BASIC APPLICATION FOR EQUIPMENT / AIR POLLUTION PERMIT OR CERTIFICATE OF OPERATION

FORM E001
03/2011

1. Name of Company All Tenn. Paws LLC
(If corporation or LLC, name on file with Tennessee Secretary of State Corporate Records Division)

2. NAICS Code: 812220

3. Company Official to Contact: Samantha Carlson

4. Phone No. 716.844.2046

5. Mailing Address: 4504 Kings Lake Court Chattanooga, TN 37416
Street or P.O. Box *City* *State* *Zip Code*

6. Physical Location
(If different from line 5) 4200 North Access Road Chattanooga, TN 37415
Street *City* *State* *Zip Code*

7. Application for:
☑ Installation Permit ☐ Initial Certificate of Operation ☐ Renewal Certificate of Operation

Previous Installation Permit or Certificate of Operation No.: _____

8. Type of equipment for which application is made:

☑ Process Equipment (Form E010 or Form E010A)	☐ Previously Submitted	☐ Attached
☐ Fuel Burning Equipment (Form E011)	☐ Previously Submitted	☐ Attached
☐ Incineration Equipment (Form E012)	☐ Previously Submitted	☑ Attached
☐ Minor Pollution Source (Form E014)	☐ Previously Submitted	☐ Attached

(Less than 1000 lbs/yr and less than 10 lbs/day total uncontrolled contaminant emissions)

RECEIVED
FEB 26 2024
CHATTANOOGA-HAMILTON COUNTY AIR POLLUTION CONTROL BUREAU

The following forms are filed with this application:
E012

9. Equipment Name:
B & L Pet Cremation System BLP500/150

10. If application is for a Certificate of Operation (Initial or Renewal), are there any changes since previous application in the equipment or operation which might:

A. Increase, decrease, or alter process materials, fuel, refuse type, etc.? ☐ Yes ☐ No

B. Increase, decrease, or alter emissions or emission points? ☐ Yes ☐ No

11. Process Weight, lb/hr, (Item 6 on Form E010), Incineration Rate, lb/hr, (Item 3C on Form E012), or Fuel Burning Rate, 1,000 Btu/hr, (Item 7C on Form E011): 150 lb/hr

This is to certify that I am familiar with operations concerning this equipment and the information provided on this application is true and complete to the best of my knowledge:

Mail completed form to:
CHATTANOOGA-HAMILTON COUNTY
AIR POLLUTION CONTROL BUREAU
2034 Hamilton Place Blvd., Suite 300
Chattanooga, TN 37421

This form must be completely filled out before it will be processed

Samantha Carlson
Name
Vice-President/Owner
Title
2/26/24
Date

BASIC APPLICATION FOR EQUIPMENT / AIR POLLUTION PERMIT OR CERTIFICATE OF OPERATION

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9. Equipment Name:
B & L Pet Cremation System BLP500/150

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A. Increase, decrease, or alter process materials, fuel, refuse type, etc.? ☐ Yes ☑ No

B. Increase, decrease, or alter emissions or emission points? ☐ Yes ☑ No

11. Process Weight, lb/hr, (Item 6 on Form E010), Incineration Rate, lb/hr, (Item 3C on Form E012), or Fuel Burning Rate, 1,000 Btu/hr, (Item 7C on Form E011): 150 lb/hr

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Samantha Carlson
Name
Vice-President/Owner
Title
2/26/24
Date

INCINERATOR APPLICATION

FORM E012
7/2001

1. Name of Company: All Tenn. Paws LLC
(As shown on Line 1, Form E001)

2. Equipment Name: BLP500/150 Serial # 1131-914-08
(As shown on Line 10, Form E001)

3. Equipment Data:

A. Manufacturer: B&L
B. Model Number: BLP500/150
C. Rate Capacity: 150 per hr Lbs/hr.
D. Date of Manufacture: 2008
E. Date of Installation: _____

4. Equipment Design:

A. Number of Chambers: 1
B. Primary Chamber Burner Rating: 1,500,000 BTU/hr Type of Fuel: Natural gas
C. Secondary Chamber Burner Rating: _____ BTU/hr Type of Fuel: "
D. Tertiary Chamber Burner Rating: _____ BTU/hr Type of Fuel: "

5. Emissions Data:

A. ☐ Emissions Uncontrolled
B. ☐ Baghouse (File Form E102)
C. ☐ Wet Collecting Device (File Form E103)
D. ☐ Electrostatic Precipitator (File Form E104)
E. ☐ Inertial Separator (File Form E105)
F. ☐ Other (Specify): _____

G. Actual Emissions: Use submitted PM emissions test; Pet Haven NO_x, CO, & HCl emissions test; and AP-42 SO_2 (Table 2.3-1) & VOC (Table 1.3-2) emission factors

Air Contaminant	Actual Emission Rate
Particulate Matter	_____ Lbs/hr.
NO_2	_____ Lbs/hr.
SO_2	_____ Lbs/hr.
CO	_____ Lbs/hr.
VOC	_____ Lbs/hr.
Other: _____	_____ Lbs/hr.
_____	_____ Lbs/hr.
_____	_____ Lbs/hr.

☒ Emissions determined by stack test (submit report)
☐ Emissions Estimated (File Form E106)

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CHATTANOOGA-HAMILTON COUNTY AIR POLLUTION CONTROL BUREAU

6. Incinerator Operation:

A. Average amount of waste burned: _____ Lbs/day
B. Type of waste normally burned: _____ (See Table Below)

Type	Principal Components, Usual Source, and Moisture Content
0	Highly combustible waste, paper, wood, cardboard cartons, including up to 10% treated papers, plastic or rubber scraps. This type of waste may have up to 10% moisture and 5% incombustible solids and have a heating value of 2500 BTU/hr as fired.
1	Combustible waste, paper, cartons, rags, wood scraps, combustible floor sweepings, and foliage. The mixture may contain up to 20% by weight of restaurant or cafeteria waste, but contains less than 1% treated papers, plastic, or rubber wastes. This type of waste may have up to 25% moisture and 10% incombustible solids and has a heating value of 6500 BTU/hr as fired.
2	Refuse consisting of an approximately even mixture of rubbish and garbage by weight. This type of waste is common to apartment and residential occupancy, consisting of up to 50% moisture and 7% incombustible solids and has a heating value of 4300 BTU/hr as fired.
3	Garbage consisting of animal and vegetable wastes from restaurants, cafeterias, hotels, hospitals, markets, and similar installations. This type of waste may contain up to 70% moisture and up to 5% incombustible solids and has a heating value of 2500 BTU/hr as fired.
4	Infectious waste; as defined by the Chattanooga Air Pollution Control Ordinance, Section 4-41, Rule 20.4.
5	By-product waste, gaseous, liquid or semi-liquid, such as tar, paints, solvents, sludge, fumes, etc. from industrial operations. Fill in the following: Heating value:_____ BTU/hr; % Incombustibles _____; % Moisture _____.
6	Solid by-product waste, such as rubber, plastics, wood waste, etc. from industrial operations. Fill in the follow: Heating value:_____ BTU/hr; % Incombustibles _____; % Moisture _____.

7. **Emission Point Data:**

A.	Stack height above ground:	28	Ft
B.	Ground elevation above sea level at stack base:		Ft
C.	Stack Diameter:	2FT O.D.	Ft
D.	Volume of gas discharged into atmosphere:		Cfm
E.	Gas exit temperature:		°F

8. **Equipment Operation:**

Average Operating Time:	Daily:	6-8	Hours
	Weekly:	3-6	Days
	Yearly:		weeks

This is to certify that I am familiar with the operations concerning this equipment and that the information provided on this application is true and complete to the best of my knowledge. ***This form must be completely filled out before it will be acceptable.***

Mail to:
CHATTANOOGA-HAMILTON COUNTY
AIR POLLUTION CONTROL BUREAU
6125 Preservation Drive
Chattanooga, TN 37416

Company Official: [signature] Samantha Carlson

Title: Vice President / Owner

Date: 02/21/2024

DO NOT WRITE BELOW THIS LINE

_____ Engineer Approval

This form corresponds to permit number: _____

Special Notations: _____

BASIC APPLICATION FOR EQUIPMENT / AIR POLLUTION PERMIT OR CERTIFICATE OF OPERATION

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(Less than 1000 lbs/yr and less than 10 lbs/day total uncontrolled contaminant emissions)

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9. Equipment Name:
B & L Pet Cremation System BLP500/M3

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B. Increase, decrease, or alter emissions or emission points? ☐ Yes ☐ No

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Date

INCINERATOR APPLICATION

FORM E012
7/2001

1. Name of Company: All Tenn. Paws LLC
   (As shown on Line 1, Form E001)
2. Equipment Name: BLP500/M3 Serial #1310-1093-11
   (As shown on Line 10, Form E001)

3. Equipment Data:

   A. Manufacturer: B+L
   B. Model Number: BLP500/M3
   C. Rate Capacity: 150 LB/HR Lbs/hr.
   D. Date of Manufacture: 2011
   E. Date of Installation:

4. Equipment Design:

   A. Number of Chambers: 3
   B. Primary Chamber Burner Rating: _____ BTU/hr Type of Fuel: Natural Gas
   C. Secondary Chamber Burner Rating: _____ BTU/hr Type of Fuel: "
   D. Tertiary Chamber Burner Rating: _____ BTU/hr Type of Fuel: "
   Total 2,000,000 BTU/hr

5. Emissions Data:

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   B. ☐ Baghouse (File Form E102)
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   F. ☐ Other (Specify): _____

   ★ → Use submitted PM emissions test; Pet Haven NOx, CO, & HCl emissions test; and AP-42 SO_2 (Table 2.3-1) & VOC (Table 2.3-2) emission factors

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Particulate Matter	_____ Lbs/hr.	☒ Emissions determined by stack test (submit report)
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SO_2	_____ Lbs/hr.	☐ Emissions Estimated (File Form E106)
CO	_____ Lbs/hr.	
VOC	_____ Lbs/hr.	
Other: _____	_____ Lbs/hr.	
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_____	_____ Lbs/hr.	

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Company Official: Samantha Carlson

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Cremation Association of North America

Emmissions Tests Provide Positive Results

A joint effort by CANA and EPA produced evidence that crematories are capable of low emission without the addition of pollution equipment and that higher temperatures can increase pollutants.

The Cremation Association of North America recently participated in a detailed emissions study of a crematory as part of an effort by the U.S. Environmental Protection Agency to develop environmental regulations for crematories.

The crematory emissions testing, which took place from June 11 through June 17, 1999 at The Woodlawn Cemetery, Bronx, New York, was funded jointly by CANA and the EPA.

The EPA is required by the Clean Air Act to establish regulations for the year 2000 for several different types of combustion equipment, including crematories.

Sensing the importance of being involved with the EPA in developing the regulations, CANA selected the environmental team of Dale Walter and Paul Rahill from Industrial Equipment & Engineering Company to represent the interests of CANA members during the development process.

Efforts to create the crematory regulations began in 1996 and the regulations were expected in November 1999. The regulations are now expected in the Spring of 2000 because priority has been given to other types of facilities. The CANA environmental team has participated in every step of the process to insure proper representation of the cremation industry.

The fact that EPA considers crematories a low priority would also have meant that testing funds would not have been available. However, the CANA environmental team felt that because these regulations could have such a large impact on the cremation industry it was important that they be based on complete test data. At this point EPA agreed to a CANA proposal to share the testing costs. This joint effort was made possible through donations from CANA members, and industry associations.

Testing Plan

The Woodlawn Cemetery facility was chosen because the All Crematory equipment installed there is typical of many facilities and also because it is one of the only crematories in North America with additional pollution control equipment. Water scrubber devices are installed in the exhaust ducts to clean the combustion gases.

During each test run, sampling of the combustion gases was conducted both upstream and downstream of the water scrubber device to determine how effective the device was.

Source: http://www.cremationassociation.org/

As recommended by the CANA environmental team, testing was conducted under three different secondary chamber operating temperatures to get a clear picture of how emissions change with temperature. A series of tests took place at each of the following temperatures: 1400°F; 1600°F; and 1800°F. Initially, EPA planned to test only at 1600°F and 1800°F. However, CANA felt it was important to test at 1400°F and decided to pay the full cost of the additional testing because many older facilities cannot operate at the higher temperatures.

Three cremations were performed at each temperature condition.

The following are the pollutants for which emission standards are to be established and for which testing was conducted:

- visible emissions
- particulate matter
- carbon monoxide
- nitrogen oxides
- sulfur dioxide
- hydrogen chloride
- metals (cadmium, mercury, and lead)
- dioxins and furans

Source: http://www.cremationassociation.org/

Cremation Association of North America

Testing Results

Visible Emissions:

The visible emissions were evaluated every 15 seconds and rated on a scale from 0% to 100% opacity by a qualified inspector.

The opacity readings for each cremation were then averaged over the six-minute period with the highest emissions. Figure 1 shows that visible emissions increased as the operating temperature increased. Comparison is given to a typical state emission limit.

Particulate Matter:

The results of sampling show that particulate matter emissions also increased with temperature. Overall, the emission of particulate matter were very low.

The average test results for particulate matter (shown in Figure 2) as well as the results for all of the following pollutants, are for the inlet to the scrubber. A comparison of the emissions before and after the water scrubber showed that the device had a little to no effect on the emissions of any pollutants.

Carbon Monoxide:

The levels of carbon monoxide (Figure 3) were very low for each test condition, well below the typical state standard of 100 parts per million.

Nitrogen Oxides and Sulfur Dioxide:

The levels of these gases (shown in Figure 4 and 5) were within acceptable limits.

Hydrogen Chloride:

Hydrogen chloride (HCl) is a gaseous pollutant produced by the burning of plastics or other material containing chlorine. The HCl emissions would not be expected to change with temperature. The average HCl emission for all the conditions was 0.15 pound per hour of operation.

Source: http://www.cremationassociation.org/

Metals:
Like HCl, emissions of mercury, cadmium, and lead are not expected to vary with operating temperature. The metal of concern from crematories is mercury, which mainly comes from dental filings. The average mercury emission was 0.23 gram per hour of operation.

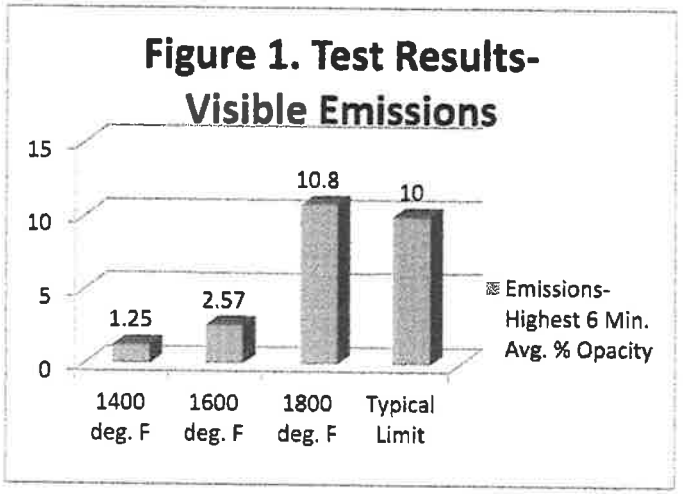
Dioxins and Furans:
Dioxins and furans are complex compounds released from many different combustion sources. The presence of chlorine in the combustion process is an important factor for dioxin and furan formation.

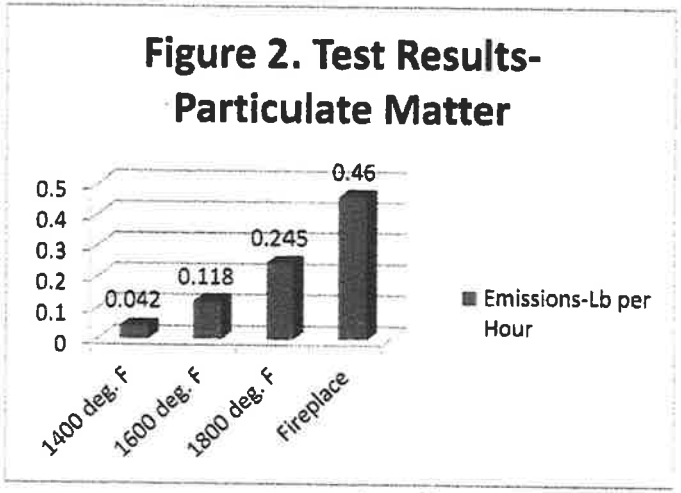
The test results show that the emissions of dioxins and furans went up as the temperature increased. The emissions, (shown in Figure 6) are low compared to other types of incinerators. The measurement unit is the nanogram, which is one-billionth of a gram.

Conclusion:
The test results show that the emissions of nearly all the tested pollutants increased when the operating temperature was raised. This indicates that there is no justification or benefit for the high operating temperatures required in many states.

The results also demonstrate that the crematories are capable of low emissions without the use of additional pollution control equipment.

These findings should provide a positive benefit to the cremation industry as the EPA creates new regulations.





Source: http://www.cremationassociation.org/

Figure 3. Test Results- Carbon Monoxide

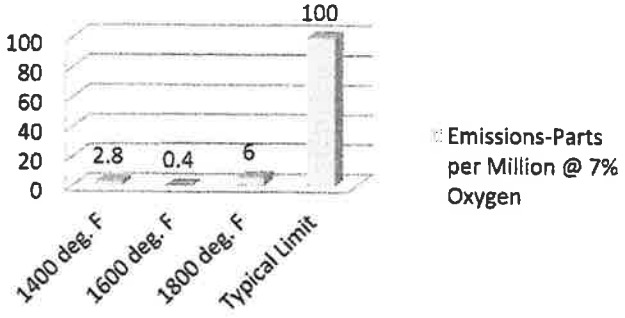


Figure 4. Test Results- Nitrogen Oxides

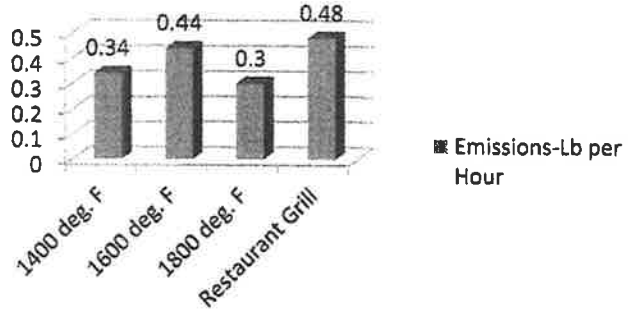


Figure 5. Test Results- Sulfur Dioxide

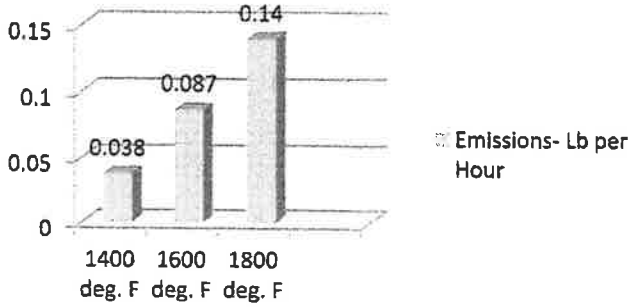
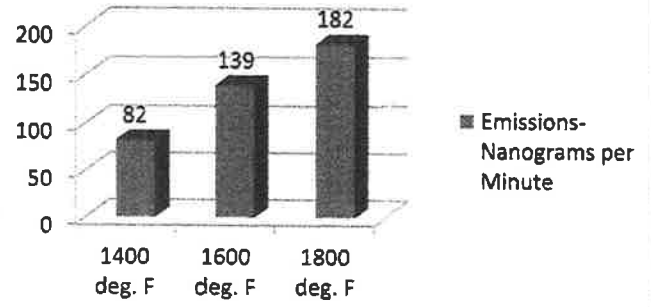


Figure 6. Test Results- Dioxins and Furans



Source: http://www.cremationassociation.org/

TABLE 3-1

CREMATOR

SUMMARY OF PARTICULATE & MERCURY EMISSIONS

DATE	FEBRUARY 2007	FEBRUARY 2007	FEBRUARY 2007	
RUN NO.	HC-1-P	HC-1-M	HC-2-P	
START TIME	1218	1543	1740	
END TIME	1425	1649	1849	
DISCHARGE CHARECTERISTICS				AVERAGE
VELOCITY FPM	1801	1925	2017	1914
DSCFM	1424	1414	1410	1416
ACFM	3195	3415		
Temperature °F	674	758	823	752
Moisture, %	5.5	6.4	6.0	6.3
Static Pressure, IN. H2O	-0.10	-0.13	-0.13	-0.12
Barometric Pressure, 1N. Hg	30.62	30.52	30.50	30.66
EMISSIONS				
Particulate	5.76E-03 (= 0.00576)	New EPA Limit is .029	4.04E-03	4.90E-03
gr/DSCF	7.03E-02		4.88E-02	5.96E-02
Lbs/Hr.	1.07E-02		9.27E-03	9.97E-03
gr/DSCF@ 7% O2		<4.96E-05 (= .000049)		
Mercury		<6.01E-04 (= .000601)	New EPA Limit is .0061	
gr/DSCF				
Lbs/Hr.				
*Standard Conditions: 29.92"Hg. 68° F				

Source: PA DEP, Department of Public Health , Public Health Services, Air Management Services

The Chemical Components of Cremated Remains

The results provided, with the exception of Phosphate and Sulfate, are presented as the element. However, in the body these elements are present as a part of a variety of organic and inorganic compounds. Upon cremation, most of the organic compounds are converted to the metal oxide. Depending on the conditions of cremation, some may also be converted to carbonates. The inorganic compounds may remain as phosphates, sulfates, chlorides or carbonates, or may be partially converted to oxides. The carbon from the carbonates and the oxygen from the oxides and carbonates are not included in the data presented. Those elements are not determined by the testing procedures used for this report.

The precision of the testing procedure used is +/-10% of the reported value, i.e. Phosphate reported as 47.5% may be 42.8 to 52.2%

Gayle E. O'Neill, PhD.
TEI Analytical, Inc.
Niles, Illinois

- Phosphate 47.5%
- Calcium 25.3%
- Sulfate 11.00%
- Potassium 3.69%
- Sodium 1.12%
- Chloride 1.00%
- Silica 0.9%
- Aluminum Oxide 0.72%
- Magnesium 0.418%
- Iron Oxide 0.118%
- Zinc 0.0342%
- Titanium Oxide 0.0260%
- Barium 0.0066%
- Antimony 0.0035%
- Chromium 0.0018%
- Copper 0.0017%
- Manganese 0.0013%
- Lead 0.0008%
- Tin 0.0005%
- Vanadium 0.0002%
- Beryllium <0.0001%
- Mercury <0.00001%

Source:
http://www.lafayettecrematory.com/PublicationsForms/chemical-components.html

MERCURY UPDATE:

Crematories represent 0% of the total inventory for national mercury emissions rates according to US EPA and their Best Point Estimates.

Most recently, US EPA updated their National Emissions Inventory and, based on actual data from testing they participated in, all US crematories combined in 1999 produced a total of 238 pounds of mercury.

The most notable way that mercury enters the cremation cycle, and therefore crematory emissions, is through silver amalgam dental fillings found in many dead human bodies.

Silver amalgam tooth fillings containing mercury have been common for many years, but their use appears to be on a significant decline. Within the last 10 years, the percentage of fillings containing mercury has already declined by 30%, a significant decrease. Although concern for environment has always been a priority for the dental industry, the primary driver of this trend is actually found in the mirror, the appearance. Composite resins blend better with the color and appearance of natural teeth. All these changes in dental practices and consumer preferences have resulted in significantly less mercury entering the cremation stream and thereby reducing mercury emissions by reducing mercury input.

Source:
www.accinfo.org/sitebuildercontent/sitebuilderfiles/accnewsletter1.pdf

Source Test Report for Particulate, Visible and Carbon Monoxide Emissions

EPA Method 1-5, 9 & 10

Report

16037-ST

Conducted:

July 7th, 2016

Prepared for:

A Rainbow Crossing Pet Memorial Services, LLC

EU-002

Facility ID 0112719

By

Beatty Environmental Services, LLC
315 SE 20th Pl
Cape Coral, FL 33990
(239) 246-3646

Table of Contents

1.0 Introduction

A Rainbow Crossing Pet Memorial Services, LLC, Facility ID 0112719, operates a animal crematory located at 4830 NE 12th Avenue is Oakland Park, Florida. On July 7th, 2016, tests for particulate (PM), Carbon Monoxide (CO), and visible emissions (VE) were performed on the cremation exhaust stack of **EU-002**.

The tests were performed in order to comply with the air general permit conditions and Broward County Department of Planning and Environmental Protection, Air Quality Division, Chapter 27 Article IV, Air Quality, Section 27-179(c)(2).

During the testing period, Mr. Robert Johnson crematory operator and owner for A Rainbow Crossing Pet Memorial Services, LLC, maintained a log containing the emission control device and process data. This information is presented, along with the temperature charts, in Attachment C.

The results of this test verify compliance with the Florida Department of Environmental Protection Rule 62-296.401(6) F.A.C.

2.0 Certification of Test Results

Facility Tested: A Rainbow Crossing and Pet Memorial Services, LLC
4830 NE 12th Avenue
Oakland Park, FL

Type Process: Animal Crematory

Abatement Device: Afterburner

Report: 16037-ST

Date: July 7th, 2016

Actual Particulate Emissions – **0.036** gr/dscf. @ 7% Oxygen
Allowable Particulate Emissions – 0.08 gr/dscf. @ 7% Oxygen

Actual Carbon Monoxide Emissions – **10.63 ppm** @ 7% Oxygen
Allowable Carbon Monoxide Emissions – 100ppm @ 7% Oxygen

Actual Visible Emission – **0.00%**
Allowable Visible Emissions - 5%

All testing and analysis was performed in accordance with the 40 CFR Part 60.

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

Daniel Beatty
Project Director

3.0 Allowable Emission Determination

The allowable emissions were determined in accordance with the Notice of Air Pollution Permit, 0112719-AG-003, conditions set forth by the Florida Department of Environmental Protection.

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
A Rainbow Crossing Pet Memorial Services
FID # 0112719
16037-ST

	Run 1	Run 2	Run 3	Average
Date	7/7/2016	7/7/2016	7/7/2016	
Start Time	12:50	14:16	15:35	
Stop Time	13:54	15:19	16:41	
Process Rate (lbs/hr.)	154	150	151	152
Particulate Emission Rate (gr./dscf @ 7% O_2)	0.0371	0.0343	0.0371	0.036
Allowable Particulate Emission Rate (gr./dscf @7% O_2)	0.080	0.080	0.080	0.080
Visible Emission Rate (%) (highest six minute average)	0.00			0.00
Allowable Visible Emission Rate (%) (with up to 20% for 3 min. per hour)	5			5
Carbon Monoxide Emission Rate (ppm @7% O_2)	10.83	6.78	14.30	10.63
Allowable Carbon Monoxide Emission Rate (ppm @7% O_2)	100	100	100	100

6.0 Visible Emission Results
A Rainbow Crossing Pet Memorial Services
FID # 0112719
16037-ST

Emission Point	Allowable Emission Rate (highest six minute average)	Emission Rate (highest six minute average)	Average Opacity
Exhaust Stack	5	0.00	0.00

7.0 Particulate Emission Results
A Rainbow Crossing Pet Memorial Services
FID # 0112719
16037-ST

	Run 1	Run 2	Run 3
Area (square feet)	1.77	1.77	1.77
Stack Pressure (inches Hg)	30.01	30.01	30.01
Meter Pressure (inches Hg)	30.16	30.13	30.13
Sample Volume (Std. Cu. Ft.)	48.978	43.202	43.551
Water Vapor (Cubic Feet)	5.26	4.41	5.25
Sample Moisture (percent)	9.70	9.26	10.76
Saturation Moisture (percent)	100.00	100.00	100.00
Molecular Weight (lbs/lb Mole wet)	28.24	28.29	28.12
Velocity (fpm)	1494	1381	1359
Volumetric Flow Rate (acfm)	2641	2441	2402
Volumetric Flow Rate (dscfm)	1066	947	937
Concentration (gr/dscf)	0.0144	0.0133	0.0144
Mass Emission Rate (lbs./hr.)	0.13	0.11	0.12
Percent Isokinetic	99.22	98.59	100.38

average
0.118 lb/hr

0.0007800 lb PM/lb
150 $\frac{lb}{hr}$
= 0.11700 lb/hr

8.0 Carbon Monoxide Emission Results
A Rainbow Crossing Pet Memorial Services
FID # 0112719
16037-ST

	Run1	Run 2	Run 3	Average
Date	7/7/2016	7/7/2016	7/7/2016	
Start Time	12:50	14:16	15:35	
Stop Time	13:54	15:19	16:41	
Percent Oxygen	15.43	16.34	16.05	
Carbon Monoxide (PPM)	4.26	2.71	4.99	
Carbon Monoxide Emissions (PPM @ 7% O_2)	10.83	6.78	14.30	10.63
Carbon Monoxide Allowable (PPM@ 7% O_2)	100	100	100	100

9.0. Overview of Field and Analytical Procedures

9.1. 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.

9.2. 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 l. 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.

9.3. EPA 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) A multi-point grab sampling method using an Orsat analyzer to analyze the individual grab sample obtained at each point; (2) a method for measuring either CO2 or O2 and using stoichiometric calculations to determine dry molecular weight; and (3) assigning a value of 30.0 for dry molecular weight, in lieu of actual measurements, for processes burning natural gas, coal, or oil.

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 CO2, O2, 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.

9.4. 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, 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.

9.5 EPA Method 5 – Determination of Particulate Emissions from Stationary Sources

Principle – Particulate matter is withdrawn isokinetically from the source collected on a glass fiber filter maintained at a temperature in the range of 223-273 degrees F or such other temperature as specified by an applicable subpart of the standards or approved by the Administrator, US 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

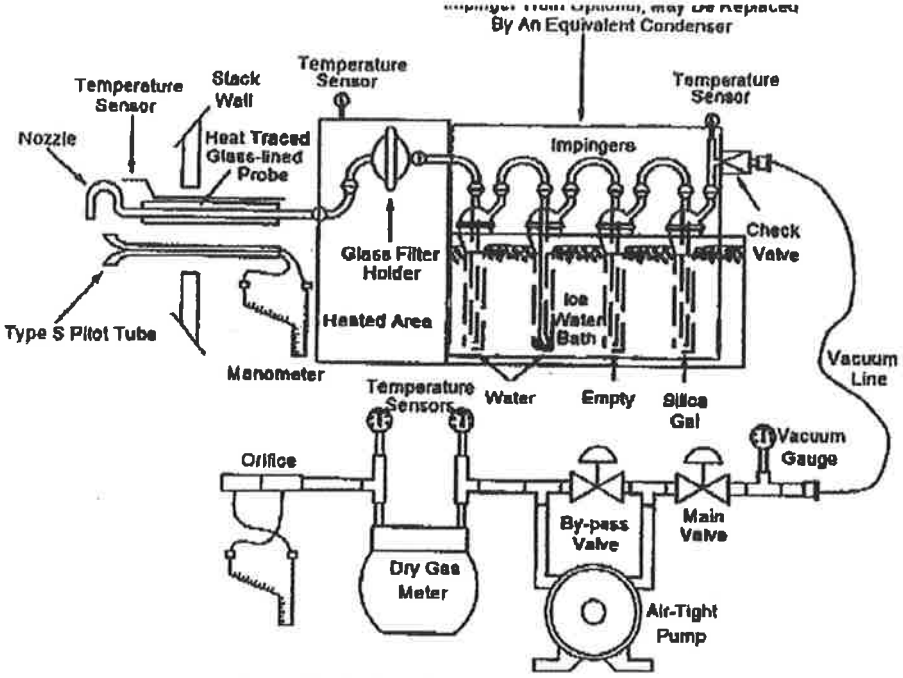


Figure F5-1. Particulate Sampling Train.

[redacted]

9.6 EPA Method 9 – Visual Determination of the Opacity of Emissions from Stationary Sources

Principle - The opacity of emissions from stationary sources is determine visually by a Qualified observer.

Applicability - This method is applicable for the determination of the opacity of emissions from stationary sources pursuant to 60.11(b) and for qualifying observers or visually determining the opacity ofemissions.

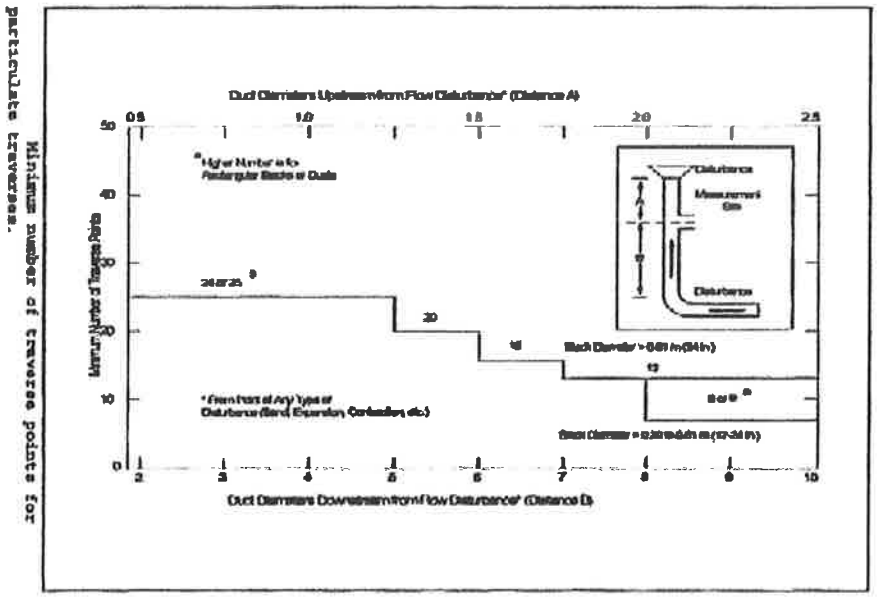
9.7 EPA Method 10 – Determination of Carbon Monoxide Emissions from Stationary Sources

Principle - An integrated or continuous gas sample is extracted from a sampling point and analyzed for carbon monoxide (CO) content. Performance specifications and test procedures are provided to ensure reliable data.

Applicability - This method is applicable for the determination of carbon monoxide emissions from stationary sources. The process will dictate whether a continuous or an integrated sample is required. If the process produces CO spikes that would exceed the span (as determined from the allowable), then an integrated procedure is required.

10.0 Sampling Point Determination Procedure

Minimum Number of Sampling Points Per 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	3x3
12	4x3
16	4x4
20	5x4
25	5x5
30	6x5
36	6x6
42	7x6
49	7x7

10.1 Sampling Point Determination
A Rainbow Crossing Pet Memorial Services
FID # 0112719
16037-ST

Stack Configuration	Circular
Diameter (inches)	18
Distance A - Ports to Downstream Disturbance (inches)	24
Distance A - Ports to Downstream Disturbance (diameters)	1.3
Distance B - Ports to Upstream Disturbance (inches)	110
Distance B - Ports to Upstream Disturbance (diameters)	6.1
Number of Test Ports	2
Wall or Port length	9
Number of Sampling Points per Traverse	10
Number of Points Sampled	20

Photograph of Stack

Traverse Point Location	
Traverse Point No.	Inches to Sample Point offset
1	9.5
2	10.5
3	11.6
4	13.1
5	15.2
6	20.8
7	22.9
8	24.4
9	25.5
10	26.5

11.0 Summary of Field and Laboratory Data
A Rainbow Crossing Pet Memorial Services
FID # 0112719
16037-ST

	Run 1	Run 2	Run 3
Date	7/7/2016	7/7/2016	7/7/2016
Start Time	12:50	14:16	15:35
Stop Time	13:54	15:19	16:41
CP	0.84	0.84	0.84
Y	1.0073	1.0073	1.0073
^Ha (inches H2O)	1.6588	1.6588	1.6588
Diameter of Nozzle (inches)	0.5000	0.5000	0.5000
Stack Diameter or Equivalent (inches)	18.00	18.00	18.00
Static Pressure (inches H2O)	-0.05	-0.05	-0.05
Barometric Pressure (inches Hg)	30.01	30.01	30.01
Test Time (minutes)	60	60	60
Meter Volume (cubic feet)	49.822	44.312	44.759
Square Root ^P (inches H2O)	0.293	0.265	0.263
Orifice Pressure ^H (inches H2O)	2.013	1.584	1.584
Average Meter Temperature (Deg. F)	85.1	89.1	90.2
Average Stack Temperature (Deg. F)	723.7	778.3	750.6
Particulate Sample Weight (grms)	0.0458	0.0373	0.0407
Water Collected (grms)	111.5	93.6	111.3
Molecular Weight (lbs/lb Mole)	29.34	29.34	29.34
Nozzle Area (square feet)	0.00136	0.00136	0.00136

Attachment A - Field Data

Beatty Environmental Services, LLC

Particulate Field Data

Plant	A Rainbow Crossing Pet Memorial Services		Y_{qa}	1.0074	
Report	16037-ST-1		^Ha	1.6588	
Date	07/07/16		Dn	0.5000	
Operator	ZB		Diameter (in.)	18.0	
Time	Start - 12:50	End - 13:54	Traverses X Points	2 X 10	
K Factor	22.0		Static Pressure	-0.05	
Assumed Moisture %	9		Barometric Pressure (in. Hg)	30.01	
Dry Gas Meter No.	1		Test Time (min.)	60	
Nozzle ID No.	#20		Metered Volume	49.822	
Wet Bulb Temperature	N/A		Avg. Sq Rt ^P	0.293	
Post Leak Check	.000cfm @ 15" Hg.		Avg. ^H	2.013	
Cp Factor	0.84		Avg. Meter Temp.	85.1	
Y	1.0073		Avg. Stack Temp.	723.7	

Traverse Point Number	Sampling Time (min.)	DG METER (cu.ft.) 822.140	Velocity Head ΔP(in. H2O)	Pressure Orifice Meter ΔH(in. H2O)	Meter Temperature (°F)	Pump Vacuum (in. Hg)	Impinger Temperature (°F)	Filter Temperature (°F)	Stack Temperature (°F)
1	3	824.44	0.07	1.54	82	4.0	63	250	793
2	3	826.52	0.08	1.76	82	4.0	60	248	859
3	3	829.05	0.12	2.64	82	5.0	60	256	864
4	3	832.11	0.13	2.86	82	6.0	61	250	855
5	3	835.07	0.14	3.08	83	6.5	61	266	845
6	3	838.11	0.14	3.08	83	6.5	61	250	847
7	3	840.67	0.10	2.20	84	5.0	62	259	750
8	3	842.77	0.06	1.32	84	4.0	62	260	600
9	3	844.81	0.05	1.10	84	4.0	61	265	524
10	3	846.79	0.06	1.21	85	4.0	61	256	345
1	3	849.44	0.11	2.42	85	6.0	60	244	740
2	3	852.31	0.13	2.86	86	7.0	60	255	887
3	3	855.33	0.14	3.08	86	8.0	60	262	884
4	3	858.62	0.18	3.96	87	10.0	61	253	864
5	3	861.54	0.11	2.42	87	6.0	62	268	640
6	3	863.91	0.07	1.54	88	5.0	62	268	652
7	3	865.91	0.04	0.88	88	4.0	62	251	644
8	3	867.75	0.04	0.88	88	4.0	62	253	640
9	3	869.83	0.04	0.77	88	4.0	62	261	628
10	3	871.962	0.03	0.66	88	3.0	62	252	613

Beatty Environmental Services, LLC

Particulate Field Data

Plant	A Rainbow Crossing Pet Memorial Services	Y_{qa}	1.0089
Report	16037-ST-2	^Ha	1.6588
Date	07/07/16	Dn	0.5000
Operator	ZB	Diameter (in.)	18.0
Time	Start - 14:16 End - 15:19	Traverses X Points	2 X 10
K Factor	22.0	Static Pressure	-0.05
Assumed Moisture %	10	Barometric Pressure (in. Hg)	30.01
Dry Gas Meter No.	1	Test Time (min.)	60
Nozzle ID No.	#20	Metered Volume	44.312
Wet Bulb Temperature	N/A	Avg. Sq Rt ^P	0.265
Post Leak Check	.000cfm @ 18" Hg.	Avg. ^H	1.584
Cp Factor	0.84	Avg. Meter Temp.	89.1
Y	1.0073	Avg. Stack Temp.	778.3

Traverse Point Number	Sampling Time (min.)	DG METER (cu.ft.) 873.500	Velocity Head ΔP(in. H2O)	Pressure Orifice Meter ΔH(in. H2O)	Meter Temperature (°F)	Pump Vacuum (in. Hg)	Impinger Temperature (°F)	Filter Temperature (°F)	Stack Temperature (°F)
1	3	875.98	0.08	1.76	87	3.0	64	242	862
2	3	877.91	0.07	1.54	88	3.0	62	261	819
3	3	880.28	0.09	1.98	87	4.0	62	261	808
4	3	882.83	0.10	2.20	88	4.0	62	256	821
5	3	885.47	0.10	2.20	88	4.0	62	263	797
6	3	887.81	0.08	1.76	88	3.5	62	261	788
7	3	890.04	0.07	1.54	88	3.0	62	260	795
8	3	892.19	0.06	1.32	88	3.0	62	261	668
9	3	894.01	0.04	0.88	89	3.0	62	256	649
10	3	895.82	0.04	0.88	89	3.0	62	260	635
1	3	898.73	0.12	2.64	89	5.0	64	260	850
2	3	901.14	0.10	2.20	89	5.0	63	261	844
3	3	903.48	0.07	1.54	90	4.0	63	262	841
4	3	905.72	0.07	1.54	90	4.0	63	262	853
5	3	907.83	0.06	1.32	90	4.0	63	262	808
6	3	909.84	0.06	1.32	90	4.0	63	257	786
7	3	911.91	0.07	1.54	90	4.0	63	260	792
8	3	913.84	0.06	1.32	91	4.0	64	259	742
9	3	915.88	0.06	1.32	91	4.0	64	261	720
10	3	917.812	0.04	0.88	91	4.0	64	261	688

Beatty Environmental Services, LLC

Particulate Field Data

Plant	A Rainbow Crossing Pet Memorial Services	Y_{qa}	0.9998
Report	16037-ST-3	^Ha	1.6588
Date	07/07/16	Dn	0.5000
Operator	ZB	Diameter (in.)	18.0
Time	Start - 15:35 End - 16:41	Traverses X Points	2 X 10
K Factor	22.0	Static Pressure	-0.05
Assumed Moisture %	9	Barometric Pressure (in. Hg)	30.01
Dry Gas Meter No.	1	Test Time (min.)	60
Nozzle ID No.	#20	Metered Volume	44.759
Wet Bulb Temperature	N/A	Avg. Sq Rt ^P	0.263
Post Leak Check	.000cfm @ 16" Hg.	Avg. ^H	1.584
Cp Factor	0.84	Avg. Meter Temp.	90.2
Y	1.0073	Avg. Stack Temp.	750.6

Traverse Point Number	Sampling Time (min.)	DG METER (cu.ft.) 919.474	Velocity Head ΔP(in. H2O)	Pressure Orifice Meter ΔH(in. H2O)	Meter Temperature (°F)	Pump Vacuum (in. Hg)	Impinger Temperature (°F)	Filter Temperature (°F)	Stack Temperature (°F)
1	3	922.02	0.10	2.20	89	4.0	64	254	872
2	3	924.64	0.11	2.42	89	5.0	62	255	884
3	3	927.26	0.10	2.20	89	4.0	61	249	835
4	3	929.55	0.08	1.76	89	4.0	61	264	802
5	3	931.73	0.08	1.76	89	4.0	61	255	778
6	3	933.96	0.07	1.54	90	4.0	60	259	785
7	3	936.22	0.07	1.54	90	4.0	60	244	748
8	3	938.22	0.05	1.10	90	3.0	59	251	702
9	3	940.02	0.04	0.88	90	3.0	59	258	600
10	3	941.70	0.04	0.88	90	3.0	60	251	502
1	3	943.95	0.08	1.76	90	5.0	60	242	821
2	3	946.27	0.08	1.76	90	5.0	58	257	806
3	3	948.74	0.10	2.20	91	5.0	58	258	796
4	3	951.72	0.13	2.86	91	7.0	59	256	766
5	3	954.23	0.08	1.76	91	5.0	59	264	767
6	3	956.56	0.06	1.32	91	5.0	60	256	747
7	3	958.91	0.06	1.32	91	5.0	59	260	753
8	3	960.82	0.05	1.10	91	4.5	59	256	720
9	3	962.61	0.03	0.66	91	3.0	59	249	706
10	3	964.233	0.03	0.66	91	3.0	59	265	621

A RAINBOW CROSSING PET CREMATIONS

DATE: 7/7/2016
RUN: 1

AVG. ADJUSTED CO ppmvd @ 7% O2	10.83
CORRECTED O2 %	15.43
CORRECTED CO2 %	4.31
CORRECTED CO ppmvd	4.26

ANALYZER RESPONSE, SYSTEM BIAS AND SYSTEM DRIFT DATA

RANGE SETTING	CAL GASES	CERTIFIED GAS VALUE	ANALYZER VALUE	DIFFERENCE PPM	% SPAN	ANALYZER PRETEST VALUE	% SPAN	ANALYZER POSTTEST VALUE	% SPAN	% DRIFT	ANALYZER SERIAL #
		0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.44	0.44	
25	% O2	12.14	12.10	-0.04	-0.18	12.10	0.00	12.20	0.44	0.44	01420B153
		22.55	22.60	0.05	0.22						
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
20	% CO2	8.55	8.60	0.05	0.30	8.50	-0.60	8.60	0.00	0.60	01410/B139
		16.74	16.70	-0.04	-0.24						
		0.00	0.10	0.10	0.5	0.00	-0.5	0.00	-0.5	0.0	
110	PPM CO	9.23	9.2	-0.03	-0.2	9.00	-1.0	8.90	-1.5	-0.5	48C-68845-361
		19.30	19.40	0.10	0.5						
		48.10	48.10	0.00	0.0						

UNCORRECTED RAW DATA

DATE & TIME	O2 %	CO2 %	CO PPM
7/7/2016 12:50	15.14	4.41	33.20
7/7/2016 12:51	14.53	4.95	5.97
7/7/2016 12:52	15.24	4.72	1.45
7/7/2016 12:53	14.54	5.19	7.82
7/7/2016 12:54	15.23	4.74	6.40
7/7/2016 12:55	15.09	4.81	3.25
7/7/2016 12:56	15.18	4.74	43.93
7/7/2016 12:57	15.73	4.34	6.13
7/7/2016 12:58	15.10	4.76	6.88
7/7/2016 12:59	15.40	4.54	3.63
7/7/2016 13:00	15.39	4.53	2.68
7/7/2016 13:01	15.75	4.30	9.03
7/7/2016 13:02	15.46	4.47	3.73
7/7/2016 13:03	15.29	4.57	3.03
7/7/2016 13:04	15.31	4.57	4.40
7/7/2016 13:05	15.38	4.53	5.53
7/7/2016 13:06	15.45	4.46	6.30
7/7/2016 13:07	15.44	4.44	6.50
7/7/2016 13:08	15.46	4.42	5.72
7/7/2016 13:09	15.44	4.41	4.45
7/7/2016 13:10	15.46	4.39	3.53
7/7/2016 13:11	15.54	4.34	2.70
7/7/2016 13:12	15.52	4.35	2.15
7/7/2016 13:13	15.31	4.50	1.58
7/7/2016 13:14	15.20	4.54	1.45
7/7/2016 13:15	15.55	4.31	1.35
7/7/2016 13:16	15.64	4.26	1.43
7/7/2016 13:17	15.21	4.50	1.58
7/7/2016 13:18	15.23	4.44	1.78
7/7/2016 13:19	15.46	4.29	1.88
7/7/2016 13:20	15.51	4.29	2.08
7/7/2016 13:21	15.33	4.39	2.13
7/7/2016 13:22	15.20	4.44	2.55
7/7/2016 13:23	15.20	4.42	2.70
7/7/2016 13:24	15.24	4.38	2.40
7/7/2016 13:25	15.39	4.26	2.65
7/7/2016 13:26	15.46	4.22	2.93
7/7/2016 13:27	15.41	4.24	3.30
7/7/2016 13:28	15.34	4.27	3.58
7/7/2016 13:29	15.31	4.28	4.35
7/7/2016 13:30	15.33	4.24	4.18
7/7/2016 13:31	15.22	4.31	3.58
7/7/2016 13:32	15.26	4.27	3.95
7/7/2016 13:33	15.20	4.32	2.23
7/7/2016 13:34	15.33	4.25	0.35
7/7/2016 13:35	15.34	4.23	0.28
7/7/2016 13:36	15.43	4.17	0.35
7/7/2016 13:37	15.34	4.22	0.40
7/7/2016 13:38	15.40	4.15	0.80
7/7/2016 13:39	15.31	4.18	3.60
7/7/2016 13:40	15.33	4.17	2.70
7/7/2016 13:41	15.36	4.14	1.28
7/7/2016 13:42	16.56	3.36	1.88
7/7/2016 13:43	15.63	3.96	1.00
7/7/2016 13:44	16.29	3.51	0.80
7/7/2016 13:45	15.99	3.69	0.58
7/7/2016 13:46	16.06	3.61	0.43
7/7/2016 13:47	16.30	3.48	0.50
7/7/2016 13:48	15.64	3.83	0.33
7/7/2016 13:49	16.64	3.24	0.53

MEAN ANALYZER VALUES

Avg. % O2	15.43
Avg. % CO2	4.31
Avg. CO ppmvd	4.13

A RAINBOW CROSSING PET CREMATIONS

DATE: 7/7/2016
RUN: 2

AVG. ADJUSTED CO ppmvd @ 7% O2	6.76
CORRECTED O2 %	15.34
CORRECTED CO2 %	4.34
CORRECTED CO ppmvd	2.71

ANALYZER RESPONSE, SYSTEM BIAS AND SYSTEM DRIFT DATA

RANGE SETTING	CAL GASES	CERTIFIED GAS VALUE	ANALYZER VALUE	DIFFERENCE PPM	% SPAN	ANALYZER PRETEST VALUE	% SPAN	ANALYZER POSTTEST VALUE	% SPAN	% DRIFT	ANALYZER SERIAL #
		0.00	0.00	0.00	0.00	0.10	0.44	0.10	0.44	0.00	
25	% O2	12.14	12.10	-0.04	-0.18	12.20	0.44	12.10	0.00	-0.44	01420B153
		22.55	22.60	0.05	0.22						
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
20	% CO2	8.55	8.60	0.05	0.30	8.60	0.00	8.50	-0.60	-0.60	01410/B139
		16.74	16.70	-0.04	-0.24						
		0.00	0.10	0.10	0.5	0.00	-0.5	0.00	-0.5	0.0	
110	PPM CO	9.23	9.20	-0.03	-0.2	8.90	-1.5	9.10	-0.5	1.0	48C-68845-361
		19.30	19.40	0.10	0.5						
		48.10	48.10	0.00	0.0						

UNCORRECTED RAW DATA

DATE & TIME	O2 %	CO2 %	CO PPM
7/7/2016 14:15	14.35	4.92	0.80
7/7/2016 14:16	13.92	5.57	1.35
7/7/2016 14:17	13.45	5.93	0.73
7/7/2016 14:18	13.81	5.67	0.50
7/7/2016 14:19	14.02	5.53	0.60
7/7/2016 14:20	14.32	5.32	1.05
7/7/2016 14:21	14.56	5.14	1.20
7/7/2016 14:22	14.66	5.07	0.98
7/7/2016 14:23	14.83	4.95	0.53
7/7/2016 14:24	15.08	4.76	0.73
7/7/2016 14:25	15.29	4.59	0.73
7/7/2016 14:26	15.49	4.45	0.50
7/7/2016 14:27	15.57	4.38	0.58
7/7/2016 14:28	15.66	4.33	0.73
7/7/2016 14:29	15.08	4.69	5.63
7/7/2016 14:30	15.81	4.14	37.85
7/7/2016 14:31	14.94	4.74	16.13
7/7/2016 14:32	15.74	4.22	15.88
7/7/2016 14:33	15.32	4.44	8.47
7/7/2016 14:34	15.01	4.67	5.45
7/7/2016 14:35	15.34	4.46	4.75
7/7/2016 14:36	15.85	4.09	2.68
7/7/2016 14:37	15.22	4.47	2.05
7/7/2016 14:38	15.23	4.47	1.88
7/7/2016 14:39	15.28	4.44	1.40
7/7/2016 14:40	15.26	4.45	1.35
7/7/2016 14:41	15.39	4.36	1.10
7/7/2016 14:42	15.37	4.36	0.98
7/7/2016 14:43	15.44	4.31	0.62
7/7/2016 14:44	15.52	4.25	0.80
7/7/2016 14:45	15.27	4.42	0.78
7/7/2016 14:46	15.17	4.44	0.95
7/7/2016 14:47	15.51	4.21	0.98
7/7/2016 14:48	15.47	4.24	1.15
7/7/2016 14:49	15.18	4.39	1.38
7/7/2016 14:50	15.31	4.27	1.48
7/7/2016 14:51	15.62	4.07	1.53
7/7/2016 14:52	15.52	4.14	1.93
7/7/2016 14:53	15.38	4.19	2.03
7/7/2016 14:54	15.31	4.22	2.68
7/7/2016 14:55	15.34	4.17	2.78
7/7/2016 14:56	15.42	4.11	2.33
7/7/2016 14:57	15.51	4.06	1.83
7/7/2016 14:58	15.51	4.07	2.10
7/7/2016 14:59	15.39	4.13	2.00
7/7/2016 15:00	15.33	4.14	1.65
7/7/2016 15:01	15.15	4.25	1.20
7/7/2016 15:02	15.36	4.08	0.60
7/7/2016 15:03	16.26	3.51	1.70
7/7/2016 15:04	15.41	4.03	0.93
7/7/2016 15:05	16.40	3.38	1.05
7/7/2016 15:06	15.49	3.95	0.70
7/7/2016 15:07	16.21	3.48	0.78
7/7/2016 15:08	15.71	3.81	0.62
7/7/2016 15:09	15.99	3.81	0.75
7/7/2016 15:10	16.14	3.53	1.18
7/7/2016 15:11	15.68	3.77	0.85
7/7/2016 15:12	16.50	3.29	0.78
7/7/2016 15:13	15.51	3.86	0.58
7/7/2016 15:14	16.53	3.24	0.80

MEAN ANALYZER VALUES

Avg. % O2	15.32
Avg. % CO2	4.34
Avg. CO ppmvd	2.64

A RAINBOW CROSSING PET CREMATIONS

DATE: 7/7/2016
RUN: 3

AVG. ADJUSTED CO ppmvd @ 7% O2	14.29
CORRECTED O2 %	16.05
CORRECTED CO2 %	3.76
CORRECTED CO ppmvd	4.99

ANALYZER RESPONSE, SYSTEM BIAS AND SYSTEM DRIFT DATA

RANGE SETTING	CAL GASES	CERTIFIED GAS VALUE	ANALYZER VALUE	DIFFERENCE PPM	% SPAN	ANALYZER PRETEST VALUE	% SPAN	ANALYZER POSTTEST VALUE	% SPAN	% DRIFT	ANALYZER SERIAL #
		0.00	0.00	0.00	0.00	0.10	0.44	0.10	0.44	0.00	
25	% O2	12.14	12.10	-0.04	-0.18	12.10	0.00	12.10	0.00	0.00	01420B153
		22.55	22.60	0.05	0.22						
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
20	% CO2	8.55	8.60	0.05	0.30	8.50	-0.60	8.50	-0.60	0.00	01410/B139
		16.74	16.70	-0.04	-0.24						
		0.00	0.10	0.10	0.5	0.00	-0.5	0.10	0.0	0.5	
110	PPM CO	9.23	9.20	-0.03	-0.2	9.10	-0.5	9.10	-0.5	0.0	48C-68845-361
		19.30	19.40	0.10	0.5						
		48.10	48.10	0.00	0.0						

UNCORRECTED RAW DATA

DATE & TIME	O2 %	CO2 %	CO PPM
7/7/2016 15:35	16.63	2.96	0.62
7/7/2016 15:36	16.01	3.44	0.55
7/7/2016 15:37	12.47	6.39	40.55
7/7/2016 15:38	14.63	5.07	45.77
7/7/2016 15:39	14.73	5.01	13.23
7/7/2016 15:40	14.79	4.96	11.55
7/7/2016 15:41	15.29	4.57	10.75
7/7/2016 15:42	15.69	4.26	9.25
7/7/2016 15:43	15.70	4.25	10.65
7/7/2016 15:44	15.43	4.36	27.15
7/7/2016 15:45	15.16	4.57	18.45
7/7/2016 15:46	15.55	4.31	19.33
7/7/2016 15:47	15.99	4.01	31.25
7/7/2016 15:48	15.53	4.27	14.20
7/7/2016 15:49	15.35	4.40	4.15
7/7/2016 15:50	15.47	4.31	2.43
7/7/2016 15:51	15.46	4.31	2.58
7/7/2016 15:52	15.56	4.24	1.95
7/7/2016 15:53	15.72	4.11	1.38
7/7/2016 15:54	15.75	4.07	1.10
7/7/2016 15:55	15.48	4.22	1.18
7/7/2016 15:56	15.45	4.17	1.18
7/7/2016 15:57	16.48	3.49	1.08
7/7/2016 15:58	16.58	3.41	0.68
7/7/2016 15:59	16.48	3.43	0.58
7/7/2016 16:00	15.52	4.10	0.48
7/7/2016 16:01	15.14	4.31	0.30
7/7/2016 16:02	15.29	4.17	0.30
7/7/2016 16:03	16.52	3.38	2.00
7/7/2016 16:04	16.57	3.28	2.93
7/7/2016 16:05	16.56	3.27	0.87
7/7/2016 16:06	16.48	3.34	0.58
7/7/2016 16:07	16.28	3.46	1.13
7/7/2016 16:08	16.44	3.29	2.53
7/7/2016 16:09	16.48	3.33	0.50
7/7/2016 16:10	16.17	3.48	0.98
7/7/2016 16:11	16.51	3.24	2.10
7/7/2016 16:12	16.45	3.31	0.50
7/7/2016 16:13	16.21	3.43	0.58
7/7/2016 16:14	16.58	3.17	0.95
7/7/2016 16:15	16.10	3.51	0.35
7/7/2016 16:16	16.55	3.19	0.95
7/7/2016 16:17	16.64	3.13	0.70
7/7/2016 16:18	15.78	3.66	0.33
7/7/2016 16:19	16.83	2.99	0.68
7/7/2016 16:20	16.25	3.37	0.35
7/7/2016 16:21	16.38	3.24	0.30
7/7/2016 16:22	16.63	3.11	0.35
7/7/2016 16:23	15.86	3.55	0.28
7/7/2016 16:24	16.78	2.99	0.43
7/7/2016 16:25	15.93	3.54	0.30
7/7/2016 16:26	16.75	3.00	0.43
7/7/2016 16:27	16.41	3.25	0.38
7/7/2016 16:28	16.23	3.29	0.30
7/7/2016 16:29	16.71	3.04	0.55
7/7/2016 16:30	15.89	3.48	0.40
7/7/2016 16:31	16.93	2.88	0.30
7/7/2016 16:32	15.83	3.53	0.25
7/7/2016 16:33	16.91	2.86	0.28
7/7/2016 16:34	16.07	3.39	0.25

MEAN ANALYZER VALUES

Avg. % O2	15.97
Avg. % CO2	3.74
Avg. CO ppmvd	4.94

Beatty Environmental Services, LLC
315 SE 20th Pl
Cape Coral, Florida 33990
(239) 246-3646
beattyenvironmental12@gmail.com

VISIBLE EMISSION OBSERVATION FORM

Method Used (Circle One): Method 9 | 203A | 203B | Report ___

Company Name: A Rainbow Crossing
AIRS: 0112719
Street Address: ~~4868 NE 12th Ave~~ 4830 NE 12th Ave.
City: Oakland Park, FL
Zip Code:
Phone No.:

Process: Pet Cremation Unit: North
Operating Mode: 154 lbs
Control Equipment: After burners
Operating Mode: on

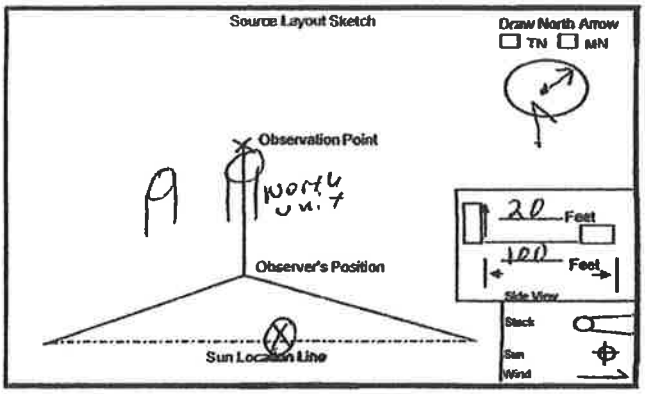
Describe Emission Point: Round Stack Northern most of 2
Ht of Emis.Point: ~20'
Ht Ref to Observer: ~20'
Distance to Emis. Pt: ~100'
Direction to Emis. Pt (Degrees): ~283°

Vertical Angle to Obs.: <180°
Direction to Obs. Pt. (Degrees): ~283°
Distance and Direction to Obs. Pt from Emission Pt: ~1' above

Describe Emissions: None
Emission Color: N/A
Water Droplet Plume: Attached ___ Detached ___ None X

Describe Plume Background: Sky
Background Color: Blue & White
Sky Conditions: Scattered
Wind Speed: 10-12 MPH
Wind Direction: SE
Ambient Temp.: ~95°F
Wet Bulb Temp.: —
% RH: —

Source Layout Sketch



Latitude: 26° 11' 13"
Longitude: 80° 7' 52"
Declination:

Comments: Concurrent with Run 1 of Stack Test 16037-ST

START 1250 STOP 1350

Observation Date: 7-7-16
Start Time: 1250
Stop Time: 1350

Sec / Min	0	15	30	45	Sec / Min	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	●	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

Number of Readings Above: 20 were 0
Average Opacity for Highest 6 Min Period: 0
Range of opacity Readings: Min 0 Max 0

Observers Name (Print): Stephen Webb
Observers Signature: Stephen E. Webb Date: 7-7-16
Organization: Beatty Environmental Services, llc
Certified By: Whitlow Date: 1-7-16

www.smokeschool.net

Certifies that

Steve Webb- Coastal Air

Has passed the certification test required by EPA Method 9
40 CFR 60 Appendix A and is qualified as a visible emissions evaluator.

Certification Date: *January 7, 2016* **Location:** *Lakeland, FL*

George Whitlow

President

LFL010716-28

Attachment B - Laboratory Data

Particulate Laboratory Data
A Rainbow Crossing Pet Memorial Services
FID # 0112719
16037-ST

Run 1

Filter Number	2255	
	Final Weight	0.3955 grams
	Tare Weight	0.3573 grams
	Difference	0.0382 grams
Beaker Number	1B	
	Final Weight	107.8366 grams
	Tare Weight	107.8288 grams
	Difference	0.0078 grams
Filter Blank Number	2258	
	Final Weight	0.3516 grams
	Tare Weight	0.3516 grams
	Difference	0.0000 grams
Acetone Wash Down		
	Volume of Rinse	120 mL
	Residue in Rinse (calculated)	2.53197E-06 mg/mg
	Total Residue in Rinse	0.00024 grams
Total Particulate Weight		**0.0458 grams**

Water Collected

	Final Impinger Water	299 mL
	Initial Impinger Water	200 mL
	Final Silica Weight	212.7 grams
	Silica Tare Weight	200.0 grams
Total Water Collected		**111.5 grams**

Analyst 

Particulate Laboratory Data
A Rainbow Crossing Pet Memorial Services
FID # 0112719
16037-ST

Run 2

Filter Number	2256	
	Final Weight	0.3886 grams
	Tare Weight	0.3548 grams
	Difference	0.0338 grams
Beaker Number	2B	
	Final Weight	114.2904 grams
	Tare Weight	114.2866 grams
	Difference	0.0038 grams
Filter Blank Number	2258	
	Final Weight	0.3516 grams
	Tare Weight	0.3516 grams
	Difference	0.0000 grams
Acetone Wash Down		
	Volume of Rinse	135 mL
	Residue in Rinse (calculated)	2.53197E-06 mg/mg
	Total Residue in Rinse	0.00027 grams
Total Particulate Weight		**0.0373 grams**

Water Collected

	Final Impinger Water	282 mL
	Initial Impinger Water	200 mL
	Final Silica Weight	211.7 grams
	Silica Tare Weight	200.0 grams
Total Water Collected		**93.6 grams**

Analyst

Particulate Laboratory Data
A Rainbow Crossing Pet Memorial Services
FID # 0112719
16037-ST

Run 3

Filter Number	2257	
	Final Weight	0.3878 grams
	Tare Weight	0.3510 grams
	Difference	0.0368 grams
Beaker Number	3B	
	Final Weight	115.9606 grams
	Tare Weight	115.9565 grams
	Difference	0.0041 grams
Filter Blank Number	2258	
	Final Weight	0.3516 grams
	Tare Weight	0.3516 grams
	Difference	0.0000 grams
Acetone Wash Down		
	Volume of Rinse	100 mL
	Residue in Rinse (calculated)	2.53197E-06 mg/mg
	Total Residue in Rinse	0.0002 grams
Total Particulate Weight		**0.0407 grams**

Water Collected

	Final Impinger Water	301 mL
	Initial Impinger Water	200 mL
	Final Silica Weight	210.5 grams
	Silica Tare Weight	200.0 grams
Total Water Collected		**111.3 grams**

Analyst 

Attachment C - Process Data

Beatty Environmental Services, LLC

Emission Control Device and Process Data Form

Company: A Rainbow Crossing

Installation: BLP500/150 Serial # 1664-1447-16

Type of Installation: B+L Cremation Systems

Type of Material Processed: Animal Remains

Type of Fuel Used: Natural Gas

Type of Pollution Control System: Afterburner

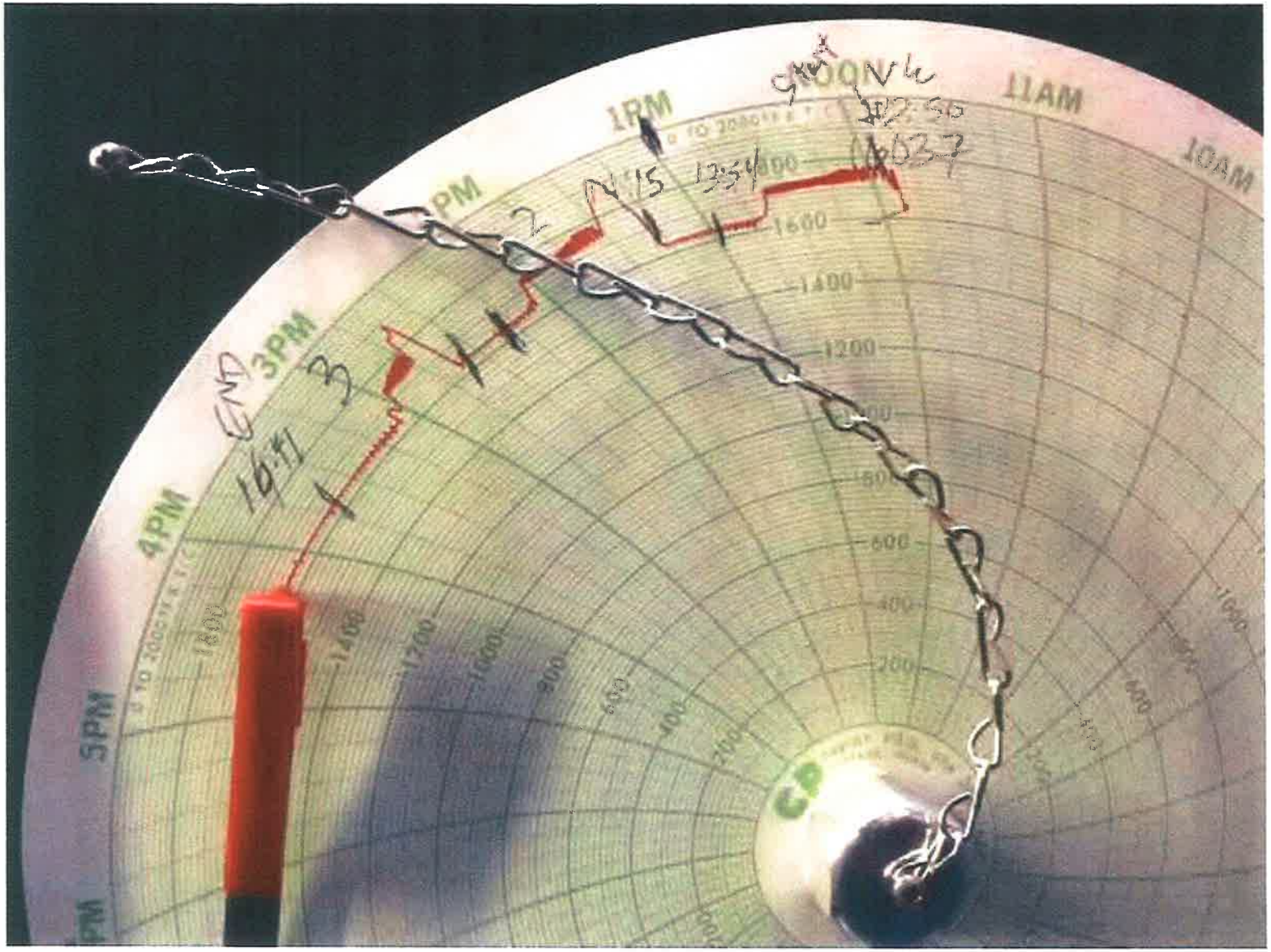
General Condition of Control Equipment: Normal

Run No.	1	2	3
Start Time	12.48	02:16	03:35
Stop Time	01:54	3:19	04:41
Fuel GPH	GAS	GAS	GAS
Date	7/7/2016	7/7/2016	7/7/206
Pressure Drop(in.H2O)	N/a	N/a	N/a
Process Rate	154 Lbs/hr	150 Lbs/hr	151 Lbs/hr
Percent Recycle	N/A	N/A	N/A

Signature: Robert A Johnson Title: OWNER

Printed Name: Robert Johnson Report No. 16037-ST

*By signing above facility designee agrees that all information on this form is true and correct to the best of his/her knowledge.


1PM
NOON
11AM
10AM
PM
3PM
4PM
5PM
1600
1400
1200
1000
800
600
400
200
CP

Attachment D - Calculations for Run 1

CALCULATIONS FOR RUN 1
A Rainbow Crossing Pet Memorial Services
FID # 0112719
16037-ST

STACK AREA

3.1416 x (Diameter / 24)^2

3.1416	X	18.00	/24)^2	
		1.77	SQ.FT.	

STACK PRESSURE

BAROMETRIC PRESSURE + (STATIC PRESSURE/ 13.6)

30.01	+	(-0.05	/13.6)	
		30.01	IN.HG	

METER PRESSURE

BAROMETRIC PRESSURE + (ORIFICE PRESURE/13.6)

30.01	+	(2.01	/ 13.6)	
		30.16	IN.Hg	

SAMPLE VOLUME

17.64 X (Y) X METER VOLUME X METER PRESSURE / (METER TEMP. + 460)

17.64	X	1.0073	X	49.822	X	30.16	/ (85.1	+ 460)
					48.978	STD.CU.FT.		

WATER VAPOR VOLUME

0.04715 X WATER COLLECTED

0.04715	X	111.5	
	5.26	STD.CU.FT.	

SAMPLE MOISTURE

100 X WATER VAPOR VOLUME / (WATER VAPOR VOLUME + SAMPLE VOLUME)

100 X	5.26	/ (	5.26	+	48.978	)
		9.70	%			

SATURATION MOISTURE

100 X (VAPOR PRESSURE @ STACK TEMP. / STACK PRESSURE)

100 X (	8155.4280	/	30.01)
	100.00	%	

CALCULATIONS FOR RUN 1
A Rainbow Crossing Pet Memorial Services
FID # 0112719
16037-ST

STACK MOISTURE FRACTION

(THE LESSER OF SAMPLE MOISTURE OR SATURATION MOISTURE) / 100

0.097

MOLECULAR WEIGHT OF STACK GAS

29.00 (DRYERS) OR 30.00 (BOILERS) X (1 - MOISTURE) + (18 X MOISTURE)

29.34 X (1 - 0.097) + (18 X 0.097)

28.24

STACK VELOCITY

85.49 X CP X 60 X SQ.(^P) X SQ.(STACK TEMP + 460)/SQ.(STACK PRESSURE X MOLECULAR WT.)

85.49 X 0.840 X 60 X 0.293 X SQ.(723.7 + 460) / SQR(30.01 X 28.241)

1494 FPM

VOLUMETRIC FLOW RATE (ACFM)

STACK AREA X STACK VELOCITY

1.77 X 1494

2641 ACFM

VOLUMETRIC FLOW RATE (SCFM) DRY

17.64 X (ACFM) X STACK PRESSURE X (1-MOISTURE) / (STACK TEMP. + 460)

17.64 X 2641 X 30.01 X (1 - 0.097) / (723.7 + 460)

1066 SCFM (DRY)

MASS EMISSION RATE (LBS./HR.)

CONCENTRATION X (SCFM- DRY) X 60 / 7000

0.0144 X 1066 X 60 / 7000

0.13 LBS/HR

PERCENT ISOKINETIC

0.0945 X (STACK TEMP. + 460) X SAMPLE VOLUME X 60

. STACK PRES. X VELOCITY X NOZZLE AREA X TEST TIME X (1-MOISTURE)

0.0945 X (723.70 + 460) X 48.98 X 6O

30.01 X 1494 X 0.00136 X 60.00 X (1 - 0.097)

99.22 %

Attachment E - Calibration Data

LIQUID TECHNOLOGY C(
"INDUSTRY LEADER IN SPECIAL

Certificate of Analysis

Customer	Coastal Air Consulting (Deland, FL)
Date	April 08, 2016
Delivery Receipt	DR-61102
Product:	Nitrogen, CEMS Grade
Lot Number:	LTC286-PG

Mixture Specifications

Cylinder Number EB-0052847

Components	Requested	Actual
Moisture	2.0 ppm	< 2.0 ppm
Hydrocarbons	0.1 ppm	< 0.1 ppm
Oxygen	1.0 ppm	< 1.0 ppm
Carbon Monoxide	1.0 ppm	< 1.0 ppm
Carbon Dioxide	1.0 ppm	< 1.0 ppm
Nitrogen	99.9995%	99.9995%

Cylinder Data

Cylinder Valve:	CGA 580
Cylinder Volume:	140 Cubic Feet
Cylinder Pressure:	2000 psig, 70F
Expiration Date:	April 08, 2019
Certified by:	Cole Dylewski

LIQUID TECHNOLO(

"INDUSTRY LEADER IN

Certificate of Analysis

- EPA PROTOCOL G

Customer	Coastal Air Consulting (Deland, FL)
Date	October 30, 2015
Delivery Receipt	DR-58750
Gas Standard	9.00 ppm Nitric Oxide, 9.00 ppm Carbon
Final Analysis Date	October 28, 2015
Expiration Date	October 29, 2018

Analytical Data:

EPA Protocol, Section No. 2.2, Procedure G-1.

Reported Concentrati

Nitric Oxide: 8.65 ppm +/- 0.

Carbon Monoxide: 9.23 ppm +/-

Nitrogen: Balance

Total NOx: 9.01 ppm

** Total NOx for Reference Use

Reference Standards

SRM/GMIS:	GMIS	GMIS
Cylinder Number:	ND-57318	CC-11599
Concentration:	9.372 ppm NO (+/- 0.08 ppm)	10.312 pp
Expiration Date:	04/26/23	03/07/20

Certification Instrumentation

Component:	Nitric Oxide	Carbon M
Make/Model:	Nicolet 6700	Nicolet 67
Serial Number:	APW1100563	APW110(
Principal of Measurement:	FTIR	FTIR
Last Calibration:	October 01, 2015	October 1

Cylinder Data

Cylinder Number:	CC-504216	(
Cylinder Outlet:	CGA 660	(
Expiration Date:	October 29, 2018	

Analytical Uncertainty and NIST Traceability are in compliance wit

Certified by: Cole Dylewski

Cole Dylewski

GMIS Traceability	Nitric Oxide	Carbon M
SRM Number:	SRM-2628a	SRM-167
Cylinder Number:	CAL-016517	FF-2304
Cylinder Concentration:	10.07 ppm NO (+/- 0.10 ppm)	9.893 ppn
Expiration Date:	07/23/16	05/27/18
NIST Sample Number:	49-H-73	5-K-58

"UNMATCHED EXCELLEN

2048 APEX COURT, APOPKA, FLORIDA 32703 ~ PHONE (40
WWW.LIQUIDTECHCORP.CC

LIQUID TECHNOLOG

"INDUSTRY LEADER IN S

Certificate of Analysis

- EPA PROTOCOL G

Customer	Coastal Air Consulting (Deland, FL)
Date	March 10, 2015
Delivery Receipt	DR-55632
Gas Standard	19.0 ppm Nitric Oxide, 19.0 ppm Sulfur Di
Final Analysis Date	February 24, 2015
Expiration Date	February 25, 2018

D

Analytical Data:

EPA Protocol, Section No. 2.2, Procedure G-1.

Reported Concentratio

Nitric Oxide: 18.8 ppm +/- 0.1

Sulfur Dioxide: 17.8 ppm +/- 0

Carbon Monoxide: 19.3 ppm +/-

Nitrogen: Balance

Total NOx: 18.9 ppm

** Total NOx for Reference Use

Reference Standards

SRM/GMIS:	GMIS	GMIS
Cylinder Number:	CC-231360	EB-0026731
Concentration:	24.24 ppm NO (+/- 0.08 ppm)	25.556 ppm SO2 (+
Expiration Date:	09/22/202	08/23/20

Certification Instrumentation

Component:	Nitric Oxide	Sulfur Dioxide
Make/Model:	Nicolet 6700	Nicolet 6700
Serial Number:	APW1100563	APW1100563
Principal of Measurement:	FTIR	FTIR
Last Calibration:	February 22, 2015	February 27, 2015

Cylinder Data

Cylinder Number:	CA-05882	Cylinder '
Cylinder Outlet:	CGA 660	C
Expiration Date:	February 25, 2018	

Analytical Uncertainty and NIST Traceability are in compliance with

Certified by: Cole Dylewski

Cole Dylewski

GMIS Traceability	Nitric Oxide	Sulfur Dioxide
SRM Number:	SRM-1683b	SRM-1693a
Cylinder Number:	CAL-018172	CAL-015255
Cylinder Concentration:	48.79 ppm NO (+/- 0.34 ppm)	49.66 ppm SO2 (+/-
Expiration Date:	03/25/19	06/01/16
NIST Sample Number:	45-V-08	96-K-026

"UNMATCHED EXCELLENC

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WWW.LIQUIDTECHCORP.COI

LIQUID TECHNOL
"INDUSTRY LEADER

Certificate of Analy
- EPA PROTOCOL

Customer	Coastal Air Consulting (Deland, FL)
Date	March 04, 2015
Delivery Receipt	DR-55575
Gas Standard	47.0 ppm Nitric Oxide, 47.0 ppm Sulf
Final Analysis Date	February 27, 2015
Expiration Date	February 28, 2018

Analytical Data:
EPA Protocol, Section No. 2.2, Procedure G-1.

Reported Concentr
Nitric Oxide: 48.8 ppm +
Sulfur Dioxide: 46.3 ppm -
Carbon Monoxide: 48.1 ppn
Nitrogen: Balan
Total NOx: 49.8 p
** Total NOx for Reference

Reference Standards

SRM/GMIS:	GMIS	GMIS
Cylinder Number:	ND-45700	EB-0014694
Concentration:	49.256 ppm NO (+/- 0.43 ppm)	50.82 ppm SO
Expiration Date:	08/23/20	08/20/16

Certification Instrumentation

Component:	Nitric Oxide	Sulfur Dioxide
Make/Model:	Nicolet 6700	Nicolet 6700
Serial Number:	APW1200289	APW1200289
Principal of Measurement:	FTIR	FTIR
Last Calibration:	January 31, 2015	February 14, 2

Cylinder Data

Cylinder Number:	EB-0056549	Cylir
Cylinder Outlet:	CGA 660	
Expiration Date:	February 28, 2018	

Analytical Uncertainty and NIST Traceability are in compliance

Certified by: Cole Dylewski

Cole Dylewski

GMIS Traceability	Nitric Oxide	Sulfur Dioxide
SRM Number:	SRM-1683b	SRM-1693a
Cylinder Number:	CAL-018172	CAL-015255
Cylinder Concentration:	48.79 ppm NO (+/- 0.34 ppm)	49.66 ppm SO
Expiration Date:	03/25/19	06/01/16
NIST Sample Number:	45-V-08	96-K-026

"UNMATCHED EXCELL

ANNUAL METER CALIBRATION **METER NO. 002047** **ORIFICE SET NO. JC40-73**

DATE	9/9/2015	Y=	1.0073	MAX % VARIATION	1.8276%	PASS	
BAROMETRIC PRESSURE	30.05	^Ha=	1.6588	MAX % VARIATION	2.9348%	PASS	

CRITICAL ORIFICE DATA

ORIFICE SERIAL NO.	ORIFICE K' FACTOR	ACTUAL VACUUM	^H (IN H2O)	TIME (MIN.)	AMBIENT TEMP INITIAL	AMBIENT TEMP. FINAL	METER TEMP. INITIAL	METER TEMP. FINAL	METER READING INITIAL	METER READING FINAL	VM (CU.FT.)	VM CORRECTED	Vcr STD	Vcr NOMINAL	Y	VARIATION	^H (IN. H2O)	VARIATION
40	0.2435	23.5	0.29	10	77	77	78	79	202.600	205.778	3.1780	3.1305	3.1576	3.1988	1.0086	-0.0038	1.6111	0.0010
40	0.2435	23.5	0.29	10	77	77	79	79	205.778	208.947	3.1690	3.1188	3.1576	3.1988	1.0124	0.0000	1.6096	-0.0005
40	0.2435	23.0	0.29	10	77	77	79	79	208.947	212.104	3.1570	3.1070	3.1576	3.1988	1.0163	0.0038	1.6096	-0.0005
AVERAGE															1.0125	0.0125	1.6101	0.0293
48	0.3557	22.0	0.62	10	77	77	79	79	212.300	216.893	4.5930	4.5239	4.6126	4.6727	1.0196	0.0013	1.6127	0.0000
48	0.3557	22.0	0.62	10	77	77	79	79	216.893	221.495	4.6020	4.5327	4.6126	4.6727	1.0176	-0.0007	1.6127	0.0000
48	0.3557	22.0	0.62	10	77	77	79	79	221.495	226.097	4.6020	4.5327	4.6126	4.6727	1.0176	-0.0007	1.6127	0.0000
AVERAGE															1.0183	0.0183	1.6127	0.0278
55	0.4616	20.5	1.10	10	77	77	80	80	226.200	232.254	6.0540	5.9588	5.9858	6.0639	1.0045	0.0010	1.6958	0.0000
55	0.4616	20.5	1.10	10	77	78	80	81	232.254	238.321	6.0670	5.9661	5.9830	6.0668	1.0028	-0.0007	1.6958	0.0000
55	0.4616	20.5	1.10	10	78	78	81	81	238.321	244.388	6.0670	5.9606	5.9802	6.0696	1.0033	-0.0003	1.6959	0.0000
AVERAGE															1.0036	0.0036	1.6958	0.0223
63	0.5916	19.0	1.80	10	79	79	82	82	244.700	252.595	7.8950	7.7554	7.6573	7.7862	0.9874	-0.0126	1.6895	0.0016
63	0.5916	19.0	1.80	10	79	79	82	83	252.595	260.292	7.6970	7.5539	7.6573	7.7862	1.0137	0.0137	1.6879	0.0000
63	0.5916	19.0	1.80	10	79	79	83	83	260.292	268.110	7.8180	7.6656	7.6573	7.7862	0.9989	-0.0011	1.6864	-0.0016
AVERAGE															1.0000	0.0000	1.6879	0.0175
73	0.8234	16.0	3.50	10	79	79	84	84	268.300	279.090	10.7900	10.6040	10.6576	10.8369	1.0051	0.0029	1.6896	0.0021
73	0.8234	16.0	3.50	10	78	79	84	85	279.090	289.949	10.8590	10.6620	10.6576	10.8369	0.9996	-0.0025	1.6880	0.0005
73	0.8234	16.0	3.50	10	79	79	85	86	289.949	300.805	10.8560	10.6395	10.6576	10.8369	1.0017	-0.0004	1.6849	-0.0026
AVERAGE															1.0021	0.0021	1.6875	0.0173

SEMI ANNUAL CALIBRATION DATE 3/6/2016 **BAROMETRIC PRESSURE** 30.14

ORIFICE SERIAL NO.	ORIFICE K' FACTOR	ACTUAL VACUUM	^H (IN H2O)	TIME (MIN.)	AMBIENT TEMP INITIAL	AMBIENT TEMP. FINAL	METER TEMP. INITIAL	METER TEMP. FINAL	METER READING INITIAL	METER READING FINAL	VM (CU.FT.)	VM CORRECTED	Vcr STD	Vcr NOMINAL	Y	VARIATION	^H (IN. H2O)	VARIATION
55	0.4616	21.0	1.1	10	82	85	80	82	206.200	212.281	6.0810	5.9922	5.9677	6.1005	0.9959	-0.0076	1.7081	0.0026
55	0.4616	21.0	1.1	10	85	85	82	84	212.281	218.381	6.1000	5.9887	5.9595	6.1089	0.9951	-0.0084	1.7065	0.0010
55	0.4616	21.0	1.1	10	85	85	84	85	218.381	224.491	6.1100	5.9820	5.9595	6.1089	0.9962	-0.0073	1.7018	-0.0037
AVERAGE or Max															0.9958	0.11%	1.7054	0.63%

METER COMPARISON CHECK (Yqa) Y_{qa} = (O / Vm) X sqr(.319 x Tm X 29 / (^Ha x (Pb + (Havg / 13.6) x Md)) X sqr ^H avg

	Run 1	Run 2	Run 3	Average
Y_{qa} =	1.0075	1.0090	1.0000	1.0055

THERMOCOUPLE CALIBRATION

DATE

	TC-1 (DEG F)	ASTM THERMOMETER (DEG F)
ICE	30	32
BOILING H2O	212	212
OIL	407	407

NOZZLE CALIBRATION

DATE 7/7/2016

READINGS IN (IN.)				AVERAGE
#20	0.625	0.624	0.625	0.6247

PITOT TUBE Cp=.84 ACCORDING TO DESIGN SPECIFICATIONS

Beatty Environmental Stack Test Thermocouple Calibrations

Calibration Date 7/7/2016
Calibration Device: ASTM Thermometer
Calibrated By:Nicholas Decker, Beatty Environmental Services, LLC

Device	Ambient Air
ASTM Thermometer	80
Dry Gas Meter Thermocouple	80
Filter Thermocouple	80
Filter Heater Thermocouple	81
Impinger Outlet Thermocouple	80
Stack Temp Thermocouple (5ft. Air Cooled)	81

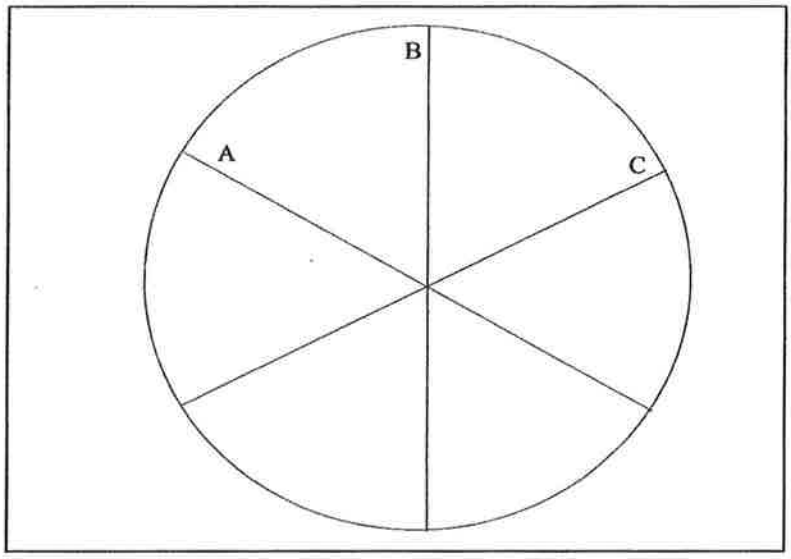
Analyst:

10.5 Temperature Sensors. Use the procedure in Section 10.3 of Method 2 to calibrate in-stack temperature sensors. Dial thermometers, such as are used for the DGM and condenser outlet, shall be calibrated against mercury-in-glass thermometers. An alternative mercury-free NISTtraceable thermometer may be used if the thermometer is, at a minimum, equivalent in terms of performance or suitably effective for the specific temperature measurement application. As an alternative, the following single-point calibration procedure may be used. After each test run series, check the accuracy (and, hence, the calibration) of each thermocouple system at ambient temperature, or any other temperature, within the range specified by the manufacturer, using a reference thermometer (either ASTM reference thermometer or a thermometer that has been calibrated against an ASTM reference thermometer). The temperatures of the thermocouple and reference thermometers shall agree to within ±2 °F.

Nozzle Calibration

Nozzle ID #20

A =	0.625
B =	0.624
C =	0.625
Average	0.6247

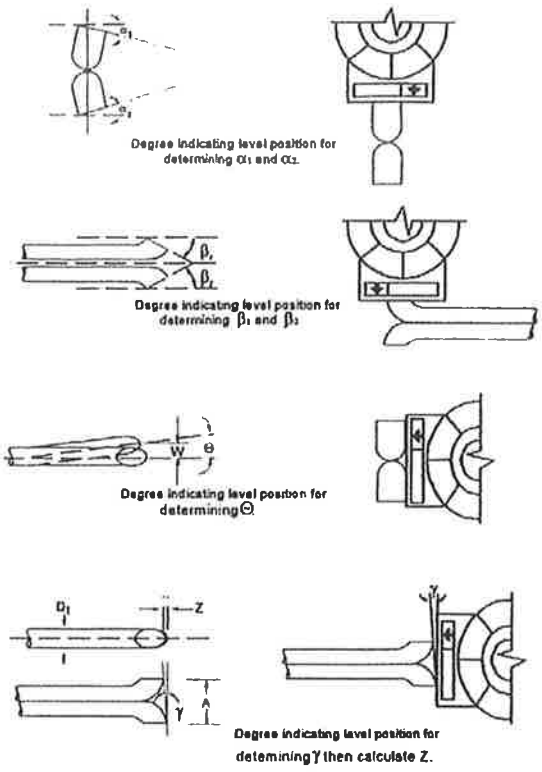


Calibration Date 7/7/2016

Calibrated by

PITOT CALIBRATION

(Type S Pitot Tube Inspection)



Level and Perpendicular?	Yes
Obstruction?	No
Damaged?	No
α_1 ($-10° \leq \alpha_1 \leq +10°$)	1
α_2 ($-10° \leq \alpha_2 \leq +10°$)	2
β_1 ($-5° \leq \beta_1 \leq +5°$)	2
β_2 ($-5° \leq \beta_2 \leq +5°$)	1
Y	-1
θ	1
$z = A \tan \gamma$ ($\leq 0.125°$)	-0.017
$w = A \tan \theta$ ($\leq 0.03125°$)	0.017
D_t ($3/16" \leq D_t \leq +3/8"$)	0.375
A	0.964
$A/2\ D_t$ ($1.05 \leq P_A / D_t \leq 1.51$)	1.285

Certification

I hereby certify that type S pitot tube ID# P-5AC meets or exceeds all specifications, criteria and applicable design features, and is hereby assigned a pitot tube calibration factor of 0.84.

Certified by: Date 09/09/2015

Attachment F - Project Participants

Project Participants

Beatty Environmental Services, LLC

Daniel R. Beatty
Project Director

Nick Decker
Field Technician

Zachary Beatty
Field/Lab Manager

Coastal Air Consulting
Steve Webb

A Rainbow Crossing Pet Memorial Services - FID # 0112719

Robert Johnson
Owner/Operator

Regulatory Agency

Arthur Pennetta
Broward County