

F.A. RECEIPT 524787

DATE: SEP 08 2011

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SEP 13 2011

HUMAN CREMATORY
AIR GENERAL PERMIT REGISTRATION FORM DIVISION OF AIR
RESOURCE MANAGEMENT

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, F.A.C. (\$100 as of the effective date of this form)

0150031-006

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):
#0150031 (see attachment DEP Letter of 12/14/2007)
- 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.)

Roberson Funeral Home & Crematory, Inc.

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.)

Roberson Funeral Home & Crematory, Inc.

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

Street Address: 2151 Tamiami Trail

City: Port Charlotte County: Charlotte

Zip Code: 33948-2123

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

N/A

Owner/Authorized Representative

<u>Name and Position Title</u> (Person who, by signing this form below, certifies that the facility is eligible to use this air general permit.) Print Name and Title: Kenneth L. Roberson, President	
<u>Owner/Authorized Representative Mailing Address</u> Kenneth L. Roberson, Pres. Organization/Firm: Roberson Funeral Home & Crematory, Inc. Street Address: PO Box 495096 (2151 Tamiami Trail) City: Port Charlotte County: Charlotte Zip Code: 33949-5096	
<u>Owner/Authorized Representative Telephone Numbers</u> Telephone: (941) 629-3141 Fax: (941) 629-3147 Cell phone (optional):	

Facility Contact (If different from Owner/Authorized Representative)


<u>Name and Position Title</u> (Plant manager or person to be contacted regarding day-to-day operations at the facility.) Print Name and Title: Kenneth L. Roberson, President	
<u>Facility Contact Mailing Address</u> Organization/Firm: Roberson Funeral Home & Crematory, Inc. Street Address: P.O. Box 495096 (2151 Tamiami Trail) City: Port Charlotte County: Charlotte Zip Code: FL 33949-5096	
<u>Facility Contact Telephone Numbers</u> Telephone: (941) 629-341 Fax: (941) 629-3147 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

Sept. 1, 2011

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).

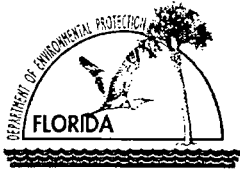
Description of Facility

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 Power Pak II human cremation unit at current facility that will replace existing Crawford C1000 unit.

See attached process flow diagram

* LPG FIRED - PER BENJAMIN TELECON 9/21/11 - 0945 HRS



Department of Environmental Protection

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SEP 13 2011

Division of Air Resource Management

DIVISION OF AIR
RESOURCE MANAGEMENT

HUMAN CREMATORY AIR GENERAL PERMIT REGISTRATION FORM

Part I. Procedures and Conditions for Use of Air General Permit

The Department of Environmental Protection ("Department" or "DEP") has established an "air general permit" at Florida Administrative Code ("F.A.C.") Rule 62-210.310(5)(c) for human crematories. An air general permit is an authorization by rule to construct or operate a specific type of air pollutant emitting facility. Use of such authorization by any individual facility does not require action by the Department. The terms and conditions of the air general permit are set forth in the rule, rather than in a separately issued air construction or air operation permit.

The owner or operator of an eligible facility comprising one or more human crematories may register to use the air general permit at Rule 62-210.310(5)(c), F.A.C., by following the general procedures given at Rule 62-210.310(2), F.A.C., the text of which is provided below. The owner or operator shall notify the Department of the facility's intent to use this general permit by submitting Part II of this registration form to the appropriate Department of Environmental Protection or local air pollution control program office which has permitting authority. Questions concerning this air general permit or the registration process may be directed to any such office or to the Department's small business assistance program at 1-800-SBAP-HLP (1-800-722-7457).

The owner or operator of a facility who properly registers to use this air general permit, and who is not denied use of the air general permit by the Department, is authorized to construct and operate the facility in accordance with the general terms and conditions of Rule 62-210.310(3), F.A.C., and the specific terms and conditions of Rule 62-210.310(5)(c), F.A.C. The text of these two rules is also provided below, followed by definitions of words and phrases used in the rules and on this form. A facility using this air general permit shall not be entitled to use more than one air general permit for the facility.

Rule 62-210.310(2), F.A.C.

(2) General Procedures. This subsection sets forth general procedures for use of any of the air general permits provided at subsections 62-210.310(4) and (5), F.A.C.

(a) Determination of Eligibility. The owner or operator of a proposed new or existing facility shall determine the facility's eligibility to use an air general permit under this rule. A facility is eligible to use an air general permit under this rule if it meets any specific eligibility criteria given in the applicable air general permit at subsection 62-210.310(4) or (5), F.A.C., and the following general criteria.

1. The facility shall not emit nor have the potential to emit 10 tons per year or more of any hazardous air pollutant, 25 tons per year or more of any combination of hazardous air pollutants, or 100 tons per year or more of any other regulated air pollutant; be collocated with, or relocated to, such a facility; or create such a facility in combination with any other collocated facilities, emissions units, or pollutant-emitting activities, including any such facility, emissions unit, or activity that is otherwise exempt from air permitting.

2. The facility shall not contain any emissions units or activities not covered by the applicable air general permit, except:

a. Units and activities that are exempt from permitting pursuant to subsection 62-210.300(3), F.A.C., or Rule 62-4.040, F.A.C.; and

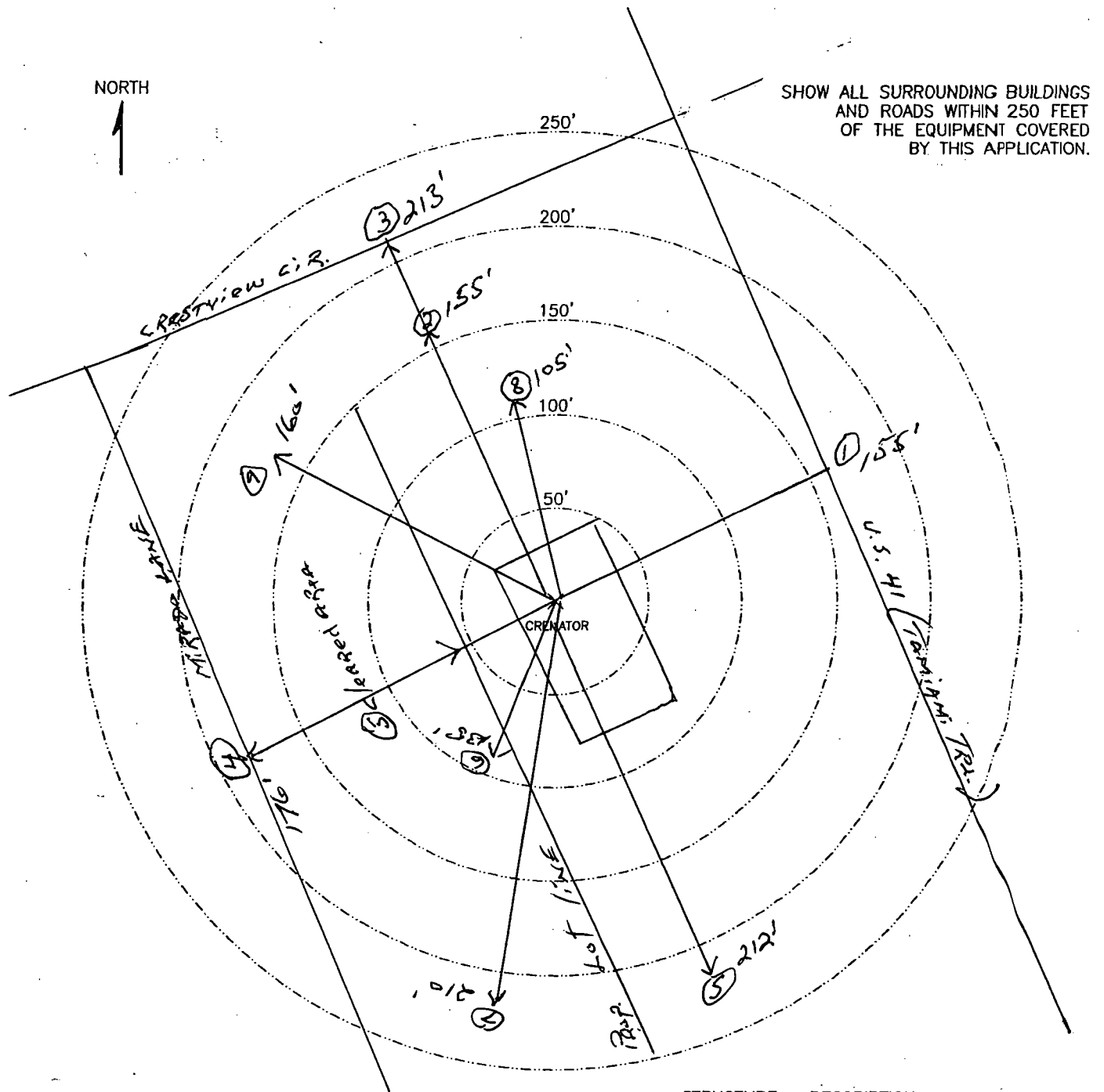
b. Units and activities that are authorized by another air general permit where such other air general permit and the air general permit of interest specifically allow the use of one another at the same facility.

ROBERSON

Funeral Home & Crematory

2151 Tamiami Tr. • P.O. Box 495096
Port Charlotte, Florida 33949-5096

PLOT PLAN



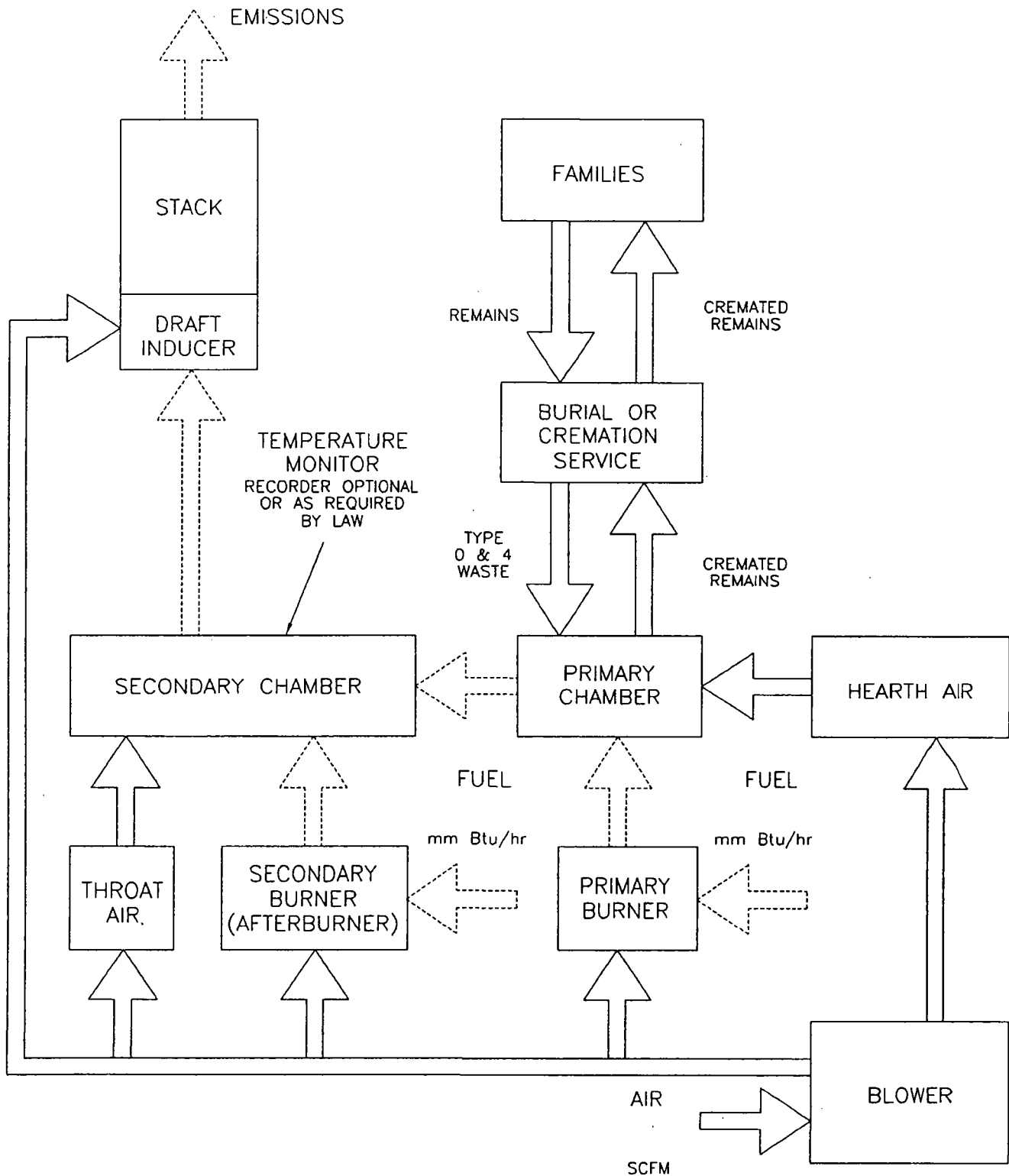
INSTRUCTIONS

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.

STRUCTURE DESCRIPTION

- (1) U.S.41 (Tamiami Trail)
- (2) Concrete Block Commerical Bldg.
- (3) Crestview Circle
- (4) Mirado Lane
- (5) Concrete Block Commerical Bldg.
- (6) Concrete Block Residential
- (7) Concrete Block Residential
- (8) Concrete Block Commerical Bldg.
- (9) Concrete Block Commerical Bldg.
- (10)

PROCESS FLOW DIAGRAM CREMATOR



SPECIFICATIONS- Model Power-Pak II

1. Equipment Type Model Power-Pak II
 - A. Model No. IE43-PPII
 - B. Underwriters Laboratories Listing and File No. .. 87E8; MH14647

2. Dimensions
 - A. Footprint 12' – 6 ½" x 6' – 8" (3.82 m x 2.03 m)
 - B. Maximum Length 14' – 8" (4.47 m)
 - C. Maximum Width 6' -5" (1.96 m)
 - D. Maximum Height 8' - 4" (2.54 m)
 - E. Chamber Loading Opening 25 ¾" H x 39 ½" W (654 mm x 990 mm)

3. Weight 24,000 lbs. (10,900 kg)

4. Utility/Air Requirements
 - A. Gross Gas Input, Natural or LP Gas..... 2,000,000 BTU/hr. (2,110,112 kJ/h)
3,000,000 BTU/hr. (3,165,168 kJ/h) if operating
temperature is greater than 1,600° F (871° C)
 - Running Gas Pressure, Natural Gas 7 inches (177.8 mm) water column or greater
 - Running Gas Pressure, LP Gas 11 inches (279.4 mm) water column or greater
 - B. Electrical Supply..... 230 volt, 3Ø or 1Ø, 50/60 hz (other available)
 - C. Air Supply..... 2,500 cfm (70.8 standard m³/min)

5. Incineration Capacity 150 lbs./hr. (68 kg/h)

6. Typical Loading Capacity of Waste Types..... 750 lbs. (340.2 kg)

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" (9.5 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. pipe, 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 Power-Pak II

- 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
 - E. Inner Refractory Wall 4½" (114 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" (152 mm) insulating block
 - E. Inner Refractory Wall 4½" (114 mm) firebrick

- 14. Refractory Temperature Ratings
 - A. Standard Firebrick..... 3,100° F. (1704° C)
 - B. Insulating Firebrick 2,600° F. (1427° C)
 - C. Castable Refractory (Hearth)..... 2,550° F. (1399° C)
 - D. Castable Refractory 2,550° F. (1399° C)
 - E. Insulating Block..... 1,900° F. (1038° C)
 - F. Bonding Mortar 3,200° F. (1760° C)

- 15. Chamber Volumes (not including external flues, stacks or chimneys)
 - A. Primary Chamber 64 cubic feet (1.8 m³)
 - B. Secondary Chamber 74 cubic feet (2.1 m³)

- 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. (649° C - 982° C)
 - B. Secondary Chamber 1,400° F. - 1,800° F. (760° C - 982° C) as required

- 18. Secondary Chamber Retention Time > 1 second

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

SPECIFICATIONS- Model Power-Pak II

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

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

- 23. 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.

- 24. 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. Low Fire Cremation Burner On..... Included
 - G. Afterburner (Secondary Burner) Reset..... Included
 - H. Cremation Burner Reset..... Included
 - I. Hearth Air..... Included
 - J. Throat Air Off Included

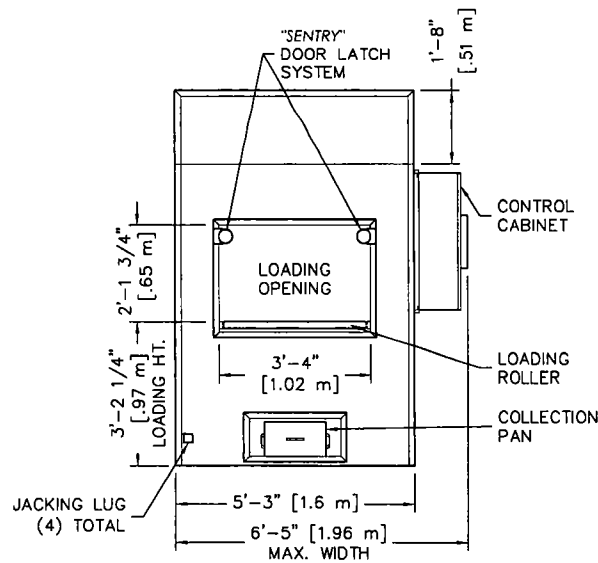
- 25. Automatic Timer Functions
 - A. Master Cycle Included
 - B. Afterburner (Secondary Burner) Included
 - C. Cremation Burner..... Included
 - D. Low Fire Cremation Burner Included
 - E. Hearth Air..... Included
 - F. Throat Air Included
 - G. Pollution Monitoring..... Included
 - H. Afterburner (Secondary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

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

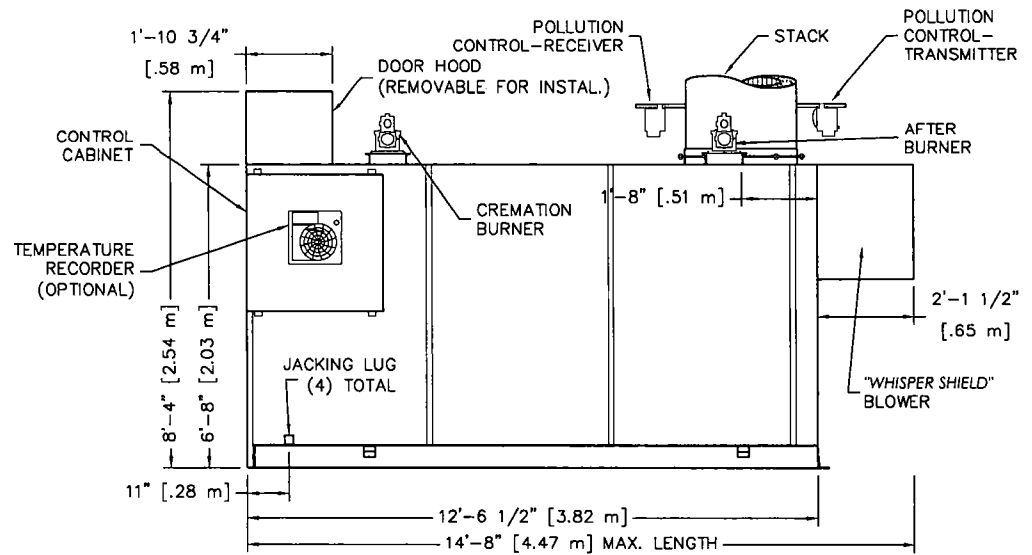
SPECIFICATIONS- Model Power-Pak II

- 27. 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.

- 28. Environmental Submittals Complete technical portion of state environmental permits. Engineering calculations, technical data, existing stack test results and equipment blueprints provided.



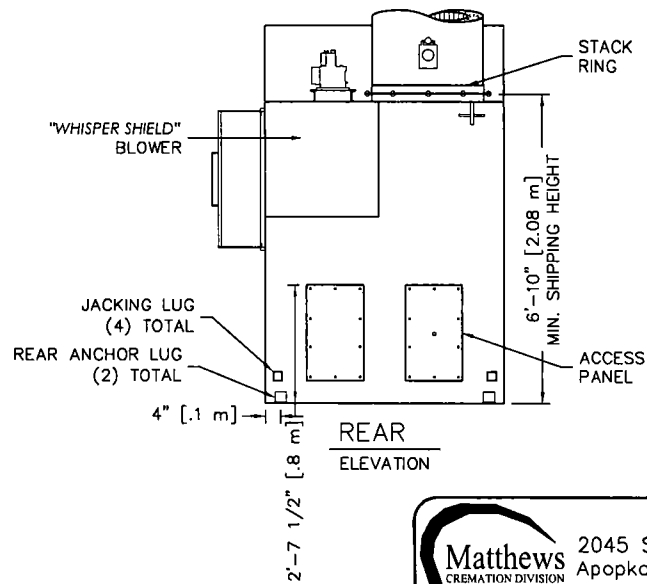
FRONT
ELEVATION



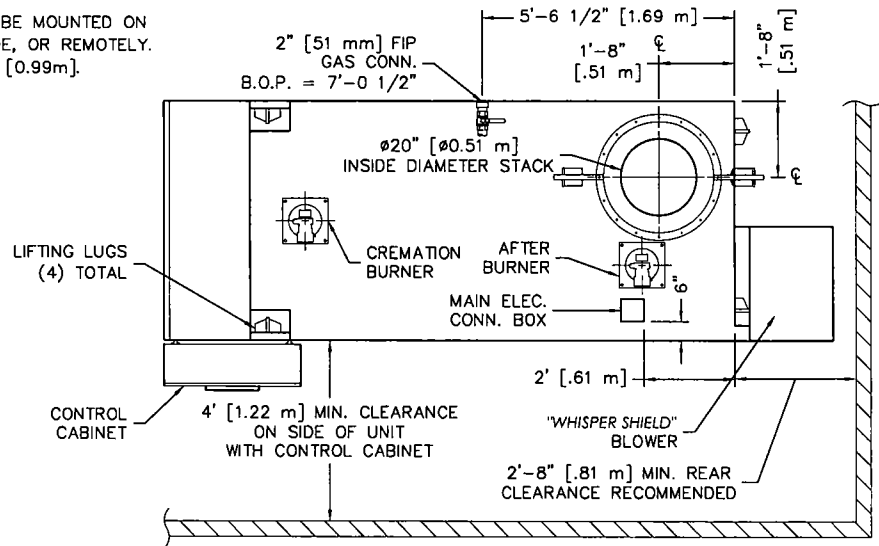
RIGHT SIDE
ELEVATION

NOTES:

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



REAR
ELEVATION



PLAN
VIEW



2045 Sprint Boulevard
Apopka, Florida 32703
USA

POWER-PAK II

PLAN & ELEVATIONS INCL: CLEARANCES,
REQUIREMENTS & RECOMMENDATIONS

DATE:	08-03-09	SCALE:	1/4"=1'
DRAWN:	JG	PLOT SCALE:	1:48
APRVD:		SHEET:	1 OF: 2
DWG FILE:	PPII-MarketingPlanElevS1R5		
DWG #:	0000140		

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]

- FOR CLEARANCES OTHER THAN THOSE SHOWN, OR FOR SPECIAL REQUIREMENTS, CONSULT YOUR MCD REP.
- FROM HIGHEST POINT ON UNIT.
- CONTROL CABINET MOUNTS ON UNIT'S LEFT OR RIGHT SIDES, OR REMOTELY. (SEE PLAN VIEW, SHEET 1).
- 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.

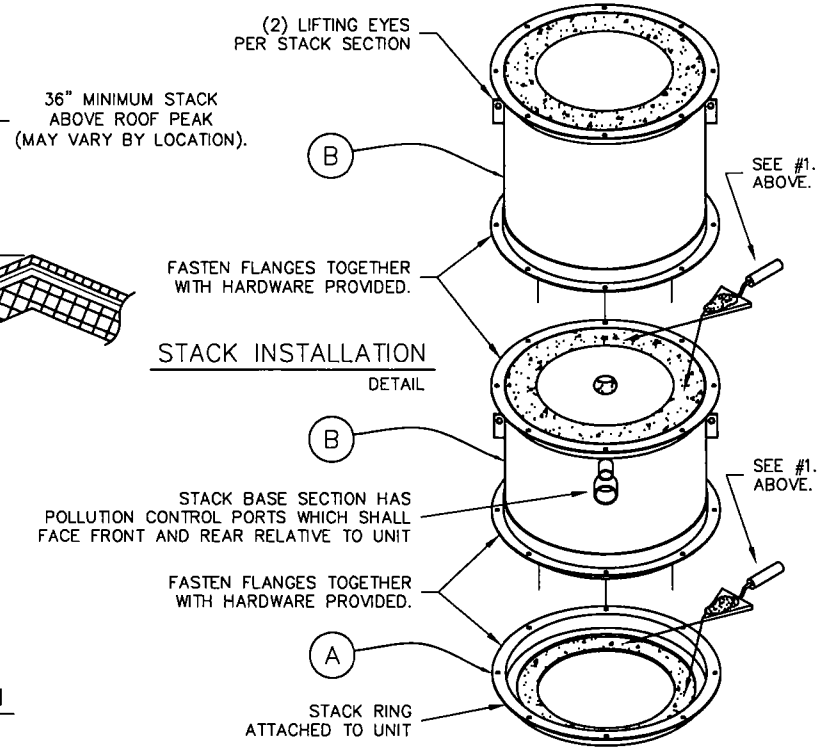
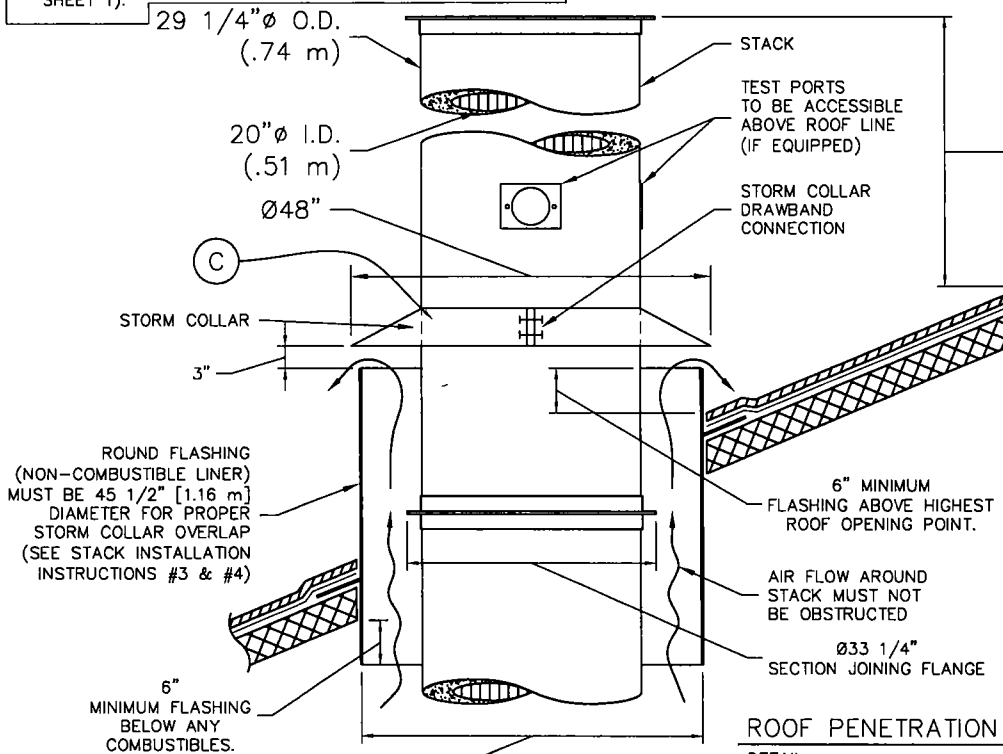
CAPACITY: RANGES FROM 2.0 TO 3.0 MILLION BTU/HR [2.1 TO 3.1 MILLION KILOJOULES/HR] DEPENDING UPON AMOUNT OF BURNERS.

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

- 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.
- INSTALL STORM COLLAR ON STACK, 3" [76 mm] ABOVE NON-COMBUSTIBLE LINER (FLASHING), ALLOWING FOR PROPER VENTILATION (SEE DETAIL).
- 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).
- STORM COLLAR IS FURNISHED BY MCD. THE NON-COMBUSTIBLE LINER (FLASHING) TO BE PROVIDED BY THE OTHERS.
- IF FIFTY PERCENT OF THE STACK LENGTH IS ABOVE THE ROOF, GUY WIRES MAY BE REQUIRED. CONSULT WITH YOUR MCD REP.
- RAIN CAP NOT REQUIRED.



ROUND FLASHING (NON-COMBUSTIBLE LINER) MUST BE 45 1/2" [1.16 m] DIAMETER FOR PROPER STORM COLLAR OVERLAP (SEE STACK INSTALLATION INSTRUCTIONS #3 & #4)

6" MINIMUM FLASHING BELOW ANY COMBUSTIBLES.

Ø45" REQUIRED FOR PROPER STACK CLEARANCE.

Matthews
CREMATION DIVISION

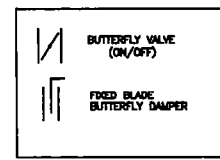
2045 Sprint Boulevard
Apopka, Florida 32703
USA

POWER-PAK II

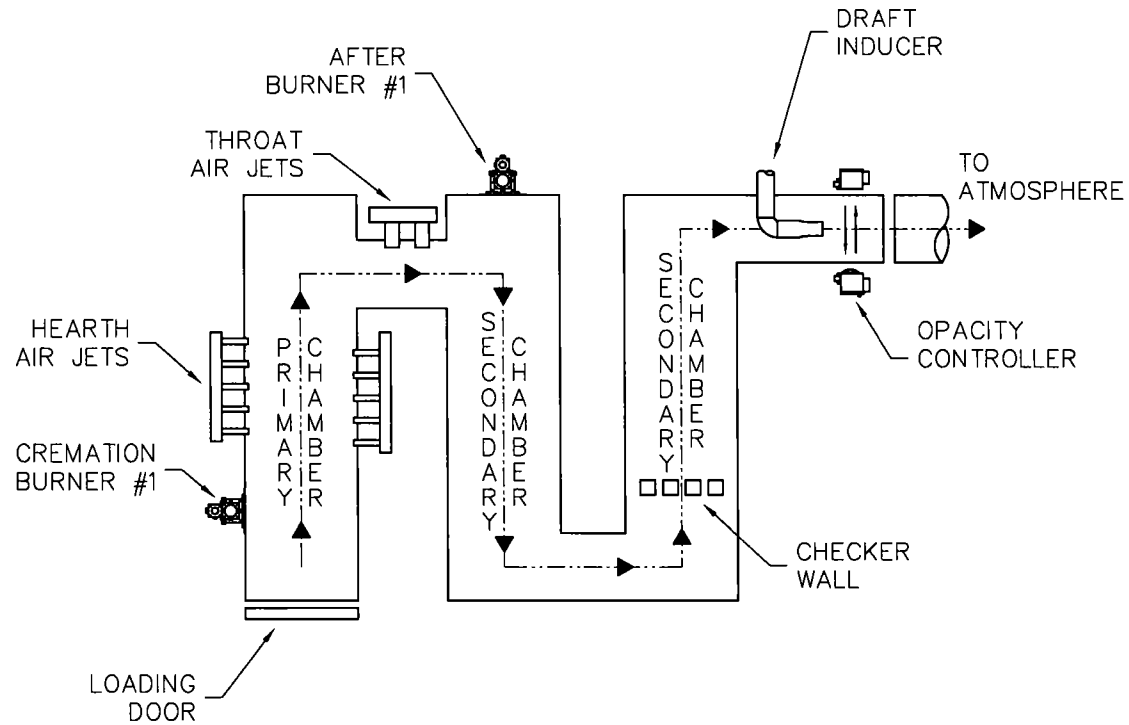
STACK DETAILS, CLEARANCES &
INSTALLATION INSTRUCTIONS.
REFRACTORY STACK DETAIL

DATE:	08-18-05	SCALE:	1/2"=1'
DRAWN:	JG	PLOT SCALE:	1:24
APRVD:		SHEET:	2 OF: 2
DWG FILE:	PP11-MarketingStackRefS2R2		
DWG #:	0000140		

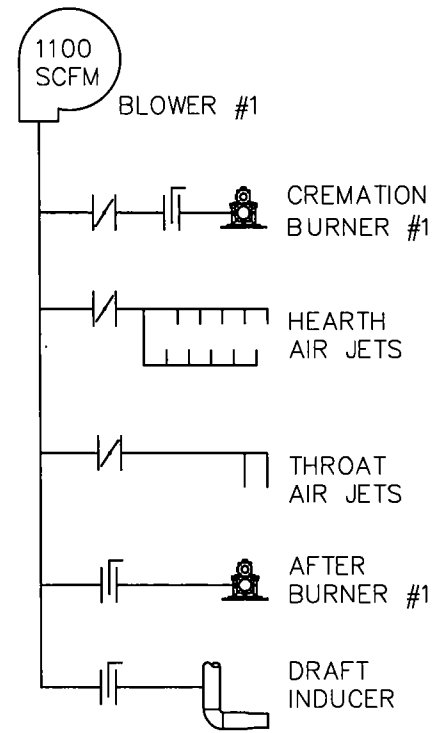
LEGEND OF SYMBOLS



FLOW DIAGRAM



AIR SCHEMATIC



Matthews
CREMATION DIVISION

2045 Sprint Boulevard
Apopka, Florida 32703
USA

POWER PAK II

FLOW DIAGRAM
& AIR SCHEMATIC

DATE:	08-05-05	SCALE:	1/4"=1'
DRAWN:	JG	PLOT SCALE:	1:48
APRVD:		SHEET:	1 OF: 1
DWG FILE:	PPIIFlowDiaAirSchem		
DWG #:	0000523		

Calculation Of Emissions

Potential to Emit

Matthews Cremation Division (MCD)
 (formerly Industrial Equipment and Engineering Company (IEE))
 Crematory Incinerator Model IE43-PPII

Total Incinerator Burn Capacity: 150 lb/hr of remains (type 4) and associated containers (type 0)
 Flue gas flow rate = 1175 dscfm 12 Hours/Day X 6 Days/Week X 52 Weeks/Year
 (100 % Excess Air) = 3744 Hours/Year

Total Emission Rate = Incinerator Burn Rate X Emission Factor

Sulfur Dioxide (SO₂)

$$\frac{150 \text{ lb/hr X } 2.5 \text{ lb/ton X } 1 \text{ ton}}{2000 \text{ lbs}} = 0.188 \text{ lb/hr}$$

$$= 0.351 \text{ TPY}$$

$$\frac{0.1875 \text{ lb/hr X } 4.54\text{E}+05 \text{ mg/lb X } 1 \text{ ppmv}}{1175 \text{ dscfm X } 60 \text{ min/hr X } 0.0283 \text{ m}^3/\text{f}^3 \text{ X } 2.61 \text{ mg/m}^3} = 16.35 \text{ ppmv}$$

Nitrogen Oxide (NO_x - as Nitrogen Dioxide)

$$\frac{150 \text{ lb/hr X } 3 \text{ lb/ton X } 1 \text{ ton}}{2000 \text{ lbs}} = 0.225 \text{ lb/hr}$$

$$= 0.4212 \text{ TPY}$$

$$\frac{0.225 \text{ lb/hr X } 4.54\text{E}+05 \text{ mg/lb X } 1 \text{ ppmv}}{1175 \text{ dscfm X } 60 \text{ min/hr X } 0.028 \text{ m}^3/\text{f}^3 \text{ X } 1.88 \text{ mg/m}^3} = 27.53 \text{ ppmv}$$

Hydrocarbons (TOC/VOC - methane)

$$\frac{150 \text{ lb/hr X } 3 \text{ lb/ton X } 1 \text{ ton}}{2000 \text{ lbs}} = 0.225 \text{ lb/hr}$$

$$= 0.4212 \text{ TPY}$$

$$\frac{0.225 \text{ lb/hr X } 4.54\text{E}+05 \text{ mg/lb X } 1 \text{ ppmv}}{1175 \text{ dscfm X } 60 \text{ min/hr X } 0.0283 \text{ m}^3/\text{f}^3 \text{ X } 0.65 \text{ mg/m}^3} = 78.77 \text{ ppmv}$$

Lead (Pb) (6.62E-05 lbs/cremation)

$$\frac{150 \text{ lb/hr X } 0.0000662 \text{ lb Pb}}{100 \text{ lb}} = 1\text{E}-04 \text{ lb/hr}$$

$$= 0.0002 \text{ TPY}$$

Particulates (PM & PM₁₀) (Actual Levels lower as shown by test results)

$$\frac{150 \text{ lb/hr X } 7 \text{ lb/ton X } 1 \text{ ton}}{2000 \text{ lbs}} = 0.525 \text{ lb/hr}$$

$$= 0.9828 \text{ TPY}$$

$$\frac{0.525 \text{ lb/hr X } 7.00\text{E}+03 \text{ gr/lb X } 1 \text{ ppmv}}{1175 \text{ dscfm X } 60 \text{ min/hr}} = 0.05 \text{ gr/dscf}$$

Carbon Monoxide (CO) (Actual Levels lower as shown by test results)

$$\frac{150 \text{ lb/hr X } 10 \text{ lb/ton X } 1 \text{ ton}}{2000 \text{ lbs}} = 0.75 \text{ lb/hr}$$

$$= 1.404 \text{ TPY}$$

$$\frac{0.75 \text{ lb/hr X } 4.54\text{E}+05 \text{ mg/lb X } 1 \text{ ppmv}}{1175 \text{ dscfm X } 60 \text{ min/hr X } 0.028 \text{ m}^3/\text{f}^3 \text{ X } 1.14 \text{ mg/m}^3} = 151.31 \text{ ppmv}$$

Notes:

1. Incinerator Emissions based on EPA emissions from Table 2.1-12 of AP-42 (5th Edition)
2. All conversion factors from AP-42 Appendix A.

Calculation Of Emissions

Expected Emissions

Matthews Cremation Division (MCD)
(formerly Industrial Equipment and Engineering Company (IEE))
Crematory Incinerator Model IE43-PPII

Total Incinerator Burn Capacity: 150 lb/hr of remains (type 4) and associated containers (type 0)
Flue gas flow rate = 1175 dscfm 24 Hours/Day X 7 Days/Week X 52 Weeks/Year
(100 % Excess Air) = 8736 Hours/Year

Total Emission Rate = Incinerator Burn Rate X Emission Factor

Sulfur Dioxide (SO₂)

$$\frac{150 \text{ lb/hr X } 2.5 \text{ lb/ton X } 1 \text{ ton}}{2000 \text{ lbs}} = 0.188 \text{ lb/hr}$$

$$= 0.819 \text{ TPY}$$

$$\frac{0.1875 \text{ lb/hr X } 4.54\text{E}+05 \text{ mg/lb X } 1 \text{ ppmv}}{1175 \text{ dscfm X } 60 \text{ min/hr X } 0.0283 \text{ m}^3/\text{ft}^3 \text{ X } 2.61 \text{ mg/m}^3} = 16.35 \text{ ppmv}$$

Nitrogen Oxide (NO_x - as Nitrogen Dioxide)

$$\frac{150 \text{ lb/hr X } 3 \text{ lb/ton X } 1 \text{ ton}}{2000 \text{ lbs}} = 0.225 \text{ lb/hr}$$

$$= 0.9828 \text{ TPY}$$

$$\frac{0.225 \text{ lb/hr X } 4.54\text{E}+05 \text{ mg/lb X } 1 \text{ ppmv}}{1175 \text{ dscfm X } 60 \text{ min/hr X } 0.028 \text{ m}^3/\text{ft}^3 \text{ X } 1.88 \text{ mg/m}^3} = 27.53 \text{ ppmv}$$

Hydrocarbons (TOC/VOC - methane)

$$\frac{150 \text{ lb/hr X } 3 \text{ lb/ton X } 1 \text{ ton}}{2000 \text{ lbs}} = 0.225 \text{ lb/hr}$$

$$= 0.9828 \text{ TPY}$$

$$\frac{0.225 \text{ lb/hr X } 4.54\text{E}+05 \text{ mg/lb X } 1 \text{ ppmv}}{1175 \text{ dscfm X } 60 \text{ min/hr X } 0.0283 \text{ m}^3/\text{ft}^3 \text{ X } 0.65 \text{ mg/m}^3} = 78.77 \text{ ppmv}$$

Lead (Pb)

(6.62E-05 lbs/cremation)

$$\frac{150 \text{ lb/hr X } 0.0000662 \text{ lb Pb}}{100 \text{ lb}} = 1\text{E}-04 \text{ lb/hr}$$

$$= 0.0004 \text{ TPY}$$

Particulates (PM & PM₁₀)

(Actual Levels lower as shown by test results)

$$\frac{150 \text{ lb/hr X } 7 \text{ lb/ton X } 1 \text{ ton}}{2000 \text{ lbs}} = 0.525 \text{ lb/hr}$$

$$= 2.2932 \text{ TPY}$$

$$\frac{0.525 \text{ lb/hr X } 7.00\text{E}+03 \text{ gr/lb X}}{1175 \text{ dscfm X } 60 \text{ min/hr}} = 0.05 \text{ gr/dscf}$$

Carbon Monoxide (CO)

$$\frac{150 \text{ lb/hr X } 10 \text{ lb/ton X } 1 \text{ ton}}{2000 \text{ lbs}} = 0.75 \text{ lb/hr}$$

$$= 3.276 \text{ TPY}$$

$$\frac{0.75 \text{ lb/hr X } 4.54\text{E}+05 \text{ mg/lb X } 1 \text{ ppmv}}{1175 \text{ dscfm X } 60 \text{ min/hr X } 0.028 \text{ m}^3/\text{ft}^3 \text{ X } 1.14 \text{ mg/m}^3} = 151.31 \text{ ppmv}$$

Notes:

1. Incinerator Emissions based on EPA emissions from Table 2.1-12 of AP-42 (5th Edition)
2. All conversion factors from AP-42 Appendix A.

CREMATOR MASS BALANCE
Matthews Cremation
PPII

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	140

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)	74
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

$$500000 \text{ BTU/HR} \times 4.8\text{E-}05 \text{ LBS/BTU} = 24 \text{ LBS/HR}$$

B. COMBUSTION AIR FOR PRIMARY BURNER

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

C. MAXIMUM SECONDARY BURNER GAS USAGE

$$900000 \text{ BTU/HR} \times 4.8\text{E-}05 \text{ LBS/BTU} = 43 \text{ LBS/HOUR}$$

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)

$$7.33 \text{ LBS/LB BURNED} \times 10 \text{ LB/HR BURN RATE} = 73 \text{ LBS/HOUR}$$

F. PRODUCTS FROM TYPE 4 WASTE (TISSUE)

$$1.70 \text{ LBS/LB WASTE} \times 140 \text{ LB/HR BURN RATE} = 238 \text{ LBS/HOUR}$$

G. ADDITIONAL SECONDARY CHAMBER COMBUSTION AIR (THROAT AIR)

$$12000 \text{ CF/HR} \times 0.075 \text{ LB/CF AIR} = 900 \text{ LBS/HOUR}$$

H. TOTAL FLUE PRODUCTS

$$= \underline{\underline{2328 \text{ LBS/HOUR}}}$$

2. VELOCITY AND TIME CALCULATIONS

A. SCFM CALCULATION

(PRODUCTS ASSUMED TO HAVE DENSITY CLOSE TO AIR)

$$2328 \text{ LBS/HR} \times \frac{13.35 \text{ STD. CU. FT/LB}}{60 \text{ MIN/HR}} = 518 \text{ SCFM}$$

B. TOTAL PRODUCTS ACFM

@ 1800 °F

$$\frac{2260 \text{ °RANKINE}}{530 \text{ °RANKINE}} \times 518.1 \text{ CFM} = 2209 \text{ ACFM}$$

C. RETENTION TIME

$$\frac{74 \text{ CU. FT}}{2209 \text{ ACFM}} \times \frac{60 \text{ SECONDS}}{1 \text{ MINUTE}} = 2.01 \text{ SECONDS}$$

D. VELOCITY IN FLAME PORT

$$\frac{2209 \text{ ACFM}}{2.95 \text{ SQ. FT}} \times \frac{1 \text{ MINUTE}}{60 \text{ SECONDS}} = 12.5 \text{ FEET/SECOND}$$

E. VELOCITY AT MIXING BAFFLES

$$\frac{2209 \text{ ACFM}}{1.36 \text{ SQ. FT}} \times \frac{1 \text{ MINUTE}}{60 \text{ SECONDS}} = 27.1 \text{ FEET/SECOND}$$

F. VELOCITY IN SECONDARY CHAMBER

$$\frac{2209 \text{ ACFM}}{2.44 \text{ SQ. FT}} \times \frac{1 \text{ MINUTE}}{60 \text{ SECONDS}} = 15.1 \text{ FEET/SECOND}$$

SACRAMENTO MEMORIAL LAWN

Sacramento, CA

Compliance Emissions Test Report

Particulate Matter Emissions Results

**Matthews Cremation Division Model IE43 PowerPak II Cremator
(ATC #20795)**

Test Date(s): January 7, 2009

Report Date: January 23, 2009

Test Location:

**Sacramento Memorial Lawn
6100 Stockton Blvd.
Sacramento, CA 95824**

Performed and Reported by:

**BEST ENVIRONMENTAL (BE)
6261 Southfront Road
Livermore, CA 94551
Phone: (925) 455-9474
Fax: (925) 455-9479**

Prepared For:

**Attn: Teresa Guyan
StoneMor Partners L.P.
Sacramento Memorial Lawn
6100 Stockton Blvd.
Sacramento, CA 95824**

For Submittal To:

**Attn: Ady Santos
Sacramento Metropolitan Air Quality Management District
777 12th Street, 3rd floor
Sacramento, CA 95814-1908**

SECTION 1. INTRODUCTION

1.1. Test Purpose

Best Environmental was contracted by Sacramento Memorial Lawn to perform Particulate emissions testing on the Matthews Cremation Division Model IE43 Power-Pak II Cremator, located at Sacramento Memorial Lawn, in order to comply with the Sacramento Metropolitan Air Quality Management District (SMAQMD) Permit to Construct #20795. The test results are presented in Table 2.1 on Page 2. A copy of the Permit to Construct is included in Appendix K.

1.2. Test Location

The testing was conducted on the exhaust outlet of the Cremator, which is located at Sacramento Memorial Lawn, 6100 Stockton Blvd, Sacramento, CA.

1.3. Test Date(s)

Testing was conducted on January 7, 2009.

1.4. System Processes

The cremator is equipped with a 0.7 MMBtu/hr primary burner and a 1.2 MMBtu/hr secondary burner. There are no filtration or scrubbing devices used on this system.

1.5. Pollutants Tested

The following emission parameters were measured:

Parameter	Monitoring & Analytical Protocols
Volumetric Flow Rate	CARB Methods 1-4
PM (Filterable & Condensable)	CARB Method 5
O ₂ , CO ₂	Modified CARB Method 100

1.6. Sampling and Observing Personnel

Emissions sampling was performed by Suhail Asfour and Ross Hipple of BEST ENVIRONMENTAL (BE).

Ady Santos from the SMAQMD was present to witness the testing.

1.7. Other Important Background Information

A total of three human bodies were cremated during the source test, one for each run.

SECTION 2. SUMMARY OF RESULTS

2.1. Emission Results

Table 2.1:

PARTICULATE - SUMMARY TABLE

ATC #20795 1.9 MMBtu/hr Cremator

Parameter	Average	Limit
Stack Flow, DSCFM	956	
Total Particulate Matter (PM), gr/dscf @ 12% CO ₂	0.0475	0.10

A more extensive summary of the emissions is presented in Table 1 following the text.

2.2. Identification of Deviations from Standard Testing Procedures

CO₂ and O₂ were measured using CARB Method 100, modified to exclude the use of a system bias line. Calibration checks were performed using the system manifold of the test van. This method modification was approved by the SMAQMD (see Appendix J).

2.3. Testing or Process Interruptions and Changes

No interruptions occurred during the source test.

2.4. Process Data, as related to the Determination of Compliance

The cremator was operated at a temperature at or above of 1800°F throughout the testing.

2.5. Description of Collected Samples

Following testing all particulate samples are recovered and/or sealed onsite and placed into pre-labeled containers for shipment. The front and back half glass; nozzle, probe, filter housing and impingers used for particulate testing were rinsed on site after each run per method guidelines. All recoveries were placed into appropriately labeled containers.

A Chain of Custody (COC) was filled out for all samples to ensure proper handling and analysis.

2.6. Comments: Discussion of Quality Assurance and Errors

Quality assurance procedures listed in the above referenced test methods and referenced in the Source Test Plan are performed and documented. The QA/QC procedures are described in Section 4.5 of the report. Documentation of the QA/QC is provided in Appendix A, B & D.

A preliminary cyclonic flow check was performed prior to testing. The average stack angle was well below 10°, therefore a cyclonic test using the alignment technique, was not necessary and was not performed.

All emission rates and factors are calculated based on the CARB Methods 1-4 flow data.

TABLE #1
Sacramento Memorial Lawn
PM₁₀ Emissions Results
Crematory (ATC #20795)

RUN #	1	2	3	AVERAGE	LIMITS
TEST DATE	01/07/09	01/07/09	01/07/09		
TEST TIME	0956-1100	1203-1307	1419-1523		
PRODUCTION RATE, lbs/Hr	160.0	130.0	140.0	143.3	
SAMPLE VOLUME (DSCF)	37.013	35.493	36.252	36.253	
ISOKINETIC (%)	107.5	102.6	103.1	104.4	
DUCT TEMP., (°F)	882.3	816.5	776.3	825.0	
VELOCITY (ft/sec)	20.14	19.74	19.48	19.79	
FLOW RATE (ACFM)	2,634	2,581	2,548	2,588	
FLOW RATE (DSCFM)	948	952	968	956	
H ₂ O (volume %)	9.39	11.63	11.88	10.96	
O ₂ (volume %)	11.39	11.92	14.36	12.56	
CO ₂ (volume %)	6.10	5.86	4.22	5.39	
F.H. Particulate Rinse Conc. (gr/DSCF)	0.0004	0.0021	0.0005	0.0010	
F.H. Particulate Rinse Emissions (Lbs/hr)	0.004	0.017	0.005	0.009	
F.H. Particulate Filter Conc. (gr/DSCF)	0.0115	0.0187	0.0159	0.0154	
F.H. Particulate Filter Emissions (Lbs/hr)	0.093	0.153	0.132	0.126	
Total F.H. Particulate Conc. (gr/DSCF)	0.0120	0.0209	0.0164	0.0164	
Total F.H. Particulate Emissions (Lbs/hr)	0.097	0.170	0.136	0.135	
Organic Particulate Conc. (gr/DSCF)	0.0003	0.0005	0.0002	0.0003	
Organic Particulate Emissions (Lbs/hr)	0.002	0.004	0.002	0.003	
Inorganic Particulate Conc. (gr/DSCF)	0.0036	0.0052	0.0034	0.0041	
Inorganic Particulate Emissions (Lbs/hr)	0.030	0.042	0.028	0.033	
Tot. Particulate Conc. (gr/DSCF)	0.0158	0.0265	0.0201	0.0208	
Tot. Particulate Conc.(gr/DSCF)@12%CO ₂	0.0312	0.0543	0.0570	0.0475	0.10
Tot. Particulate Emissions (Lbs/hr)	0.1287	0.2165	0.1663	0.1705	
Tot. Particulate Emissions (Lbs/day)	1.2867	2.1647	1.6635	1.7050	

WHERE

DSCF = Sample Volume in Dry Standard Cubic Feet

ACFM = Actual Cubic Feet per Minute

DSCFM = Dry Standard Cubic Feet per Minute

H₂O, volume % = Stack gas percent water vapor

gr/DSCF = Particulate concentration in grains per DSCF

F.H. Particulate = Filterable Particulates

Organic Particulate = Condensable Organic Particulate (solvent extract)

Inorganic Particulate = Condensable Inorganic Particulate (Acids & Sulfates)

TPH = Tons per Hour

CALCULATIONS

Lbs/hr Emission Rate = 0.00857 * gr/DSCF * DSCFM

Lbs/ton Emission Factor = lbs/hr / TPH

Tot. Particulate Concentration @ 12% CO₂ = gr/DSCF * 12 / CO₂%

Lbs/day Emission Rate = lbs/hr * 10



Cremation Division

August 24, 2011

Kenneth Roberson
Roberson Funeral Home
2151 Tamiami Trail
Port Charlotte, FL 33949

Dear Mr. Roberson,

Enclosed are your permit application forms for the Air General Permit Registration for your new Power Pak II human cremator that will replace your existing Crawford C1000 cremator. Please fill in the highlighted areas and make 1 copy of the entire packet. Once completed, you can keep a copy for your records and send the original signed copy to the following address (along with a \$100 check payable to Florida Department of Environmental Protection):

FDEP Receipts
Attn: Dick Dibble
P.O. Box 3070
Tallahassee, FL 32803-7555

Please feel free to contact us if you have questions at (800)327-2831. When you finally receive the permit, please fax or mail us a copy so that we can put it in your file.

Sincerely,

Michael Tricoche
Engineer
Enclosures



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Port Charlotte, FL 33949-5096

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