513914 OCT18 2010

RECEIVED

OCT 19 2010

Bureau of Air Monitoring & Major Sources

HUMAN CREMATORY
AIR GENERAL PERMIT REGISTRATION FORM

Part II. Notification to Permitting Office

(Detach and submit to appropriate permitting office; keep copy onsite)

Instructions: To give notice to the Department of an eligible facility's intent to use this air general permit, the owner or operator of the facility must detach and complete this part of the Air General Permit Registration Form and submit it to the appropriate Department of Environmental Protection or local air pollution control program office which has permitting authority. Please type or print clearly all information, and enclose the appropriate air general permit registration processing fee pursuant to Rule 62-4.050(4)(o), F.A.C. *($100 as of the effective date of this form)*

0310242-004

Registration Type

Check one:

INITIAL REGISTRATION - Notification of intent to:

- ☐ Construct and operate a proposed new facility.
- ☐ Operate an existing facility not currently using an air general permit (e.g., a facility proposing to go from an air operation permit to an air general permit).

RE-REGISTRATION (for facilities currently using an air general permit) - Notification of intent to:

- ☐ Continue operating the facility after expiration of the current term of air general permit use.
- ☐ Continue operating the facility after a change of ownership.
- ☒ Make an equipment change requiring re-registration pursuant to Rule 62-210.310(2)(e), F.A.C., or any other change not considered an administrative correction under Rule 62-210.310(2)(d), F.A.C.

Surrender of Existing Air Operation Permit(s) - For Initial Registrations Only

If the facility currently holds one or more air operation permits, such permit(s) must be surrendered by the owner or operator upon the effective date of this air general permit. In such case, check the first box, and indicate the operation permits being surrendered. If no air operation permits are held by the facility, check the second box.

- ☐ All existing air operation permits for this facility are hereby surrendered upon the effective date of this air general permit; specifically permit number(s): _____
- ☒ No air operation permits currently exist for this facility.

General Facility Information

Facility Owner/Company Name (Name of corporation, agency, or individual owner who or which owns, leases, operates, controls, or supervises the facility.)

Corey-Kerlin Funeral Home

Site Name (Name, if any, of the facility site; e.g., Plant A, Metropolis Plant, etc. If more than one facility is owned, a registration form must be completed for each.)

Corey-Kerlin Crematory

Facility Location (Provide the physical location of the facility, not necessarily the mailing address.)

Street Address: 1445 Rowe Avenue

City: Jacksonville County: Duval Zip Code: 32208-3203

Facility Start-Up Date (Estimated start-up date of proposed **new** facility.) (N/A for existing facility)

This will be a second Cremator Unit in an existing facility.
Corey-Kerlin Crematory has been operating with one Cremator since 1983.

Owner/Authorized Representative

Name and Position Title (Person who, by signing this form below, certifies that the facility is eligible to use this air general permit.)
Print Name and Title: Robert J. Wood, Treasurer

Owner/Authorized Representative Mailing Address
Organization/Firm: Corey-Kerlin Funeral Home
Street Address: 1426 Rowe Avenue
City: Jacksonville County: Duval Zip Code: 32208 - 3203

Owner/Authorized Representative Telephone Numbers
Telephone: (904) 768-2596 Fax: (904) 766-8302
Cell phone (optional):

Facility Contact (If different from Owner/Authorized Representative)

Name and Position Title (Plant manager or person to be contacted regarding day-to-day operations at the facility.)
Print Name and Title:

Facility Contact Mailing Address
Organization/Firm:
Street Address:
City: County: Zip Code:

Facility Contact Telephone Numbers
Telephone: Fax:
Cell phone (optional):

Owner/Authorized Representative Statement

This statement must be signed and dated by the person named above as owner or authorized representative

I, the undersigned, am the owner or authorized representative of the owner or operator of the facility addressed in this Air General Permit Registration Form. I hereby certify, based on information and belief formed after reasonable inquiry, that the facility addressed in this registration form is eligible for use of this air general permit and that the statements made in this registration form are true, accurate and complete. Further, I agree to operate and maintain the facility described in this registration form so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof.

I will promptly notify the Department of any changes to the information contained in this registration form.

Signature

September 30, 2010
Date

Design Calculations

If this is an initial registration for a proposed new human crematory unit, provide design calculations to confirm a sufficient volume in the secondary chamber combustion zone to provide for at least a 1.0 second gas residence time at 1800 degrees F.

☒ Manufacturer's' design calculations attached.

☐ Registration is not for proposed new human crematory unit(s).

Description of Facility

Below, or as an attachment to this form, provide a description of all crematory operations at the facility in sufficient detail to demonstrate the facility's eligibility for use of this air general permit and to provide a basis for tracking any future equipment or process changes at the facility. Describe all air pollutant-emitting processes and equipment at the facility, and identify any air pollution control measures or equipment used.

Installation of new Super Power Pak III human crematory unit at existing facility.
See attached process flow diagram.

* ADDENDUM TO #0310242-004
PAGE 9, DESCRIPTION OF FACILITY

Dibble, Dickson

From: Rowe [ckrowe@corey-kerlin.com]
Sent: Tuesday, November 09, 2010 3:03 PM
To: Dibble, Dickson
Subject: Corey-Kerlin Fnl. Hm. Crematory Application

Mr. Dibble:

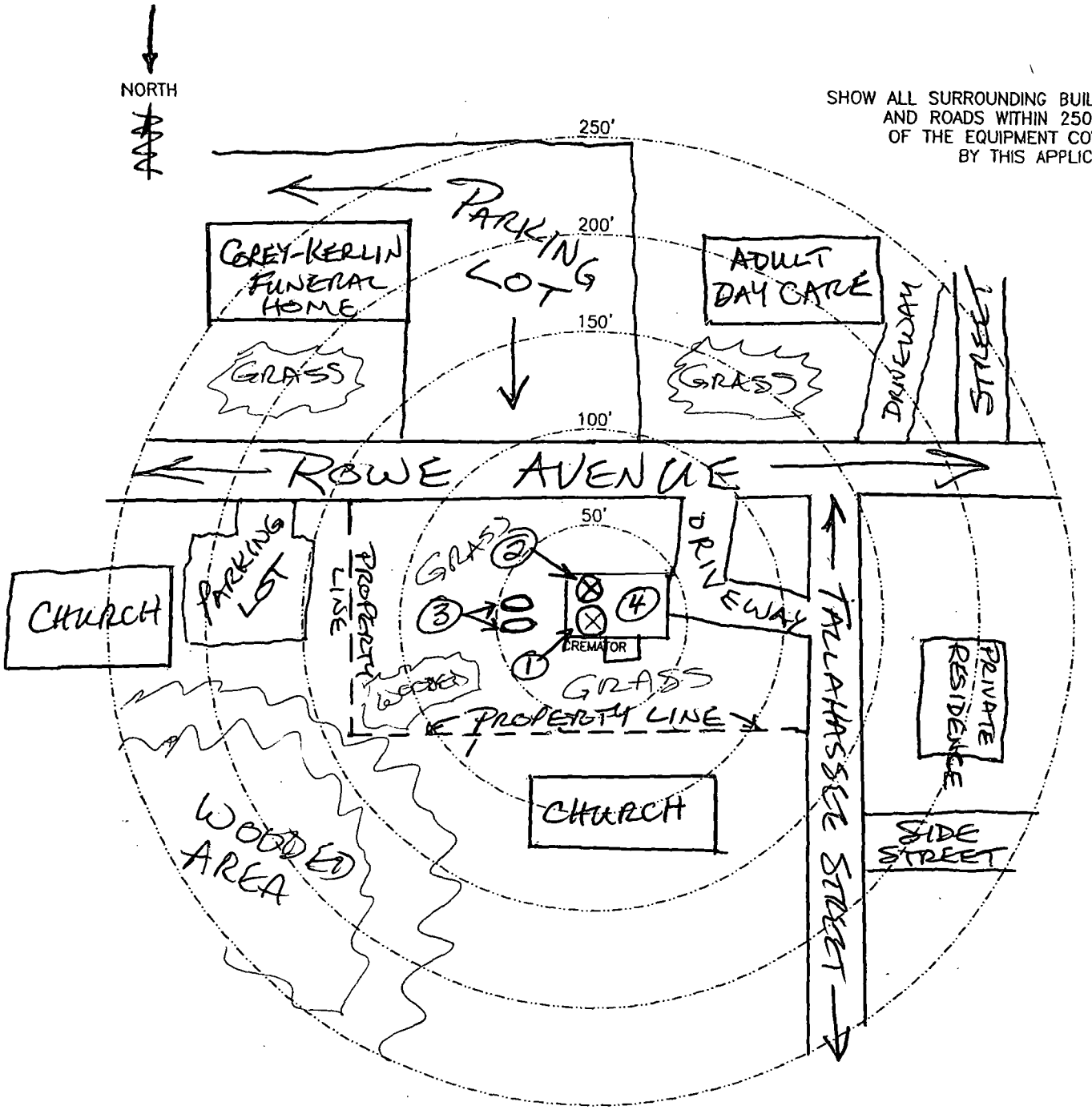
Here is the additional information you requested on our existing human cremation unit (retort).

Model: Crawford C 1000 Deluxe
Serial Number: 1K41-1083-S
Fuel Type: Liquid Petroleum
It is rated for 100 pounds per hour
It has been in operation since October 1983

Thank you for your attention to this matter,
Robert J. Wood
Funeral Director

Corey-Kerlin Funeral Homes & Crematory
1426 Rowe Avenue
Jacksonville, Florida 32208
(904)768-2596
ckrowe@corey-kerlin.com

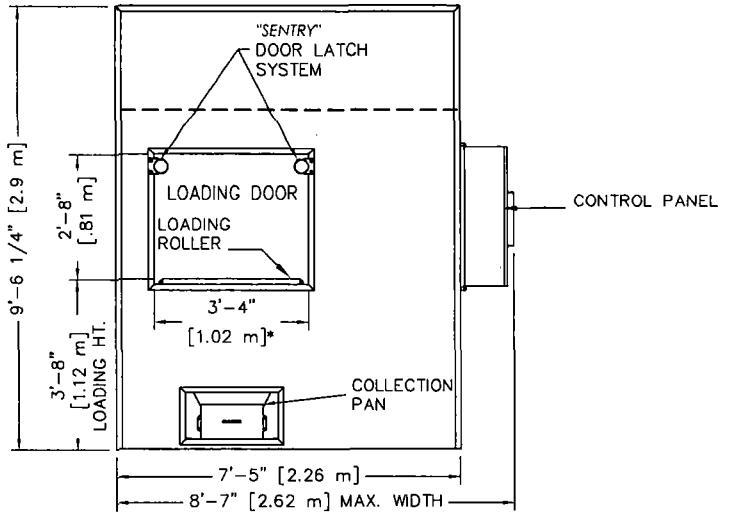
PLOT PLAN



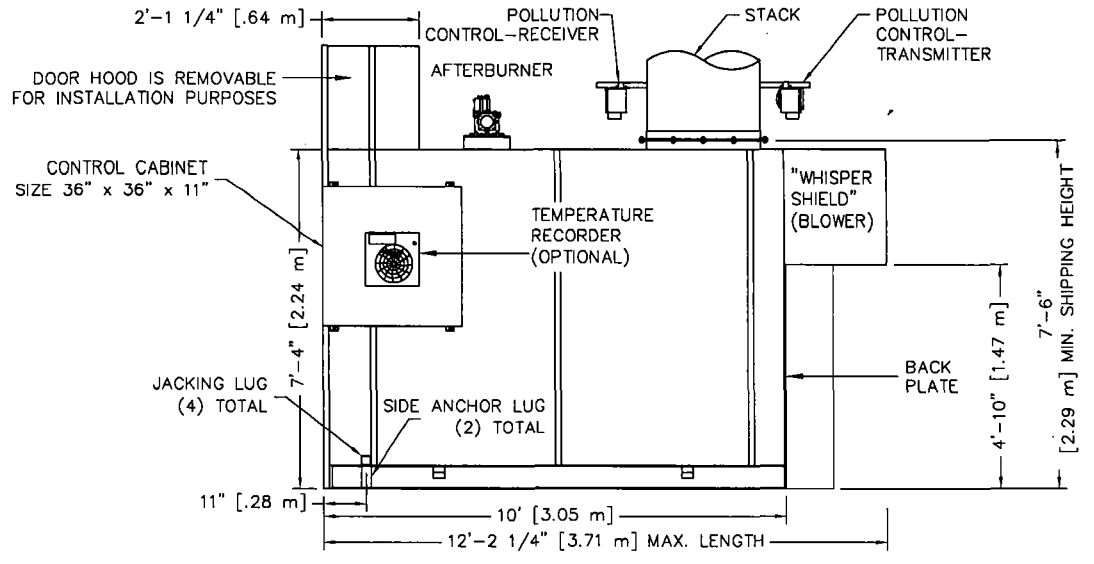
STRUCTURE	DESCRIPTION
(1)	NEW CREMATOR
(2)	EXISTING CREMATORY
(3)	2 L.P. TANKS
(4)	CREMATORY BLDG. (20'x40')
(5)	
(6)	
(7)	
(8)	
(9)	
(10)	

INSTRUCTIONS

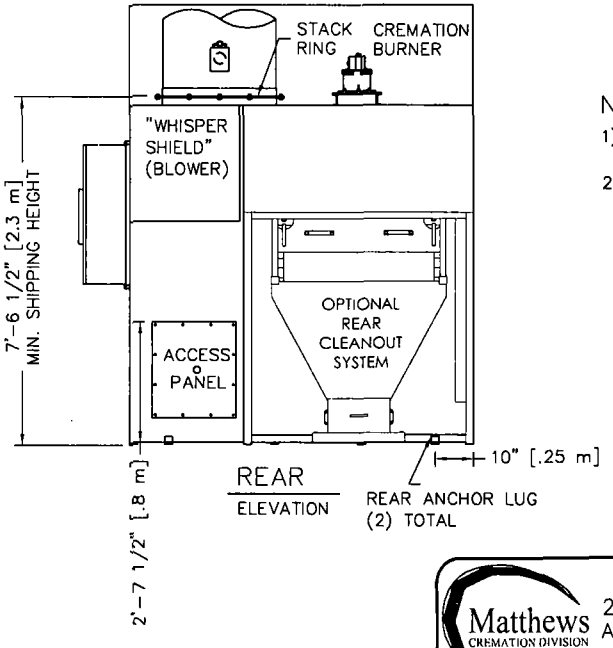
1. INDICATE LOCATION AND TYPE OF BUILDING BY THE USE OF SMALL NUMBERED CIRCLES WITH THE DESCRIPTION BELOW.
2. SHOW ROADS AS LINES REPRESENTING THE ROAD EDGES. INDICATE STREET NAMES AND HIGHWAY NUMBERS.
3. SHOW WOODED OR CLEARED AREA BY APPROXIMATE BOUNDARY LINES AND THE WORDS "WOODS," "CLEARED," "CORNFIELD," ETC.



FRONT
ELEVATION



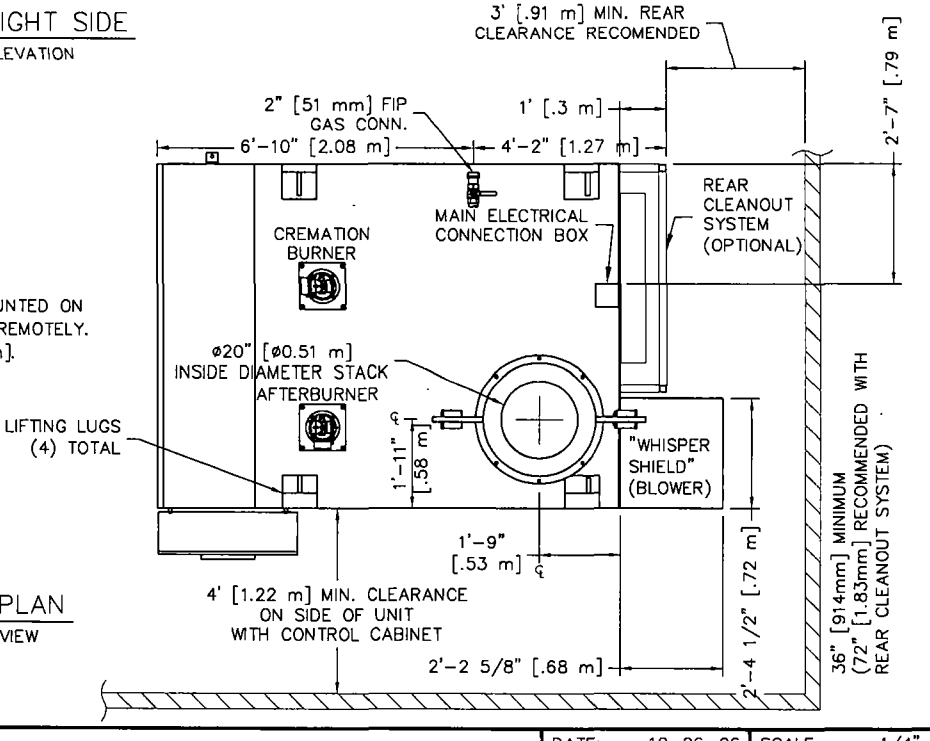
RIGHT SIDE
ELEVATION



REAR
ELEVATION

NOTES:

1) CONTROL CABINET CAN BE MOUNTED ON THE LEFT OR RIGHT SIDE, OR REMOTELY.
2) CHAMBER WIDTH IS 39" [0.99m].



PLAN
VIEW

Matthews CREMATION DIVISION
2045 Sprint Boulevard
Apopka, Florida 32703
USA

SUPER POWER-PAK III

PLAN & ELEVATIONS INCL: CLEARANCES, REQUIREMENTS & RECOMMENDATIONS

DATE:	10-26-06	SCALE:	1/4"=1'
DRAWN:	JG	PLOT SCALE:	1:48
APRVD:		SHEET: 1 OF:	2
DWG FILE:	SPPIII-MarketingPlanElevR2		
DWG #:	0000196		

CREMATOR CLEARANCES

	RECOMMENDED		MINIMUM	
TOP: (2)	2 FEET	[610 mm]	6 INCHES	[152 mm]
CABINET SIDE:	4 FEET	[1.22 m]	4 FEET	[1.22 m]
OTHER SIDE:	2 FEET	[610 mm]	6 INCHES	[152 mm]
FRONT:	9 FEET	[2.74 m]	8 FEET	[2.44 m]
REAR:	3 FEET	[0.91 m]	32 INCHES	[812 mm]
STACK:	6 INCHES	[152 mm]	6 INCHES	[152 mm]

1. FOR CLEARANCES OTHER THAN THOSE SHOWN, OR FOR SPECIAL REQUIREMENTS, CONSULT YOUR MCD REP.
2. FROM HIGHEST POINT ON UNIT.
3. CONTROL CABINET MOUNTS ON UNIT'S LEFT OR RIGHT SIDES, OR REMOTELY. (SEE PLAN VIEW, SHEET 1).
4. REAR OF UNIT REFERS TO THE "BACK PLATE", RATHER THAN THE BACK OF THE *"WHISPER SHIELD"*. (SEE PLAN VIEW, SHEET 1).

CREMATOR REQUIREMENTS

FUEL: A PRESSURE REGULATOR ADJUSTABLE TO 7" [178 mm] W.C. FOR NATURAL GAS, OR 11" [279 mm] W.C. FOR LP GAS.

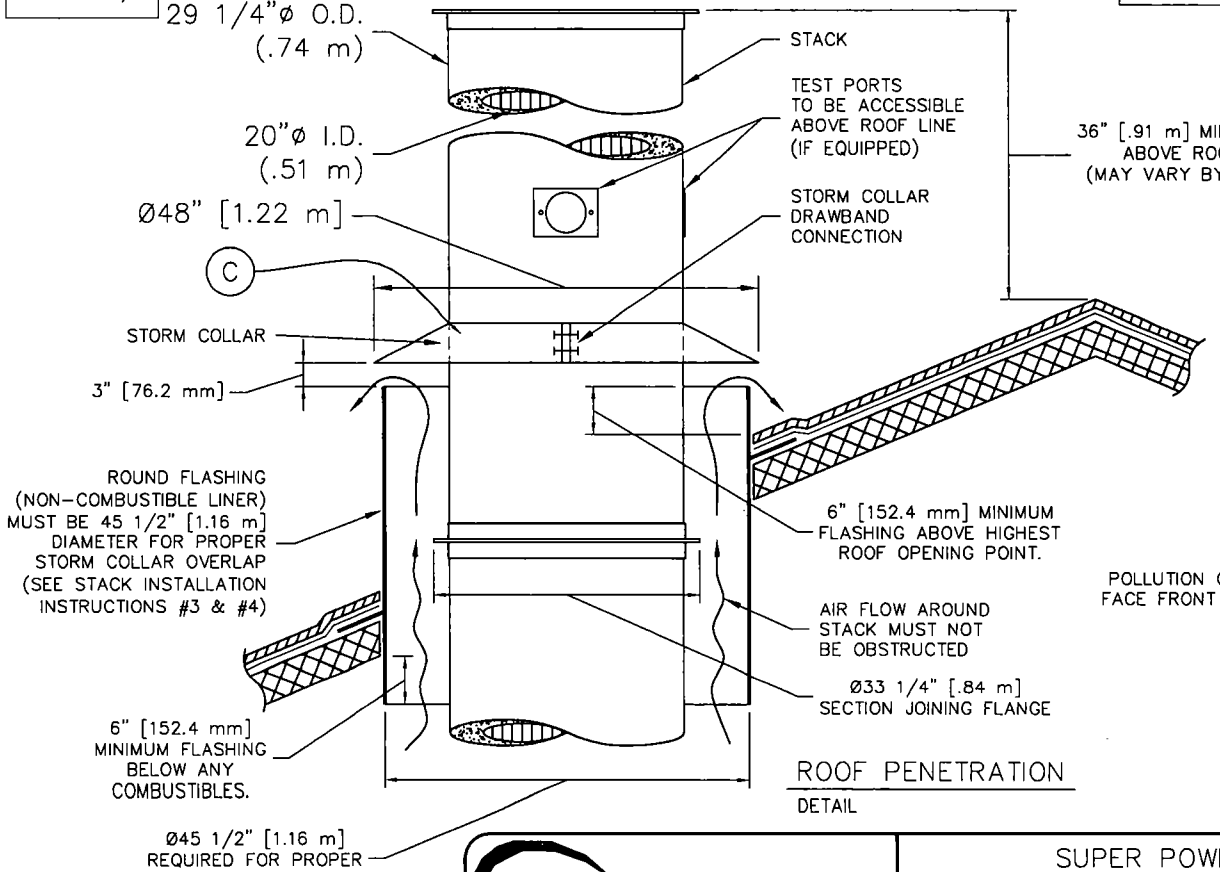
CAPACITY: RANGES FROM 2.0 TO 3.0 MILLION BTU/HR [2.1 TO 3.1 MILLION KILOJOULES/HR] DEPENDING UPON AMOUNT OF BURNERS.

ELECTRICAL: 230 VOLT, 3ø, (40A BREAKER) AND 115v (10A BREAKER), OR 230 VOLT, 1ø, (70A BREAKER) AND 115v (10A BREAKER) 50/60 HERTZ

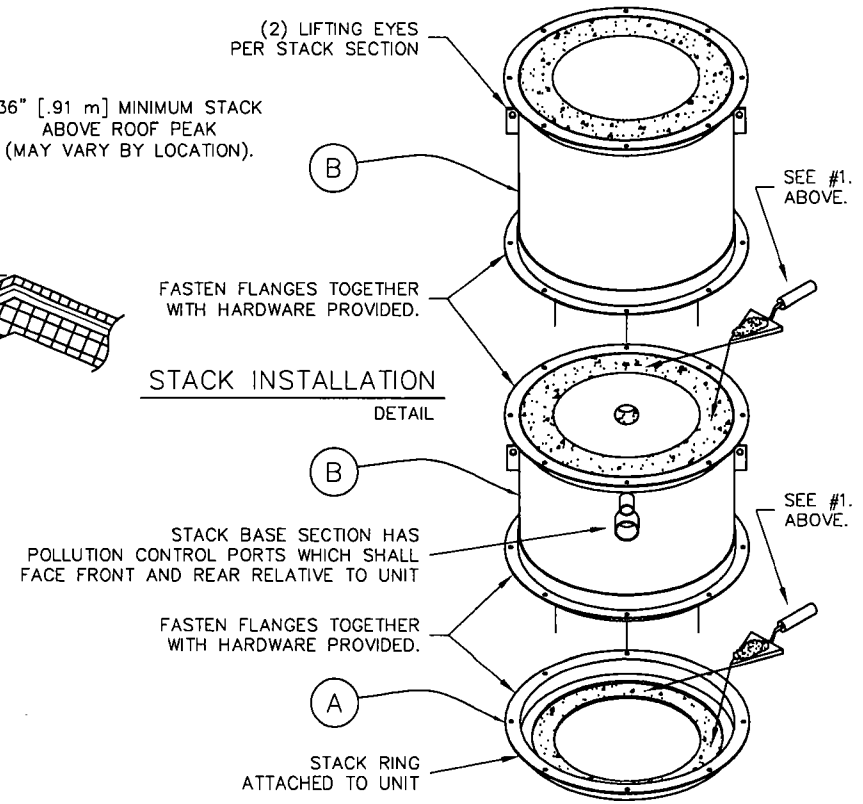
AIR: LOUVER NEAR THE REAR OF THE UNIT CAPABLE OF PASSING 2,500 CU FT/MIN [70.8 CU M/MIN] OF FREE AIR (36" X 36") [914 mm X 914 mm].

STACK INSTALLATION INSTRUCTIONS

1. APPLY A 1/2" THICK MORTAR JOINT TO EXPOSED REFRACTORY SURFACE IN STACK RING. LOWER THE BASE STACK SECTION (B) ONTO STACK RING (A) AND FASTEN WITH HARDWARE PROVIDED (NO MORE THAN (2) STACK SECTIONS SHALL BE LIFTED TOGETHER). REPEAT PROCESS FOR REMAINING STACK SECTIONS. IF SECTIONS OF VARYING LENGTHS ARE SUPPLIED, ASSEMBLE AS TO AVOID FLANGES & LIFTING EYES INTERFERING WITH RAIN COLLAR LOCATION.
2. INSTALL STORM COLLAR ON STACK, 3" [72 mm] ABOVE NON-COMBUSTIBLE LINER (FLASHING), ALLOWING FOR PROPER VENTILATION (SEE DETAIL).
3. APPLY A 1/4" [6 mm] BEAD OF HIGH-TEMPERATURE SILICON SEALANT (PROVIDED BY MCD) TO THE JOINT BETWEEN THE STORM COLLAR (C) AND THE STACK (B).
4. STORM COLLAR IS FURNISHED BY MCD. THE NON-COMBUSTIBLE LINER (FLASHING) TO BE PROVIDED BY THE OTHERS.
5. IF FIFTY PERCENT OF THE STACK LENGTH IS ABOVE THE ROOF, GUY WIRES MAY BE REQUIRED. CONSULT WITH YOUR MCD REP.
6. RAIN CAP NOT REQUIRED.



ROOF PENETRATION
DETAIL



STACK INSTALLATION
DETAIL

Matthews CREMATION DIVISION
2045 Sprint Boulevard
Apopka, Florida 32703
USA

SUPER POWER-PAK III

STACK DETAILS, CLEARANCES & INSTALLATION INSTRUCTIONS. REFRACTORY STACK DETAIL

DATE:	10-26-06	SCALE:	1/2"=1'
DRAWN:	JG	PLOT SCALE:	1:24
APRVD:		SHEET:	2 OF: 2
DWG FILE:	SPPIII-MarketingStackRefS2R3		
DWG #:	0000196		

SPECIFICATIONS- Model Super Power-Pak

1.	Equipment Type	Super Power-Pak
	A. Model No.	IE43-SPP
	B. Underwriters Laboratories Listing and File No.	87E8; MH14647
2.	Dimensions	
	A. Footprint	10' – 0" x 7' – 4"
	B. Maximum Length	12' – 2" (3.7 m)
	C. Maximum Width	8' -7" (2.62 m)
	D. Maximum Height	9' - 6¾" (2.91 m)
	E. Chamber Loading Opening	33" H x 39" W (838 mm x 991 mm)
3.	Weight	32,000 lbs. (14,500 kg)
4.	Utility/Air Requirements	
	A. Gross Gas Input, Natural or LP Gas	2,000,000 BTU/hr. (2,100,000 kJ/h) 2,750,000 BTU/hr. (2,640,000 kJ/h) if operating temperature is greater then 1,600° F
	Running Gas Pressure, Natural Gas	7 inches (180 mm) water column or greater
	Running Gas Pressure, LP Gas	11 inches (280 mm) water column or greater
	B. Electrical Supply	230 volt, 3Ø or 1Ø, 50/60 hz (other available)
	C. Air Supply	2,500 cfm (70 standard m^3/min)
5.	Incineration Capacity	200 lbs./hr. (91 kg/h)
6.	Typical Loading Capacity of Waste Types	750 lbs. (340 kg/h)
7.	Construction and Safety Standards	Incineration Institute of America, Underwriters Laboratories, Canadian Standards Association
8.	Steel Structure Construction	
	A. Frame	2" (51 mm) square tubing
	B. Front/Rear Plates	3/8" (10 mm) plate
	C. Floor Plates	3/16" (5 mm) plate
	D. Outer Side Casing	12 gauge (3 mm) plate
	E. Inner Side Casing	12 gauge (3 mm) plate
9.	Stack Construction	
	A. Inner Wall	4 1/2" (110 mm) insulating firebrick or castable
	B. Outer Wall	12 gauge (3 mm) sheet, 304 s.s., welded seams (unlined stack available)
10.	Draft Nozzle Construction	Schedule 40 type 316 s.s., welded connections
11.	Main Chamber Door Construction	
	A. Steel Shell	3/16" (5 mm) steel, welded with reinforcement
	B. Outer Refractory	1" (25 mm) insulating block
	C. Inner Refractory	4½" (110 mm) insulating firebrick

SPECIFICATIONS- Model Super Power-Pak

12. Primary Chamber Wall Construction
    - A. Outer Casing Wall ..... 12 gauge (3 mm) sheet
    - B. Inner Frame/Air Compartment ..... 2" (51 mm) air compartment
    - C. Inner Casing Wall ..... 12 gauge (3 mm) sheet
    - D. Outer Refractory Wall ..... 5" (127 mm) insulating block (minimum)
    - E. Inner Refractory Wall ..... 4½" (110 mm) firebrick

13. Secondary Chamber Wall Construction
    - A. Outer Casing Wall ..... 12 gauge (3 mm) sheet
    - B. Inner Frame/Air Compartment ..... 2" (51 mm) air compartment
    - C. Inner Casing Wall ..... 12 gauge (3 mm) sheet
    - D. Outer Refractory Wall ..... 6" (150 mm) insulating block
    - E. Inner Refractory Wall ..... 4½" (110 mm) firebrick

14. Refractory Temperature Ratings
    - A. Standard Firebrick ..... 3,100° F. (1700° C)
    - B. Insulating Firebrick ..... 2,600° F. (1430° C)
    - C. Castable Refractory (Hearth) ..... 2,550° F. (1370° C)
    - D. Castable Refractory ..... 2,550° F. (1370° C)
    - E. Insulating Block ..... 1,900° F. (1040° C)
    - F. Bonding Mortar ..... 3,200° F. (1760° C)

15. Chamber Volumes (not including external flues, stacks or chimneys)
    - A. Primary Chamber ..... 71 cubic feet (2.0 m^3)
    - B. Secondary Chamber ..... 104 cubic feet (2.9 m^3)

16. Emission Control Features
    - A. Secondary Chamber with Afterburner ..... Included
    - B. Opacity Monitor and Controller with Visual and Audible Alarms ..... Included
    - C. Auxiliary Air Control System ..... Included
    - D. Microprocessor Temperature Control System .... Included

17. Operating Temperatures
    - A. Primary Chamber ..... 1,200° F. - 1,800° F. (650° C - 1000° C)
    - B. Secondary Chamber ..... 1,400° F. - 1,800° F. (760° C - 1000° C) as required

18. Secondary Chamber Retention Time ..... > 2 second

19. Ash Removal ..... Door functions as a heat shield. Sweep out beneath rear door into hopper that fills collection pan.

20. Safety Interlocks
    - A. High Gas Pressure ..... Optional
    - B. Low Gas Pressure ..... Optional
    - C. Blower Air Pressure ..... Included
    - D. Door Position ..... Included
    - E. Opacity ..... Included

SPECIFICATIONS- Model Super Power-Pak

F. Motor Starter Function ..... Included
G. Chamber Temperature ..... Included
H. Motor Overload ..... Included
I. Flame Quality ..... Included
J. Burner Safe Start ..... Included

21. Burner Description ..... The nozzle mix burners used on this cremation equipment are industrial quality and designed for incinerator use.

22. Ultraviolet Flame Detection ..... Ultraviolet flame detection has proven to be the most reliable means of flame safety. The system is completely sealed in a quartz capsule to eliminate problems, caused by moisture and dust created in the cremation process, which effect flame rod detectors.

23. Operating Panel Indicating Lights
A. Safe Run ..... Included
B. Door Closed ..... Included
C. Pollution Alarm ..... Included
D. Afterburner On (Secondary Burner) ..... Included
E. Cremation Burner On ..... Included
F. Temperature Control ..... Included
G. Afterburner (Secondary Burner) Reset ..... Included
H. Cremation Burner Reset ..... Included
I. Hearth Air ..... Included
J. Throat Air Off ..... Included

24. Automatic Timer Functions
A. Master Cycle ..... Included
B. Afterburner (Secondary Burner) ..... Included
C. Cremation Burner ..... Included
D. Low Fire Cremation Burner ..... Included
E. Hearth Air ..... Included
F. Throat Air ..... Included
G. Pollution Monitoring ..... Included
H. Afterburner (Secondary Burner) Prepurge ..... Included
I. Cremation Burner Prepurge ..... Included
J. Cool Down ..... Included

25. Exterior Finish
A. Primer ..... 2 coats rust inhibiting
B. Finish ..... 2 coats textured finish

26. Start-Up and Training ..... Startup of cremation equipment and training of operators to properly operate and maintain the equipment is performed on-site under actual operating conditions. Included is a comprehensive owner's manual, with details on the equipment, its components and proper operation.

CREMATOR MASS BALANCE

Matthews Cremation

Super Power-Pak III (SPP)

THESE CALCULATIONS HAVE BEEN PREPARED TO EVALUATE THE COMBUSTION PROCESS IN THIS UNIT.

THE INCINERATOR INSTITUTE OF AMERICA HAS PUBLISHED THE FOLLOWING SPECIFICATIONS COVERING AVERAGE WASTES.

WASTE TYPE	TYPE 0	TYPE 4
BTU PER POUND	8500	1000
POUND ASH PER POUND WASTE	0.05	0.05
POUND MOISTURE PER POUND WASTE	0.1	0.85
POUND COMBUSTIBLES PER POUND WASTE	0.85	0.1
HOURLY CONSUMPTION OF WASTE (LBS)	10	190

1. MASS OF PRODUCTS OF COMBUSTION FROM CONTAINER

A. COMBUSTION AIR

$$\frac{8500 \text{ BTU/LB}}{100 \text{ BTU/CF OF AIR*}} \times 0.075 \text{ LB/CF OF AIR} = 6.38 \text{ LB/LB BURNED}$$

B. COMBUSTIBLES AND WATER VAPOR

FROM CHART ABOVE = 0.95 LB/LB BURNED

C. TOTAL FLUE PRODUCT MASS PER LB BURNED

= 7.33 LB/LB BURNED

2. MASS OF PRODUCTS OF COMBUSTION FROM BODY

A. COMBUSTION AIR

$$\frac{1000 \text{ BTU/LB}}{100 \text{ BTU/CF OF AIR*}} \times 0.075 \text{ LB/CF OF AIR} = 0.75 \text{ LB/LB BURNED}$$

B. COMBUSTIBLES AND WATER VAPOR

FROM CHART ABOVE = 0.95 LB/LB BURNED

C. TOTAL FLUE PRODUCT MASS PER LB BURNED

= 1.70 LB/LB BURNED

SPECIFICATIONS	
PRIMARY BURNER FUEL CONSUMPTION (MMBTU/HR)	0.5
SECONDARY BURNER FUEL CONSUMPTION (MMBTU/HR)	0.9
ADDITIONAL SECONDARY AIR SUPPLIED (CFM)	200
SEC. CHAMBER OPERATING TEMPERATURE (°F)	**1800**
SECONDARY CHAMBER VOLUME (CU. FT)	104
SEC. CHAMB. CROSS-SECTIONAL AREA (SQ. FT)	2.44
FLAME PORT AREA (SQ. FT)	2.95
MIXING BAFFLES AREA (SQ. FT)	1.36

*AIR AT STANDARD CONDITIONS

3. TOTAL FLUE PRODUCTS

A. MAXIMUM PRIMARY BURNER GAS USAGE

500000 BTU/HR x 4.5E-05 LBS/BTU = 22.5 LBS/HR

B. COMBUSTION AIR FOR PRIMARY BURNER

$$\frac{500000\ \text{BTU/HR}}{100\ \text{BTU/CF AIR}} \times \frac{1}{\text{Burner}} \times 0.075\ \text{LB/CF AIR} = 375\ \text{LBS/HR}$$

C. MAXIMUM SECONDARY BURNER GAS USAGE

900000 BTU/HR x 4.5E-05 LBS/BTU = 41 LBS/HOUR

D. COMBUSTION AIR FOR SECONDARY BURNER

$$\frac{900000\ \text{BTU/HR}}{100\ \text{BTU/CF AIR}} \times \frac{1}{\text{Burner}} \times 0.075\ \text{LB/CF AIR} = 675\ \text{LBS/HOUR}$$

E. PRODUCTS FROM TYPE 0 WASTE (CONTAINER)

7.33 LBS/LB BURNED x 10 LB/HR BURN RATE = 73 LBS/HOUR

F. PRODUCTS FROM TYPE 4 WASTE (TISSUE)

1.70 LBS/LB WASTE x 190 LB/HR BURN RATE = 323 LBS/HOUR

G. ADDITIONAL SECONDARY CHAMBER COMBUSTION AIR (THROAT AIR)

12000 CF/HR* x 0.075 LB/CF AIR = 900 LBS/HOUR

H. TOTAL FLUE PRODUCTS = 2409 LBS/HOUR

2. VELOCITY AND TIME CALCULATIONS

A. SCFM CALCULATION (PRODUCTS ASSUMED TO HAVE DENSITY CLOSE TO AIR)

$$2409\ \text{LBS/HR} \times \frac{13.35\ \text{STD. CU. FT/LB}}{60\ \text{MIN/HR}} = 536\ \text{SCFM}$$

B. TOTAL PRODUCTS ACFM @ 1800 °F

$$\frac{2260\ °\text{RANKINE}}{530\ °\text{RANKINE}} \times 536.1\ \text{CFM} = 2286\ \text{ACFM}$$

C. RETENTION TIME

$$\frac{104\ \text{CU. FT}}{2286\ \text{ACFM}} \times \frac{60\ \text{SECONDS}}{1\ \text{MINUTE}} = \mathbf{2.73\ SECONDS}$$

D. VELOCITY IN FLAME PORT

$$\frac{2286\ \text{ACFM}}{2.95\ \text{SQ. FT}} \times \frac{1\ \text{MINUTE}}{60\ \text{SECONDS}} = 12.9\ \text{FEET/SECOND}$$

E. VELOCITY AT MIXING BAFFLES

$$\frac{2286\ \text{ACFM}}{1.36\ \text{SQ. FT}} \times \frac{1\ \text{MINUTE}}{60\ \text{SECONDS}} = 28.0\ \text{FEET/SECOND}$$

F. VELOCITY IN SECONDARY CHAMBER

$$\frac{2286\ \text{ACFM}}{2.44\ \text{SQ. FT}} \times \frac{1\ \text{MINUTE}}{60\ \text{SECONDS}} = 15.6\ \text{FEET/SECOND}$$

EMISSION TEST

BUFFALO CREMATION COMPANY, INC.
BUFFALO, NEWYORK

OCTOBER 2008
REF. NO. 051475 (3)

Prepared by:
Conestoga-Rovers & Associates

2055 Niagara Falls Blvd.
Suite Three
Niagara Falls, NY 14304

Office: 716·297·6150
Fax: 716·297·2265

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 PROJECT OVERVIEW

Buffalo Cremation Company (BCC) contracted Conestoga-Rovers & Associates (CRA) to conduct emission testing at the Buffalo Cremation facility located in Buffalo, New York. The objective of this test was to determine the emissions from a human cremation unit, a Mathews Cremation Super-Power Pak III (SPP), for particulate matter (PM), and visual emissions (VE).

1.2 PROJECT ORGANIZATION

The BCC facility contact is:

Mr. George Morris
Engineer
901 West Delevan Avenue
Buffalo, NY 14226
Phone: (716) 984-8137

CRA was the consultant responsible for this emission testing program. The CRA contact is:

Ms. Danielle M. Carra
2055 Niagara Falls, Blvd., Suite 3
Niagara Falls, NY 14304
Phone: (716) 297-6150

1.3 PROCESS DESCRIPTION

The Model IE43-SPP Super Power-Pak III cremator is designed to complete a typical cremation case in 1 to 2 hours. The time does not include preheating the secondary chamber or the cool-down period before the removal of the remains (1/2 hour). The cremator has a nominal burn rate of 200 lb/hr of remains and the associated containers, based on the entire cremation period. The cremator is a multiple chamber design and is fired with natural or LP gas as an auxiliary fuel. It is designed to be manually loaded in batches.

The remains are typically loaded into the primary chamber and then the secondary chamber is preheated by the after burner for 30-60 minutes (1000 to 1800 ^{0}F, per state requirement). The primary or cremation burner is then ignited to begin the cremation cycle. A cool-down period of 30 minutes or more is recommended at the end of the cremation cycle before removing the cremated remains and loading the next batch of remains.

The secondary chamber has a volume of 104 cu. ft. It has one Eclipse Therm-Jet burner rated at 1.5 MMBTU/hr that is normally adjusted to a maximum setting of 1.2 MMBTU/hr. The secondary chamber temperature is monitored by a digital controller which adjusts the after burner gas input to maintain the desired temperature set-point. The cremator operates best with a minimum secondary chamber temperature of 1400 to 1800 ^{0}F, per state requirement.

The primary chamber volume has a volume 71 ft^3. It has one Eclipse Therm-Jet burner rated at 1.5 MMBTU/hr that is normally adjusted to a maximum setting of .7 MMBTU/hr.

Average fuel use per cremation is 38 Therms.

1.4 EMISSION TEST PLAN

Testing was conducted according to United States Environmental Protection Agency (USEPA) Reference Methods (RM) outlined in Title 40 of the Code of Federal Regulations, Part 60 (40 CFR 60), Appendix A. A summary of the test program is presented in Table 1.1

Three 72-minute test runs were completed for Particulate Matter (RM-5), concurrent with opacity (RM-9) readings.

On September 18, 2008, while performing Run 1, a thermocouple for the cremator failed. The thermocouple was replaced and, due to the malfunction in the equipment Run 1 will be voided. This report will provide the results for Run 2, 3 and 4.

TABLE 1.1

TEST METHOD SUMMARY
CREMATORY INCINERATOR AIR EMISSION TEST
BUFFALO CREMATION COMPANY
SUPER POWER-PAK III
BUFFALO, NEW YORK
SEPTEMBER 18-19, 2008

Parameter	*Reference Method*	*Runs*	*Duration (hours)*	*Comments*
Gas Flow Rate	RM 1, RM 2	3	N/A	
Gas Molecular Weight CO_2 and O_2	RM 3B	N/A	Grab	
Gas Moisture Content	RM 4	3	72 minutes	concurrent with RM-5
Particulate Matter	RM 5	3	72 minutes	
Opacity	RM 9	3	72 minutes	concurrent with RM-5

TABLE 3.1

EQUIPMENT CALIBRATION SUMMARY
CREMATORY INCINERATOR AIR EMISSION TEST
BUFFALO CREMATION COMPANY
SUPER POWER-PAK III
BUFFALO, NEW YORK
SEPTEMBER 18-19, 2008

Equipment	*Reference*	*Calibrated With*	*Limit*	*Calibration Date*	*Calibration Within Limit?*
Barometer	Method 2 Section 4.4	NWS Barometer (a)	± 0.1 in. Hg	9/15/2008 9/19/2008	Yes Yes
Meter Box Pre-Test	Method 5 Section 5	Standard Dry Gas Meter	Y: within ±0.02 of avg. ΔH@; within	3/26/2008	Yes
Meter Box Post-Test	Method 5 Section 5	Standard Dry Gas Meter	Y: avg. within 5% of meter box value	9/22/2008	yes
Type S Pitot Tube and Thermocouple	Method 2 Section 4.1	Precision Angle Gauge	(a)	9/22/2008 9/22/2008 9/22/2008	yes yes yes
Nozzles	Method 5 Section 5	Dial Caliper	(a)	10/31/2000 3/7/2007	yes yes

NWS = National Weather Service

Notes:

Pitot calibration checks include the measurement of geometric specifications, equipment is inspected for damage or misalignment following each field test.

TABLE 4.1

STACK TEST RESULTS
CREMATORY INCINERATOR AIR EMISSION TEST
BUFFALO CREMATION COMPANY
SUPER POWER-PAK III
BUFFALO, NEW YORK
SEPTEMBER 18-19, 2008

Parameter	*Units*	*Run 2*	*Run 3*	*Run 4*	*Average*	*Limit*
Test Dates		9/18/2008	9/18/2008	9/19/2008		
Run Start		11:12	14:11	7:57		
Run Stop		12:38	15:31	9:16		
Stack Parameters						
Temperature	°F	1316	1241	1196		
Moisture	%	9.49	9.87	10.05	9.81	
Flow rate	ACFM	3905	3446	3734	3695	
	DSCFM	1064	975	1087	1042	
Particulate Matter						
Concentration	gr/dscf	0.002	0.007	0.004	0.005	
	gr/dscf @ 7% O_2	0.005	0.015	0.008	**0.009**	**0.080**
Visible Emissions	%	0	0	0	**0**	**< 20%**

EPA
VISIBLE EMISSION OBSERVATION FORM 1

Form Number							Page	1 of 3
Continued on VEO Form Number								

Method Used (Circle One): **Method 9** 203A 203B Other: _____

Company Name		
Buffalo Cremation Company		
Facility Name		
Street Address		
901 West Delevan Avenue		
City: Buffalo	State: New York	Zip: 14226

Process	Unit #:	Operating Mode
Incinerator	1	Normal
Control Equipment: NA		Operating Mode: Normal

Describe Emission Point: Tall, round, metal stack

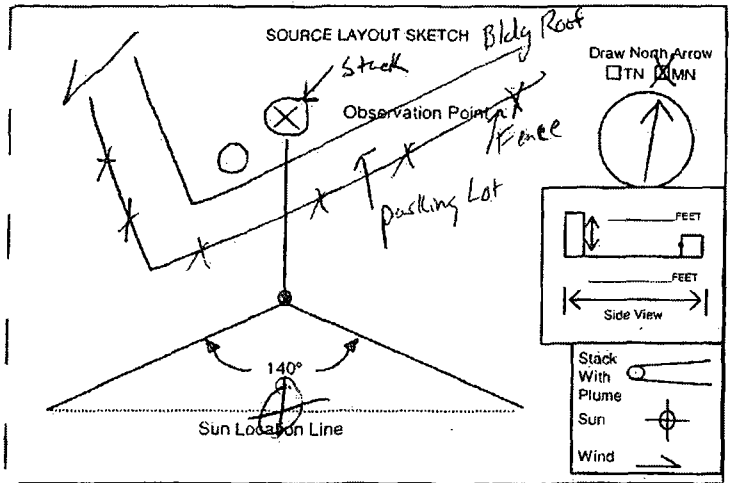
Height of Emiss. Pt.	Height of Emiss. Pt. Rel. to Observer
Start 30' End SAME	Start 30' End SAME
Distance to Emiss. Pt.	**Direction to Emiss. Pt. (Degrees)**
Start 40' End SAME	Start 348° End SAME
Vertical Angle to Obs. Pt.	**Direction to Obs. Pt. (Degrees)**
Start 18 End SAME	Start 348° End SAME

Distance and Direction to Observation Point from Emission Point: Start 0' End SAME

Describe Emissions	
Start NONE End SAME	
Emission Color	**Water Droplet Plume**
Start NA End NA	Attached – Detached – None

Describe Plume Background	
Start Blue Sky End SAME	
Background Color	**Sky Conditions**
Start Blue End SAME	Start Clear End SAME
Wind Speed	**Wind Direction**
Start 0-5 End SAME	Start Calm End SAME
Ambient Temp	**Wet Bulb Temp** / **Rh, Percent**
Start 56°F End 59°F	55°F / 90%

SOURCE LAYOUT SKETCH



Longitude	Latitude	Declination

Additional Information: RUN-2

Observation Date: 9/18/08 Start Time: 11:12 End Time: 1238

Sec / Min	0	15	30	45	Comments
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Observer's Name (Print)	
Danielle M. Carra	
Observer's Signature: D Carra	Date: 9/18/08
Organization: Conestoga-Rovers and Associates	
Certified By: Eastern Technical Associates	Date: 4/16/2008

Corey-Kerlin Funeral Home
and Crematory
1426 Rowe Avenue
Jacksonville, FL 32208

FDEP RECEIPTS
P.O. BOX 3070
TALLAHASSEE, FLORIDA [redacted] 32302
ATTN: DICK DIBBLE