

**HUMAN CREMATORIES  
AIR GENERAL PERMIT EXAMPLE REGISTRATION WORKSHEET**

Facility Identification Number - If known (seven digit number)

0251365-001-AG

0251365

**Registration Type**

Check one:

**INITIAL REGISTRATION** - Notification of intent to:

- Construct and operate a proposed new facility.
- Operate an existing permitted 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). 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. (See "Surrender of Existing Air Operation Permit(s)" below.)
- Operates an existing facility not currently permitted or using 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.
- 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 Applicable**

All existing air operation permits for this facility are hereby surrendered upon the effective date of this air general permit; specifically permit number(s):

\_\_\_\_\_

**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.)

— ALLCITIES CREMATION, LLC

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

\_\_\_\_\_

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

Street Address: 371 NW 170 St

City: NORTH MIAMI BEACH County: MIAMI DADE Zip Code: 33169

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

— Est. 8/1/13 or 9/1/13

**Facility Contact**

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

Print Name and Title: EVELYN VARGAS  
MANAGING MEMBER

Facility Contact Telephone Numbers

Telephone: 305 753-6492 Fax: \_\_\_\_\_  
Cell phone: \_\_\_\_\_  
E-mail: combe\_25@hotmail.com

Facility Contact Mailing Address

Organization/Firm: \_\_\_\_\_  
Mailing Address: 3533 SW 152 PL  
City: MIAMI County: MD Zip Code: 33185

**Correspondence Contact/Representative (to serve as additional Department contact)**

Name and Position Title

Print Name and Title: SAME AS ABOVE

Correspondence Contact/Representative Telephone Numbers

Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_  
Cell phone: \_\_\_\_\_  
E-mail: \_\_\_\_\_

Correspondence Contact/Representative Mailing Address

Organization/Firm: \_\_\_\_\_  
Mailing Address: \_\_\_\_\_  
City: \_\_\_\_\_ County: \_\_\_\_\_ Zip Code: \_\_\_\_\_

**Government Facility Code (check only one)**

- Facility not owned or operated by a federal, state, or local government.
- Facility owned or operated by the federal government.
- Facility owned or operated by the state.
- Facility owned or operated by the county.
- Facility owned or operated by the municipality.
- Facility owned or operated by a water management district.

**Emission Unit Details**

MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	RATED CAPACITY
Mathews Cremation	Power Pak II (IE43-PPII)	TBD	150 lbs/hr.

**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.

Design calculations attached.

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

**Helpful Definitions**

**"Biomedical Waste"** - Any solid or liquid waste which may present a threat of infection to humans, including nonliquid-tissue, body parts, blood, blood products, and body fluids from humans and other primates; laboratory and veterinary wastes which contain human disease-causing agents; and discarded sharps. The following are also included:

1. Used absorbent materials saturated with blood, blood products, body fluids, or excretions or secretions contaminated with visible blood; and absorbent materials saturated with blood or blood products that have dried.
2. Non-absorbent, disposable devices that have been contaminated with blood, body fluids, or secretions or excretions visibly contaminated with blood, but have not been treated by a method listed in Section 381.0098, F.S., or a method approved pursuant to Rule 64E-16, F.A.C.

**"Department" or "DEP"** - The State of Florida Department of Environmental Protection.

**"Emissions Unit"** - Any part or activity of a facility that emits or has the potential to emit any air pollutant.

**"Facility"** - All of the emissions units which are located on one or more contiguous or adjacent properties, and which are under the control of the same person (or persons under common control).

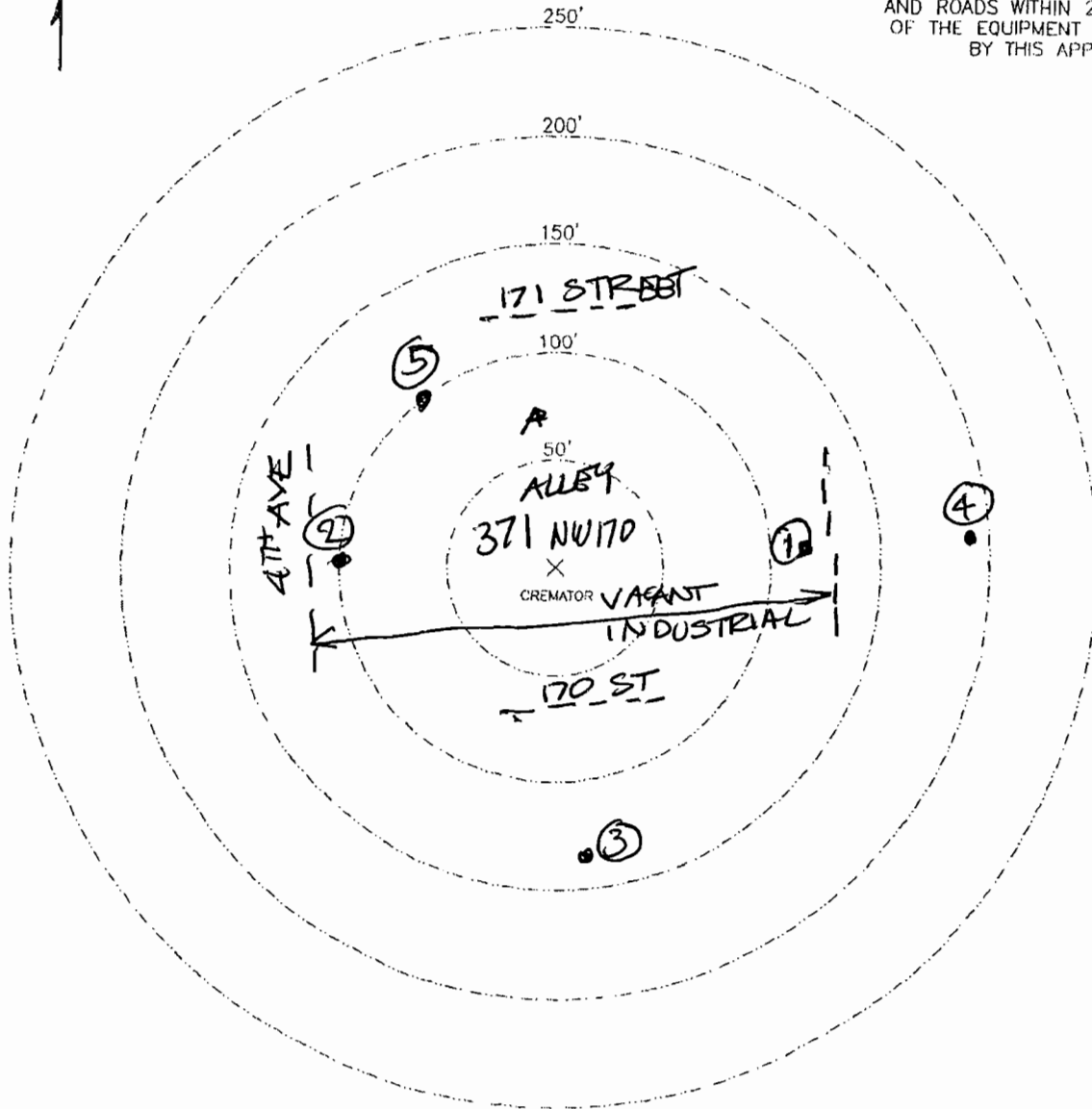
**"Human Crematory"** - Any combustion apparatus used solely for the cremation of either human or fetal remains

**"Owner" or "Operator"** - Any person or entity who or which owns, leases, operates, controls or supervises an emissions unit or facility.

# PLOT PLAN

NORTH  
↑

SHOW ALL SURROUNDING BUILDINGS AND ROADS WITHIN 250 FEET OF THE EQUIPMENT COVERED BY THIS APPLICATION.



## INSTRUCTIONS

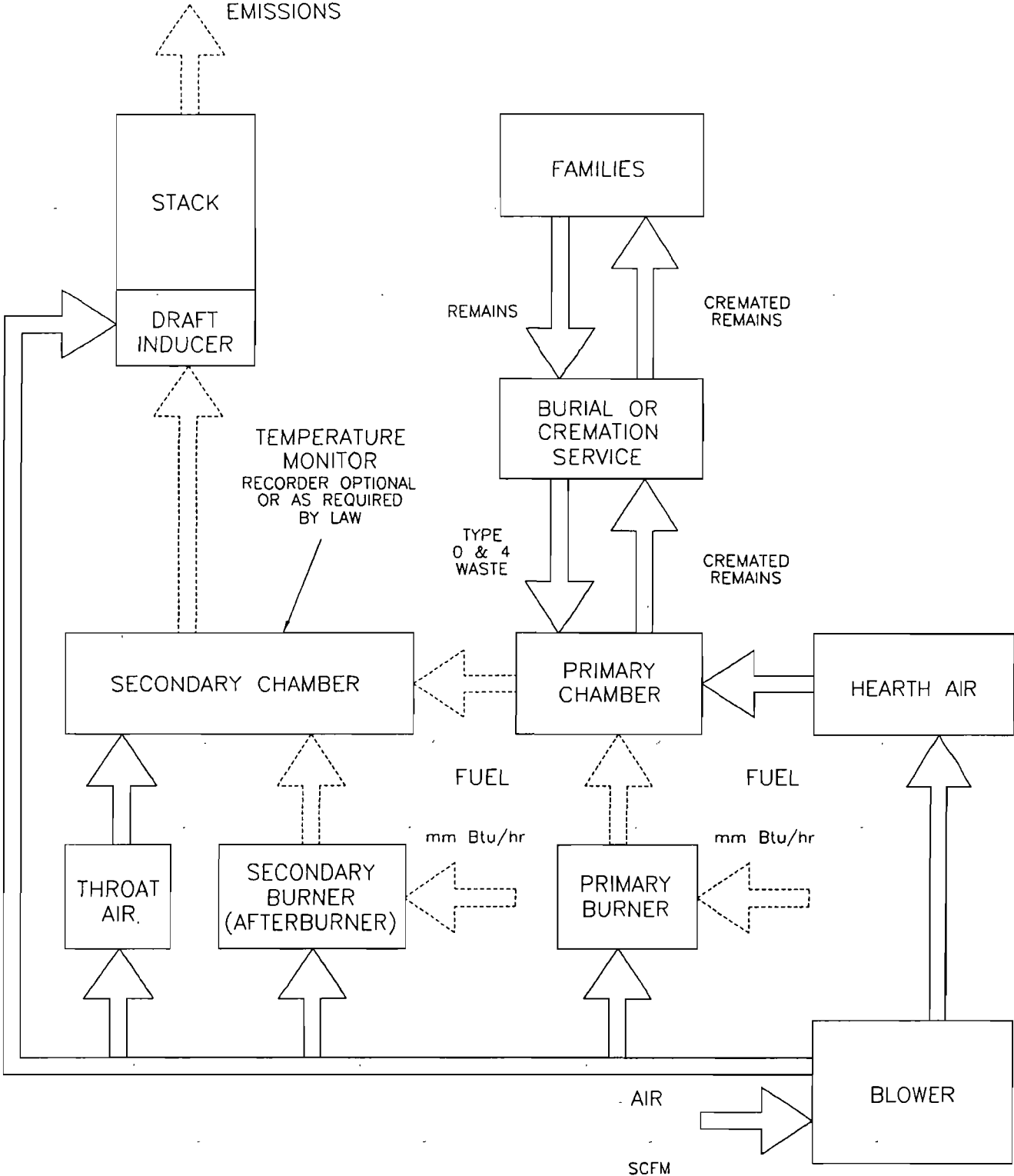
1. INDICATE LOCATION AND TYPE OF BUILDING BY THE USE OF SMALL NUMBERED CIRCLES WITH THE DESCRIPTION BELOW.
2. SHOW ROADS AS LINES REPRESENTING THE ROAD EDGES. INDICATE STREET NAMES AND HIGHWAY NUMBERS.
3. SHOW WOODED OR CLEARED AREA BY APPROXIMATE BOUNDARY LINES AND THE WORDS "WOODS," "CLEARED," "CORNFIELD,"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

## STRUCTURE DESCRIPTION

- (1) GYM
- (2) TIRE STORE
- (3) INDUSTRIAL
- (4) ADULT ENTERTAINMENT
- (5) TIRE STORE
- (6)
- (7)
- (8)
- (9)
- (10)

4) VERIFY W/ GOOGLE MAPS

# PROCESS FLOW DIAGRAM CREMATOR



## SPECIFICATIONS- Model Power-Pak II

1. Equipment Type..... Model Power-Pak II
  - A. Model No. .... IE43-PP II
  - 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 ..... 11 inches (279.4 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 m<sup>3</sup>/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 m<sup>3</sup>)
  - B. Secondary Chamber..... 74 cubic feet (2.1 m<sup>3</sup>)
  
- 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.

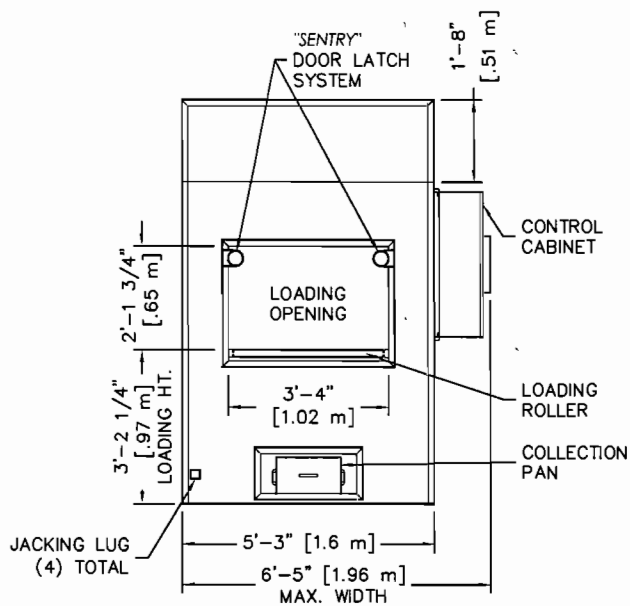
SPECIFICATIONS- Model Power-Pak II

- 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

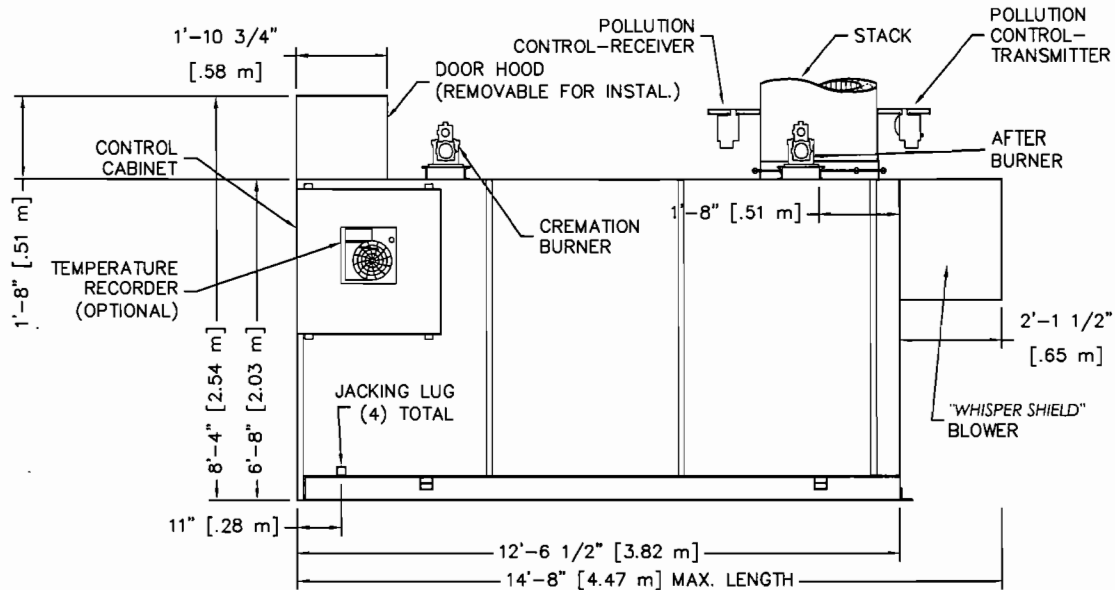


SPECIFICATIONS- Model Power-Pak II

- 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.



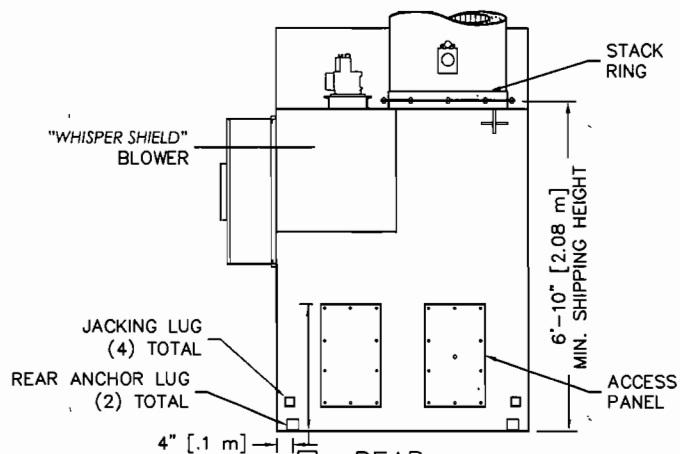
FRONT  
ELEVATION



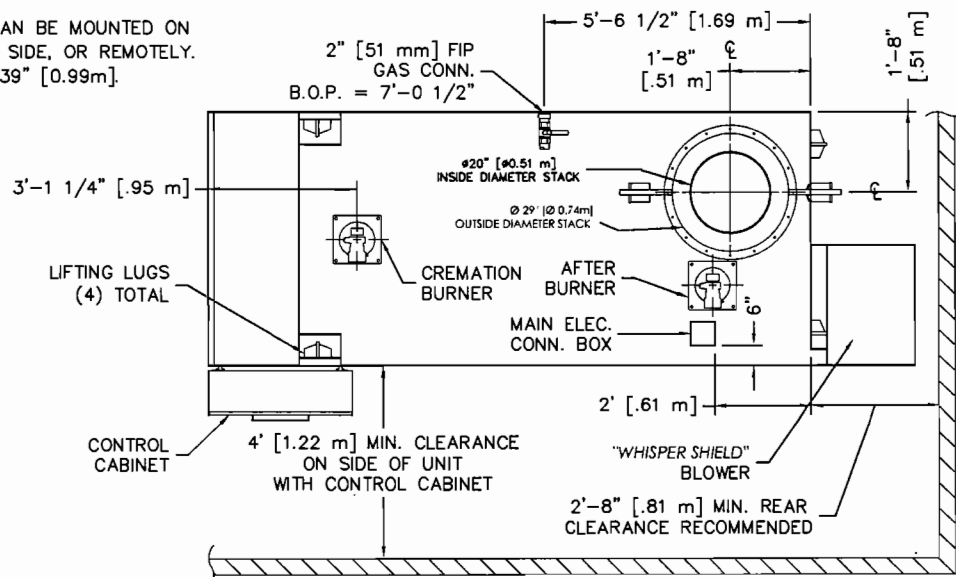
RIGHT SIDE  
ELEVATION

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

**Matthews**  
CREMATION DIVISION

2045 Sprint Boulevard  
Apopka, Florida 32703  
USA

POWER-PAK II		DATE: 08-03-09	SCALE: 1/4"=1'
PLAN & ELEVATIONS INCL: CLEARANCES, REQUIREMENTS & RECOMMENDATIONS		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 11" [279 mm] W.C. FOR NATURAL GAS, OR 11" [279 mm] W.C. FOR LP GAS.

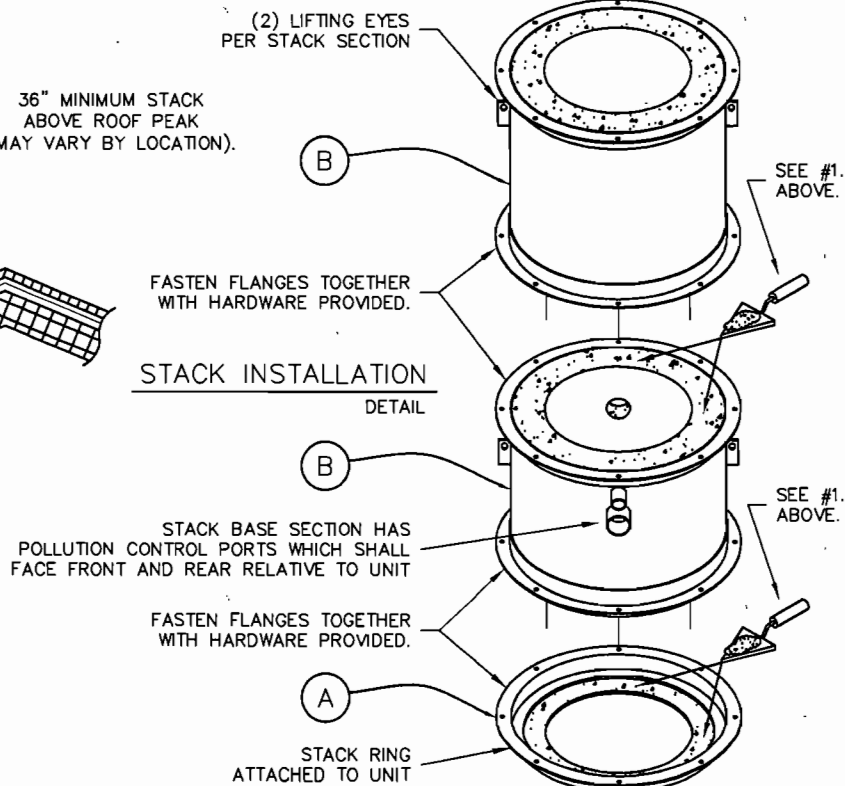
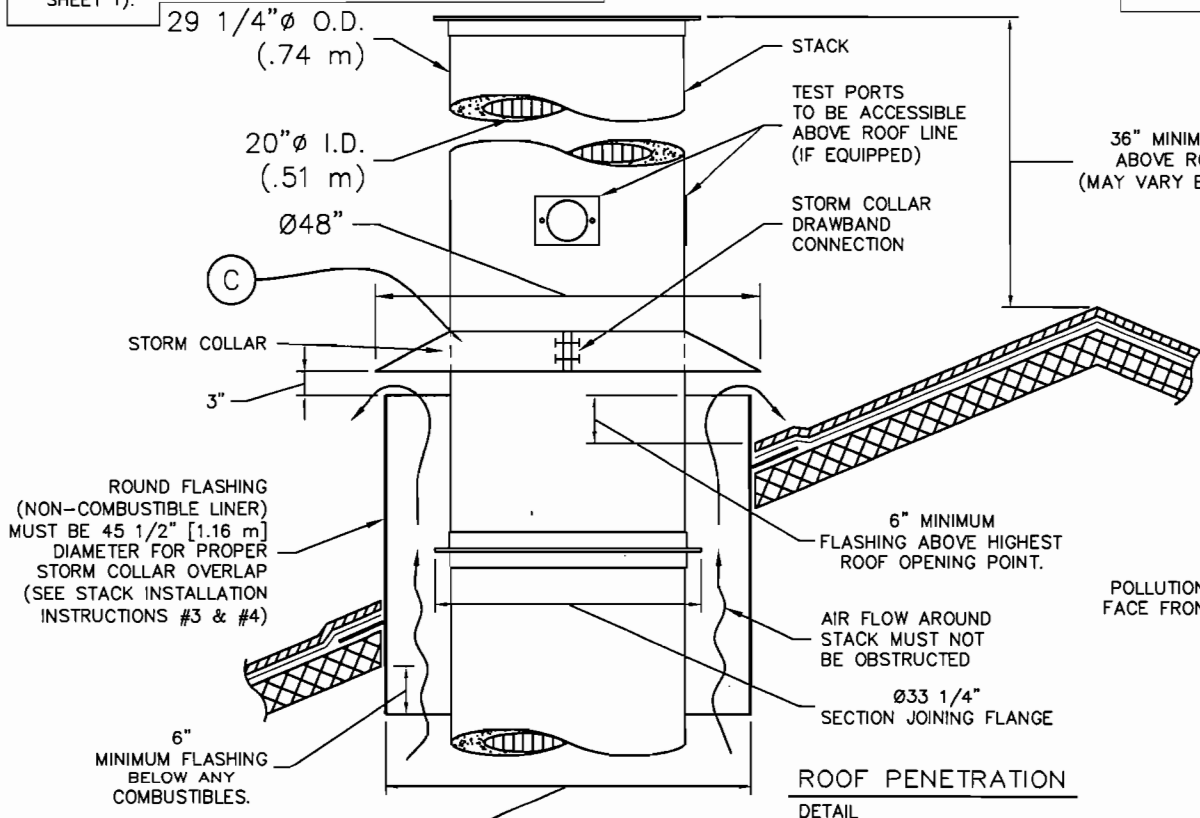
**CAPACITY:** RANGES FROM 2.0 TO 3.0 MILLION BTU/HR [2.1 TO 3.1 MILLION KILOJOULES/HR] DEPENDING UPON AMOUNT OF BURNERS.

**ELECTRICAL:** 230 VOLT, 3 $\phi$ , (40A BREAKER) AND 115v (10A BREAKER), OR 230 VOLT, 1 $\phi$ , (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.



Ø45" REQUIRED FOR PROPER STACK CLEARANCE.



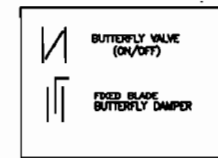
2045 Sprint Boulevard  
Apopka, Florida 32703  
USA

POWER-PAK II

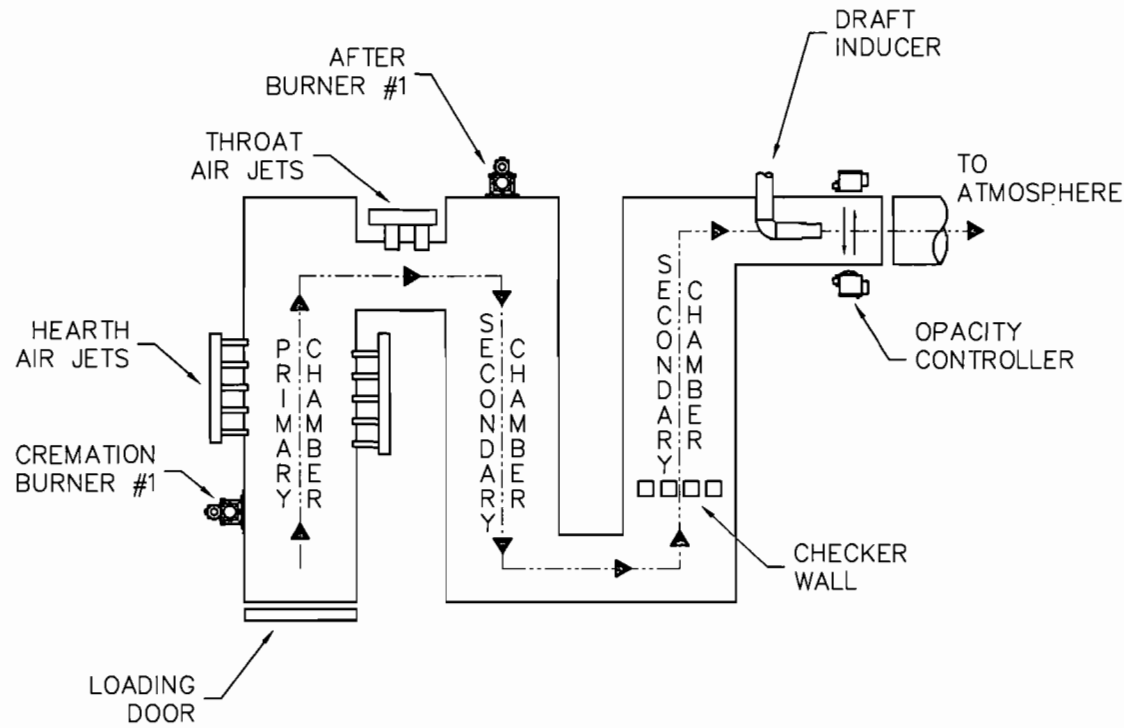
STACK DETAILS, CLEARANCES &  
INSTALLATION INSTRUCTIONS.  
REFRACTORY STACK DETAIL

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

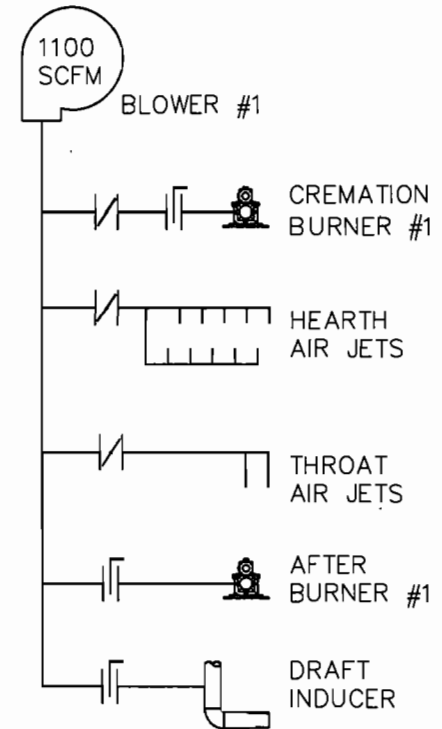
LEGEND OF SYMBOLS



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 (SO<sub>2</sub>)

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

$$= 0.351 \text{ TPY}$$

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

#### Nitrogen Oxide (NO<sub>x</sub> - as Nitrogen Dioxide)

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

$$= 0.4212 \text{ TPY}$$

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

#### Hydrocarbons (TOC/VOC - methane)

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

$$= 0.4212 \text{ TPY}$$

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

#### Lead (Pb)

( 6.62E-05 lbs/cremation)

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

$$= 0.0002 \text{ TPY}$$

#### Particulates (PM & PM<sub>10</sub>)

(Actual Levels lower as shown by test results)

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

$$= 0.9828 \text{ TPY}$$

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

#### Carbon Monoxide (CO)

(Actual Levels lower as shown by test results)

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

$$= 1.404 \text{ TPY}$$

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

#### 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)	0.6
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**

$$600000 \text{ BTU/HR} \times 4.5\text{E-}05 \text{ LBS/BTU} = 27 \text{ LBS/HR}$$

**B. COMBUSTION AIR FOR PRIMARY BURNER**

$$\frac{600000 \text{ BTU/HR}}{100 \text{ BTU/CF AIR}} \times 1 \text{ Burner} \times 0.075 \text{ LB/CF AIR} = 450 \text{ LBS/HR}$$

**C. MAXIMUM SECONDARY BURNER GAS USAGE**

$$900000 \text{ BTU/HR} \times 4.5\text{E-}05 \text{ LBS/BTU} = 41 \text{ LBS/HOUR}$$

**D. COMBUSTION AIR FOR SECONDARY BURNER**

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

**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**

$$= \underline{\underline{2404 \text{ LBS/HOUR}}}$$

**2. VELOCITY AND TIME CALCULATIONS**

**A. SCFM CALCULATION**

(PRODUCTS ASSUMED TO HAVE DENSITY CLOSE TO AIR)

$$2404 \text{ LBS/HR} \times \frac{13.35 \text{ STD. CU. FT/LB}}{60 \text{ MIN/HR}} = 535 \text{ SCFM}$$

**B. TOTAL PRODUCTS ACFM @ 1800 °F**

$$\frac{2260 \text{ °RANKINE}}{530 \text{ °RANKINE}} \times 534.8 \text{ CFM} = 2281 \text{ ACFM}$$

**C. RETENTION TIME**

$$\frac{74 \text{ CU. FT}}{2281 \text{ ACFM}} \times \frac{60 \text{ SECONDS}}{1 \text{ MINUTE}} = 1.95 \text{ SECONDS}$$

**D. VELOCITY IN FLAME PORT**

$$\frac{2281 \text{ ACFM}}{2.95 \text{ SQ. FT}} \times \frac{1 \text{ MINUTE}}{60 \text{ SECONDS}} = 12.9 \text{ FEET/SECOND}$$

**E. VELOCITY AT MIXING BAFFLES**

$$\frac{2281 \text{ ACFM}}{1.36 \text{ SQ. FT}} \times \frac{1 \text{ MINUTE}}{60 \text{ SECONDS}} = 27.9 \text{ FEET/SECOND}$$

**F. VELOCITY IN SECONDARY CHAMBER**

$$\frac{2281 \text{ ACFM}}{2.44 \text{ SQ. FT}} \times \frac{1 \text{ MINUTE}}{60 \text{ SECONDS}} = 15.6 \text{ FEET/SECOND}$$

# **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 12<sup>th</sup> Street, 3<sup>rd</sup> 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 <sub>2</sub> , CO <sub>2</sub>	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% CO2	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

CO<sub>2</sub> and O<sub>2</sub> 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**  
**PM<sub>10</sub> 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 <sub>2</sub> O (volume %)	9.39	11.63	11.88	10.96	
O <sub>2</sub> (volume %)	11.39	11.92	14.36	12.56	
CO <sub>2</sub> (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 <sub>2</sub>	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  
H<sub>2</sub>O, 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% CO<sub>2</sub> = gr/DSCF \* 12 / CO<sub>2</sub>%  
Lbs/day Emission Rate = lbs/hr \* 10

Evelyn Vargas

All Cities Cremation, LLC

3533 South West 152 Place

Miami Fl 33185

305 753 6492

Florida Department of Environmental Protection

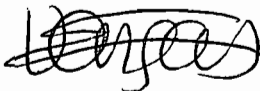
P.O. Box 3070

Tallahassee Fl 32315-3070

Re: Intent for installing a human cremation unit

I am writing and submitting to you the application and forms needed to be given a permit or approval for the installation of a human cremation machine at 371 North West 170<sup>th</sup> Street North Miami Beach Fl 33169. I have enclosed a check for \$100 made out to the F D E P. Please feel free to contact with any questions or comments. Thank you for your time in this matter.

With Regards,

A handwritten signature in black ink, appearing to read 'Evelyn Vargas', written in a cursive style.

Evelyn Vargas

Evelyn Va  
3533 SW 102 FI  
Miami FI 33185



FDEP Receipts  
P.O. Box 3070  
Tallahassee FL 32315-3070