	325.83	0.51	326.55	0.50	1.22	0.72

## 8.0 Overview of Field and Analytical Procedures

### 8.1 EPA Method 1 - Sample and Velocity Traverses for Stationary Sources

Principle - To aid in the representative measurement of pollutant emissions and/or total volumetric flow rate from a stationary source, a measurement site where the effluent stream is flowing in a known direction is selected and the cross-section of the stack is divided into a number of equal areas. A traverse point is then located within each of these equal areas. See Sampling Point Determination.

Applicability - This method is applicable to flowing gas streams in ducts, stacks and flues. This method cannot be used when: 1) flow is cyclonic or swirling 2) a stack is smaller than about 12 inches in diameter, or 0.071 cross-sectional area or 3) the measurement site is less than two stack or duct diameters downstream or less than a half diameters upstream from a flow disturbance. The procedures in this method were utilized in its entirety according to the procedures outlined in 40 CFR Part 60, Appendix A.

### 8.2 EPA Method 2 - Determination of Stack Gas Velocity and Volumetric Flow Rate

Principle - Type S Pitot Tube - The average gas velocity in a stack is determined from the gas density and from measurement of the average velocity head with a Type S pitot tube.

Applicability - This method is applicable for measurement of the average velocity of a gas stream and for quantifying gas flow.

This procedure is not applicable at measurement sites which fail to meet the criteria of Method 1. This method cannot be used for direct measurement in cyclonic or swirling gas streams. The procedures in this method were utilized in its entirety according to the procedures outlined in 40 CFR Part 60, Appendix A.

### 8.3 Method 3 - Gas Analysis for the EPA Determination of Dry Molecular Weight

Principle - A gas sample is extracted from a stack by one of the following methods 1) Single-point grab sampling 2) single-point, integrated sampling or 3) multi-point, integrated sampling, the gas sample is analyzed for percent CO<sub>2</sub>, percent O<sub>2</sub>, and if necessary for CO. For dry molecular weight determination, either an Orsat or a Fyrite analyzer may be used for the analysis.

Applicability - This method is applicable for determining carbon dioxide and oxygen concentrations and dry molecular weight of a sample from a gas stream of a fossil fuel combustion process. The method may also be applicable to other processes where it has been determined that compounds other than CO<sub>2</sub>, O<sub>2</sub>, CO, and nitrogen are not present in concentrations sufficient to affect the results. The procedures in this method were utilized in its entirety according to the procedures outlined in 40 CFR Part 60, Appendix A.

### 8.4 EPA Method 4 - Determination of Moisture Content in Stack Gases

Principle - A gas sample is extracted at a constant rate from the source; moisture is removed from the sample stream and determined either volumetrically or gravimetrically.

Applicability - This method is applicable for determining the moisture content of stack gas. There are two procedures given to determine the moisture. The procedure for the reference method to determine the moisture content was used to calculate the emission data. The reference method was conducted simultaneously with the pollutant emission measurement run, calculation of percent isokinetic, pollutant emission rate, etc. for the run is based upon the results of the reference method or its equivalent. The procedures in this method were utilized in its entirety according to the procedures outlined in 40 CFR Part 60, Appendix A.

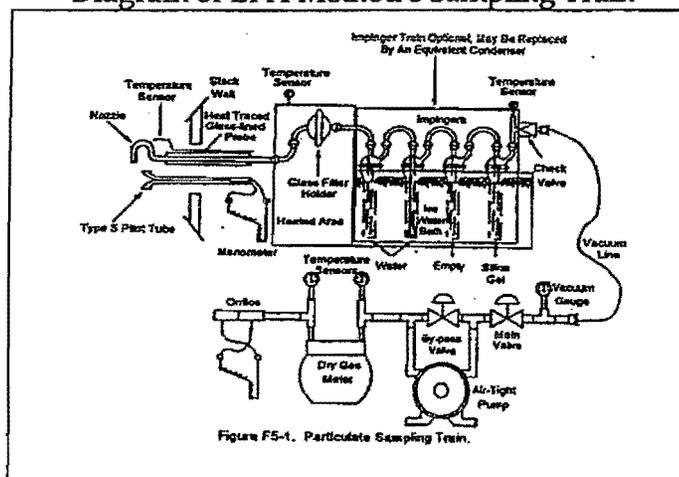
### 3.5 EPA Method 5 - Determination of Particulate Emissions from Stationary Sources

Principle - Particulate matter is withdrawn isokinetically from the source and collected on a glass fiber filter maintained at a temperature in the range of 120 - 248° For such other temperature as specified by an applicable subpart of the standards or approved by the Administrator, U.S. Environmental Protection Agency, for a particular application.

The particulate mass which includes any material that condenses at or above the filtration temperature, is determined gravimetrically after removal of uncombined water.

Applicability - This method is applicable for the determination of particulate emissions from stationary sources. The procedures in this method were utilized in its entirety according to the procedures outlined in 40 CFR Part 60, Appendix A.

Diagram of EPA Method 5 Sampling Train

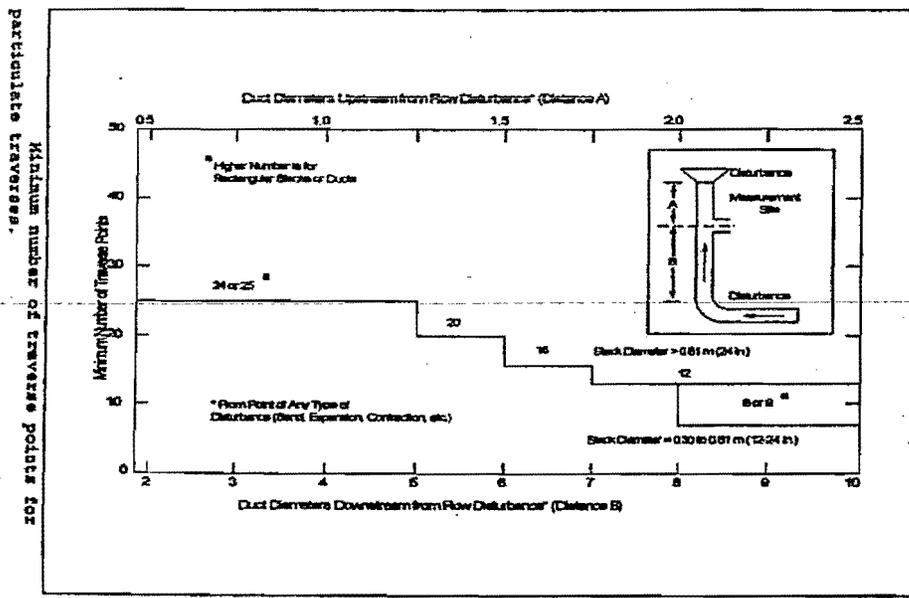


#### **8.6 EPA Method 10 – Determination of Carbon Monoxide Emissions from Stationary Sources**

**Principle** – An integrated or continuous gas sample is extracted from a sampling point and analyzed for carbon monoxide (CO) content using a Luft-type nondispersive infrared analyzer or equivalent.

**Applicability** – This method is applicable for the determination of carbon monoxide emissions from stationary sources only when specified by the test procedures for determining compliance with new source performance standards. The procedures in this method were utilized in its entirety according to the procedures outlined in 40 CFR Part 60, Appendix A.

**9.0 Minimum Number of Sampling Points**  
**Minimum Number of Sampling Points**  
**Per Particulate Traverse**



**Circular Stacks**

The number of sampling points is selected according to the above diagram, with the number of points equaling the next higher multiple of four.

**Rectangular Stacks**

The number of sampling points is determined using the matrix below.

Number of Traverse Points	Subarea Layout Matrix
9	3 x 3
12	4 x 3
16	4 x 4
20	5 x 4
25	5 x 5
30	6 x 5
36	6 x 6
42	7 x 6
49	7 x 7

9.1 Sampling Points per Traverse  
 Broward Pet Cemetery, Inc.  
 Crematory  
 Report 1175-S

Stack Configuration	Circular
Diameter (inches)	13
Distance A - Ports to Downstream Disturbance (inches)	88
Distance A - Ports to Downstream Disturbance (diameters)	6.8
Distance B - Ports to Upstream Disturbance (inches)	32
Distance B - Ports to Upstream Disturbance (diameters)	2.5
Number of Test Ports	2
Number of Sampling Points per Traverse	12
Number of Points Sampled	24

Photograph of Stack



Traverse Point Location	
Traverse Point No.	Inches to Stack Wall
1	0.5
2	0.9
3	1.5
4	2.3
5	3.3
6	4.6
7	8.4
8	9.8
9	10.7
10	11.5
11	12.1
12	12.5

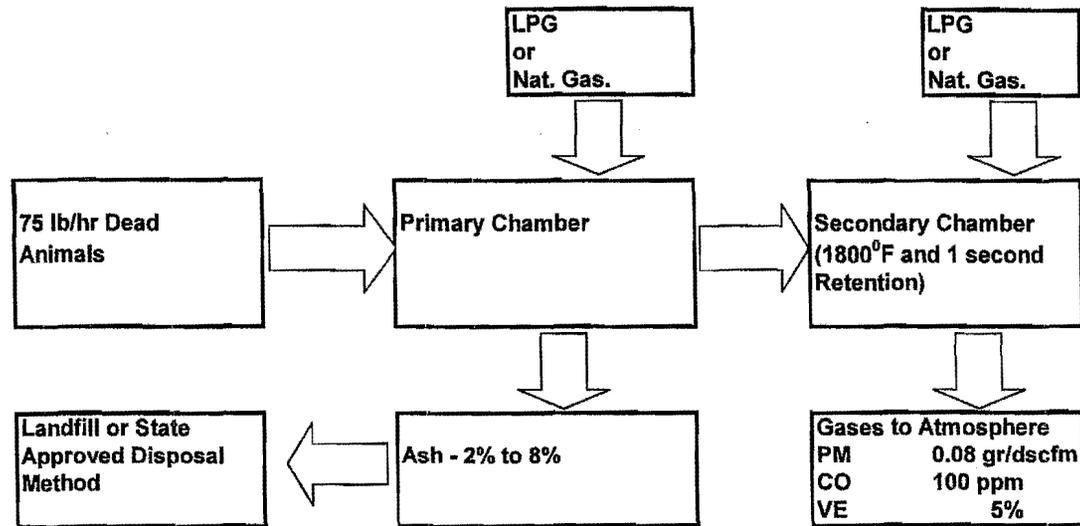
10.0 Summary of Field and Laboratory Data  
 Broward Pet Cemetery, Inc.  
 Crematory  
 Report 1175-S

	Run 1	Run 2	Run 3
Date	1/13/2005	1/13/2005	1/13/2005
Start Time	8:33	10:19	12:49
Stop Time	9:38	11:23	13:51
CP	0.84	0.84	0.84
Y	0.9964	0.9964	0.9964
$\Delta H_a$ (inches H <sub>2</sub> O)	1.7565	1.7565	1.7565
Diameter of Nozzle (inches)	0.2983	0.2983	0.2983
Stack Diameter or Equivlant (inches)	13.00	13.00	13.00
Static Pressure (inches H <sub>2</sub> O)	-0.16	-0.16	-0.16
Barometric Pressure (inches Hg)	30.10	30.10	30.10
Test Time (minutes)	60	60	60
Meter Volume (cubic feet)	38.890	42.057	41.935
Square Root $\Delta P$ (inches H <sub>2</sub> O)	0.552	0.627	0.630
Orifice Pressure $\Delta H$ (inches H <sub>2</sub> O)	1.299	1.602	1.617
Average Meter Temperature (Deg. F)	79.6	83.8	83.1
Average Stack Temperature (Deg. F)	563.4	660.8	669.5
Particulate Sample Weight (grms)	0.0221	0.0253	0.0259
Water Collected (grms)	41.7	54.6	66.7
Percent CO <sub>2</sub>	0.8	0.8	0.8
Percent O <sub>2</sub>	18.1	17.4	17.1
Molecular Weight (lbs/lb Mole)	28.85	28.82	28.81
Nozzle Area (square feet)	0.00049	0.00049	0.00049

*Attachment 6*  
*Process Flow Diagram*

Process Flow Diagram

C-500P Animal Crematory



PM=Particulate Matter  
 CO=Carbon Monoxide  
 VE= Visible Emissions (Opacity)  
 LPG=Liquefied Propane Gas  
 PPM=Parts Per Million  
 gr/dscf=grains per dry standard cubic foot



Jeremiah W. (Jay) Nixon, Governor • Mark N. Templeton, Director

## DEPARTMENT OF NATURAL RESOURCES

www.dnr.mo.gov

APR 20 2010

Dr. Ben Rothlisberger, DVM  
Owner  
Veterinary Clinic of the Mineral Area  
4730 Flat River Road  
Farmington, MO 64640

RE: New Source Review Permit, Permit by Rule  
Project Number: 2010-04-030, Facility ID Number: 187-0086

Dear Dr. Rothlisberger:

Enclosed with this letter is your permit to construct. Please review your permit carefully. You submitted a \$700.00 review (\$100 plus \$600) fee and a completed Permit By Rule Notification, received on April 7, 2010.

Also, in addition to this permit, please be aware you are required to keep a copy of the Permit By Rule Notification, as you completed and provided, which you must retain at the installation and make it immediately available to any inspector.

Section A and Section B of your permit application "General Notification Information for Authority to Construct" and "Special Conditions for Crematories and Animal Incinerators" are part of your permit. The entire permit must be retained in your files. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

Operation in accordance with these conditions is necessary for continued compliance.

In order to streamline the permitting process, the initial on-site compliance inspection requirement (which is mandatory prior to issuance of a permit) has been waived. However, an on-site compliance inspection will be performed at a later date, to validate your statements and conditions claimed on the permit by rule notification. If you have any questions regarding this permit, please contact James Broadfoot, at the Departments' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or (573) 751-4817.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kyra L. Moore  
Permit Section Chief

KLM:jb1

Enclosures

c: Southeast Regional Office  
PAMS File 2010-04-030  
Permit Number:

042010-012

