#0530039-002 EXPIRED: 03/29/09

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Bureau of Air Monitoring & Mobile 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)*

0530039-003

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.)

Family Owned Services Corp

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.)

Brewer & Sons Funeral Homes (Brooksville Crematory)

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

Street Address: 1190 S. Broad St

City: Brooksville County: Hernando Zip Code: 34601-3110

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

n/A

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: Barry K Brewer - CEO/President

Owner/Authorized Representative Mailing Address
Organization/Firm: Brewer & Sons Funeral Homes
Street Address: 1190 S. Broad St
City: Brooksville County: Hernando Zip Code: 34601

Owner/Authorized Representative Telephone Numbers
Telephone: 352-796-4994 Fax: 352-799-6451
Cell phone (optional): 4991 INCORRECT PHONE #

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

01/20/2010
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.

* SEE ATTACHED ADDENDUM
REC'D 02/09/10

* Addendum to #0530039 -003

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.

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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.

Human Crematory

Serial # 484339

Model - IE Power Pak II

Please see attached

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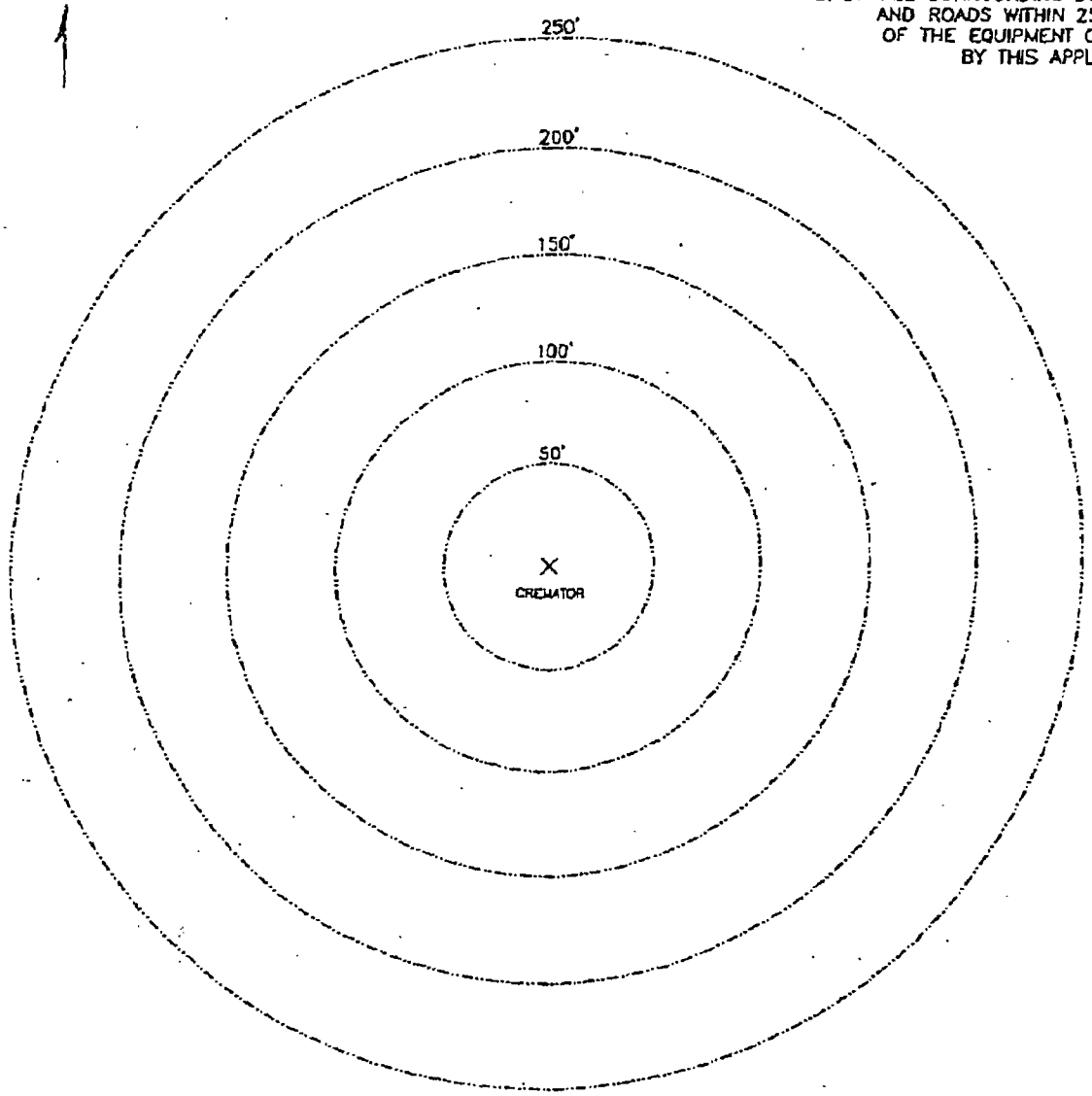
PLOT PLAN

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)	
(2)	
(3)	
(4)	
(5)	
(6)	
(7)	
(8)	
(9)	
(10)	

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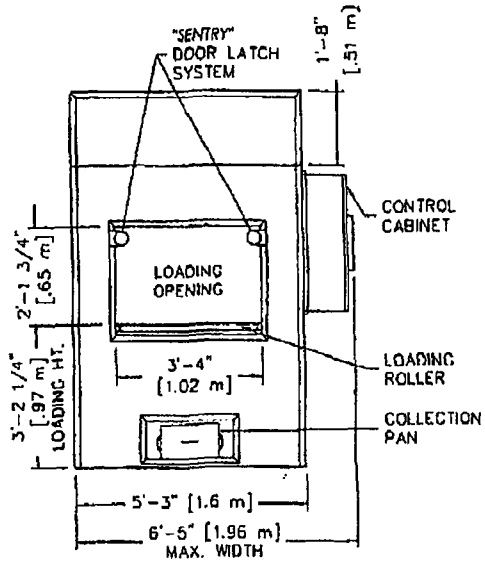
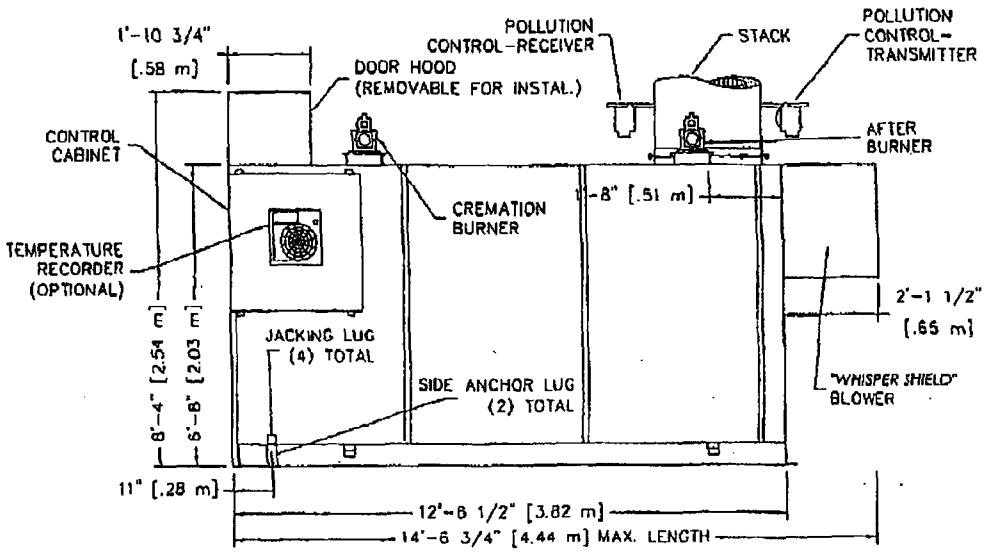
02/08/2010 08:57
Feb 09 10 11:18a Brewer and Sons F.H.

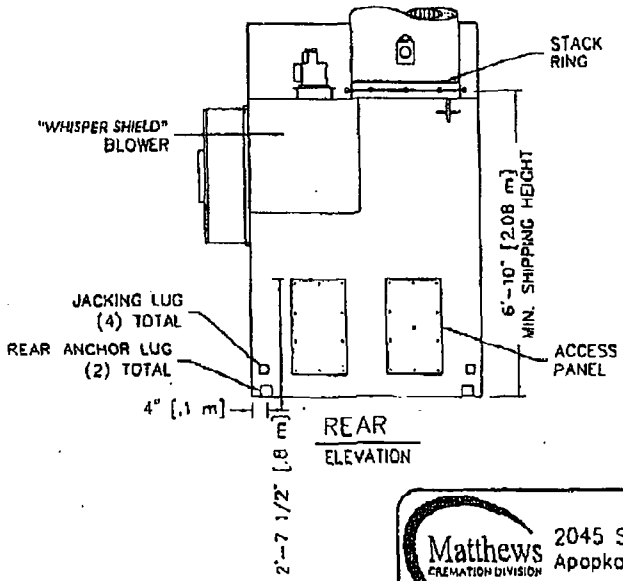


FRONT ELEVATION

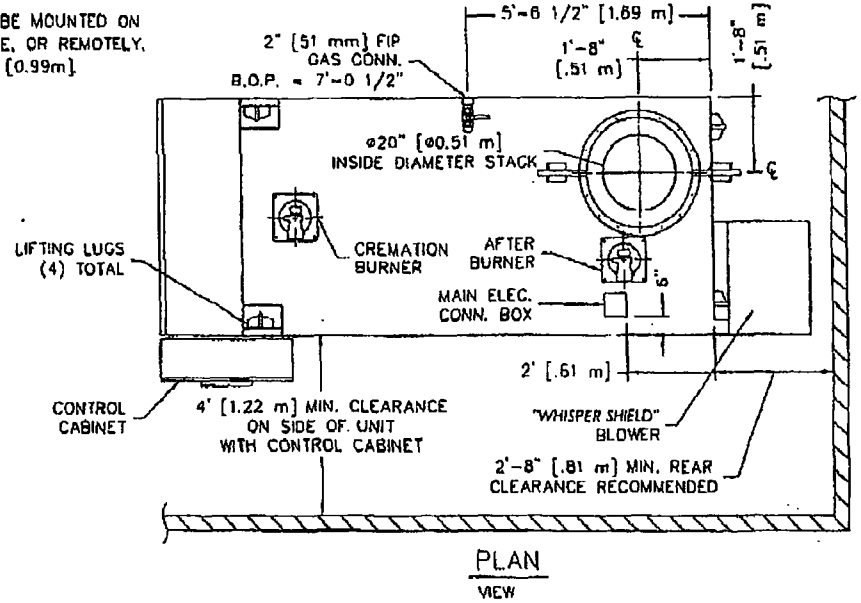


RIGHT SIDE ELEVATION

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

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:	PPII-MarketingPlanElevS1R4		
DWG #:	0000140		

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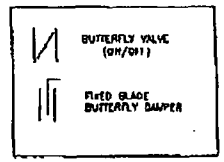
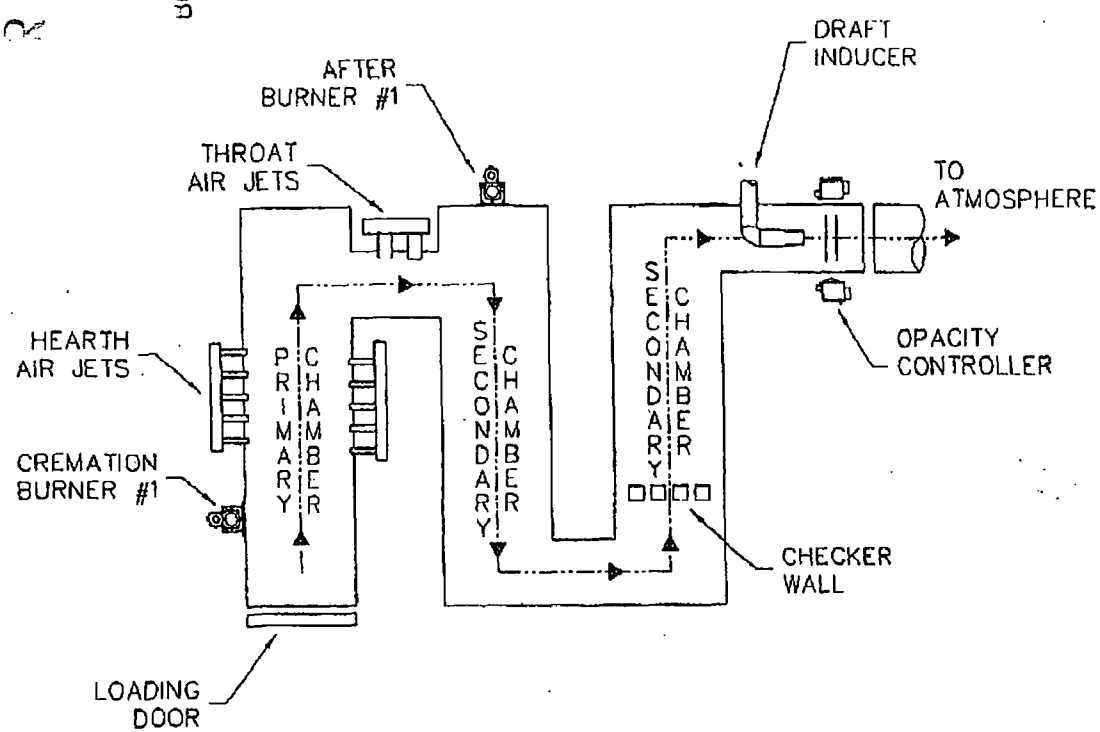
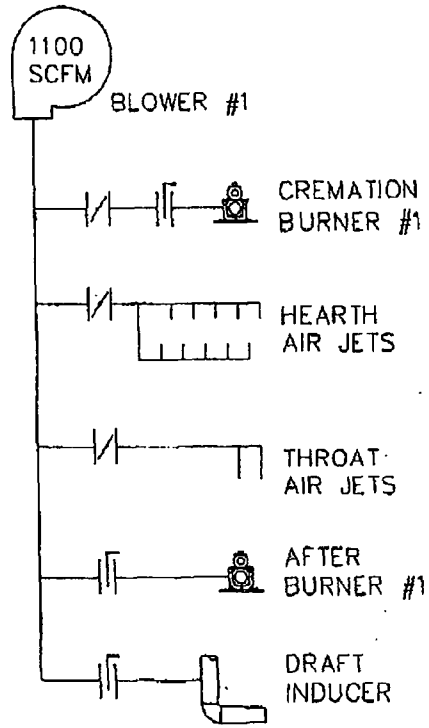
LEGEND OF SYMBOLS



FLOW DIAGRAM



AIR SCHEMATIC



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POWER PAK II

FLOW DIAGRAM & AIR SCHEMATIC

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

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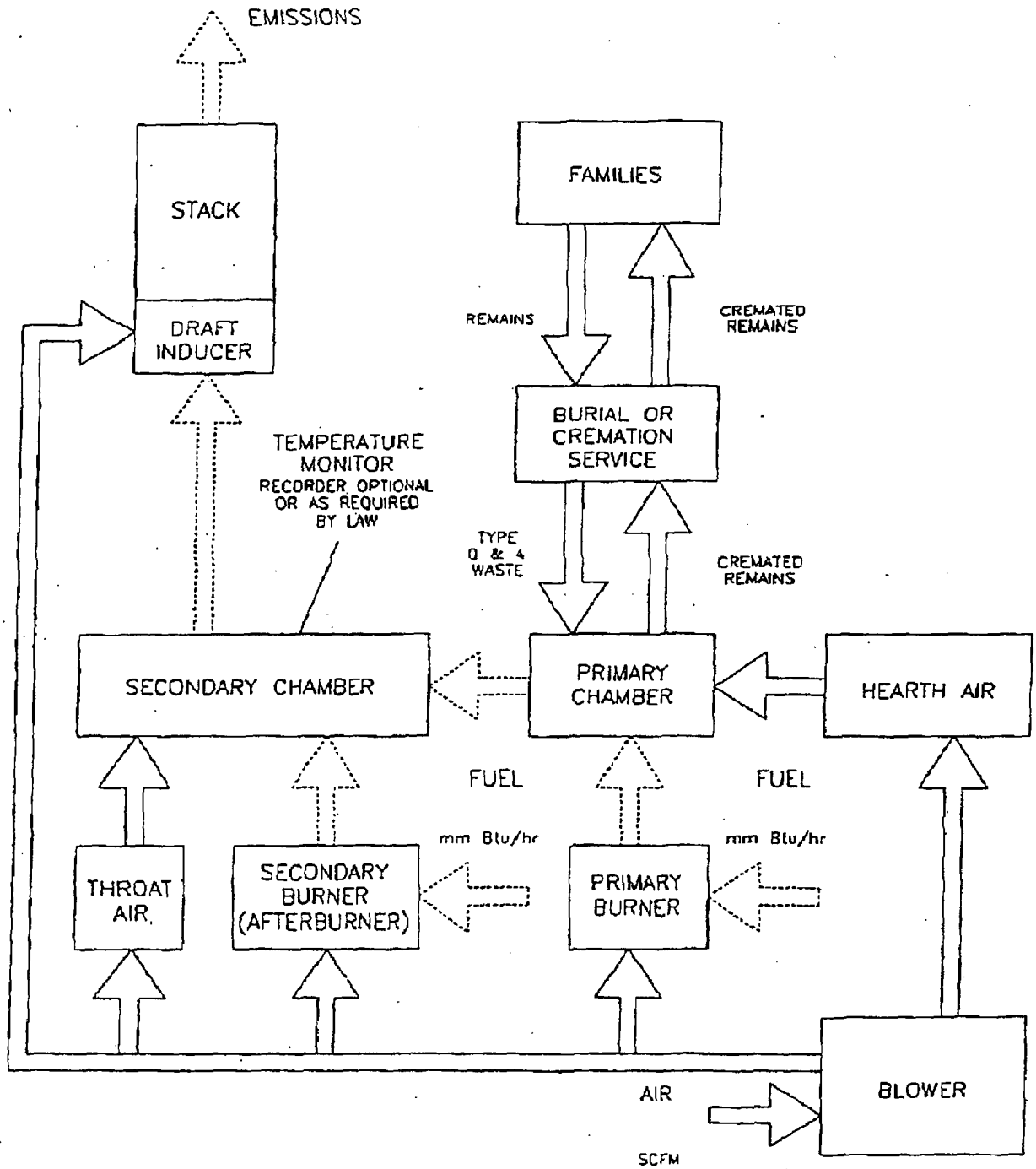
PROCESS FLOW DIAGRAM
CREMATOR



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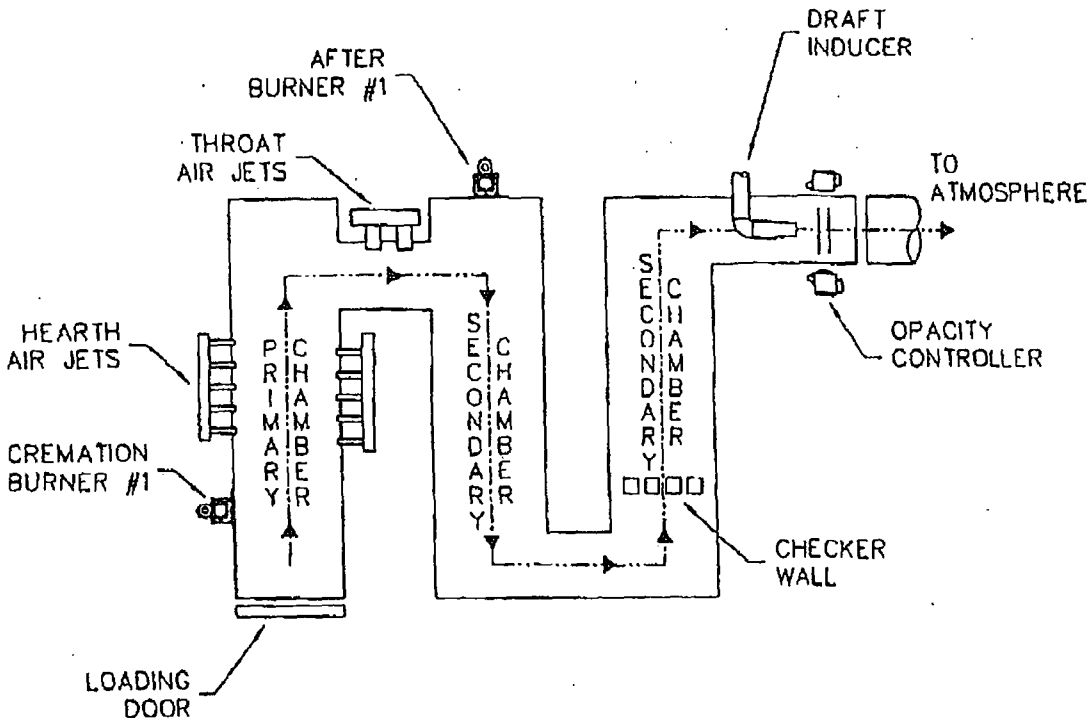
LEGEND OF SYMBOLS

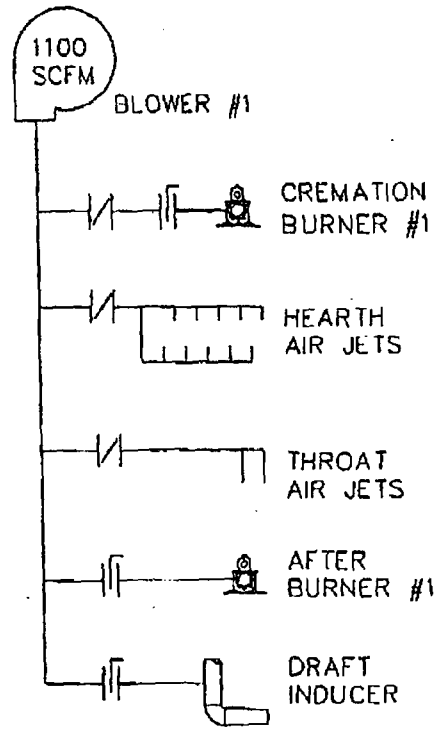
BUTTERFLY VALVE (ON/OFF)

FLOW BLOCK BUTTERFLY DAMPER

FLOW DIAGRAM



AIR SCHEMATIC



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POWER PAK II

FLOW DIAGRAM
& AIR SCHEMATIC

DATE:	08-05-05	SCALE:	1/4"=1'
DRAWN:	JC	PLOT SCALE:	1:48
APRVD:		SHEET: 1	OF: 1
DWG FILE:		PP|FlowDiaAirSchem	
DWG #:		0000523	

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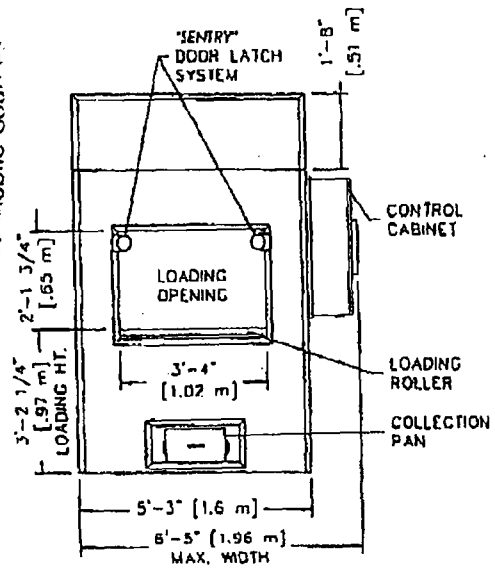
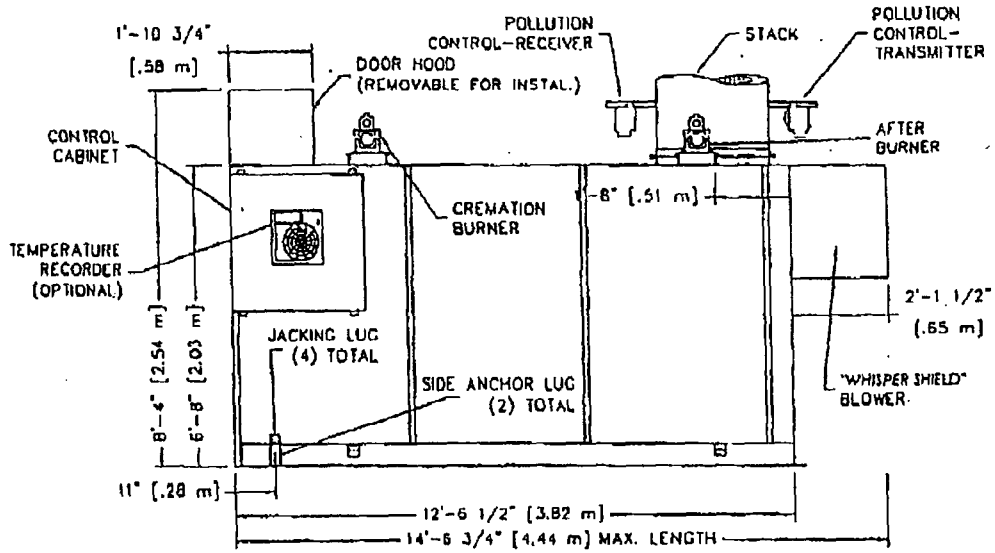
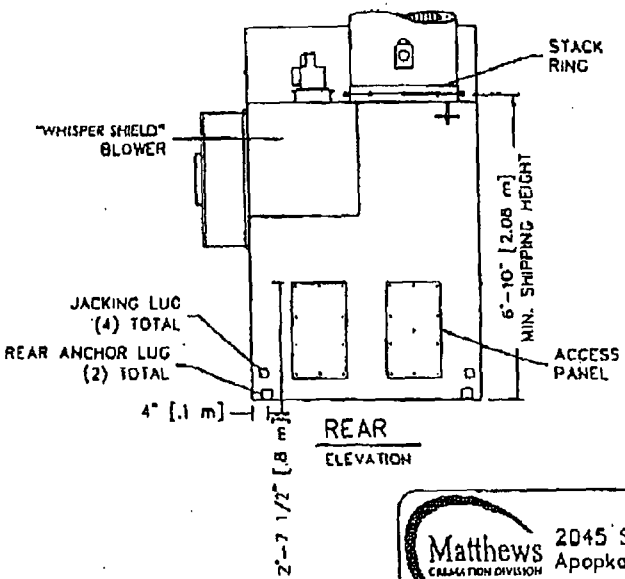


FRONT ELEVATION

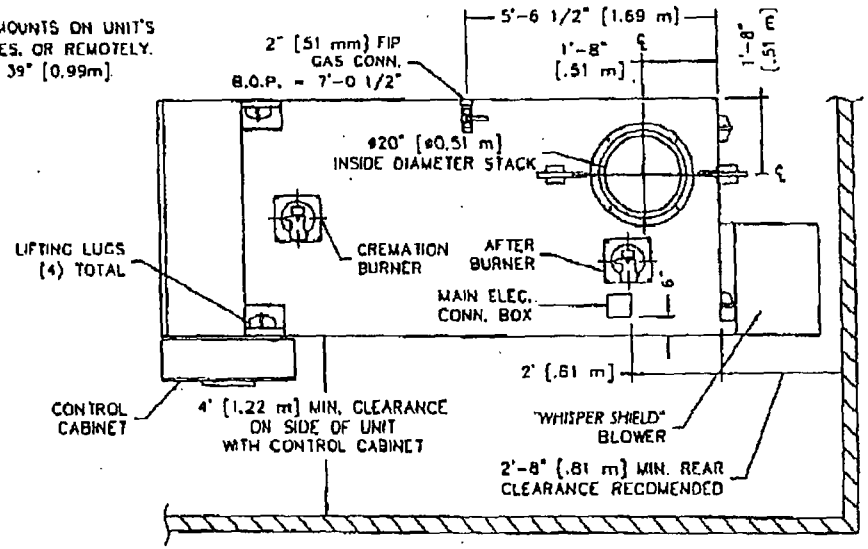


RIGHT SIDE ELEVATION

NOTES:
1) CONTROL CABINET MOUNTS ON UNIT'S LEFT OR RIGHT SIDES, 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

PLAN & ELEVATIONS INCL: CLEARANCES, REQUIREMENTS & RECOMENDATIONS

DATE:	10-26-06	SCALE:	1/4"=1'
DRAWN:	JG	PLOT SCALE:	1:48
APRVD:		SHEET: 1 OF: 2	
DWG FILE:	PPII-MarketingPlanElevS1R4		
DWG #:	0000140		

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	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).

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

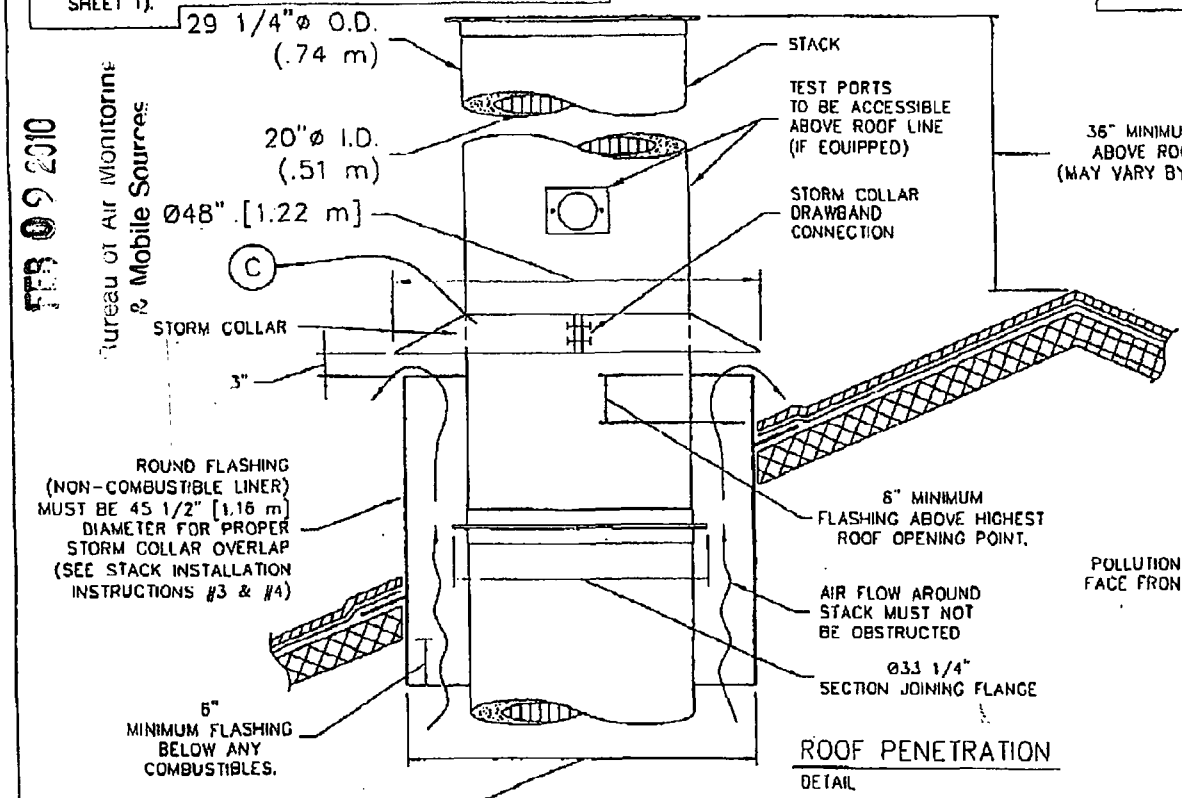
CAPACITY: RANGES FROM 2.0 TO 3.0 MILLION BTU/HR [2.1 TO 3.1 MILLION KILOJOULES/HR] DEPENDING UPON AMOUNT OF BURNERS.

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

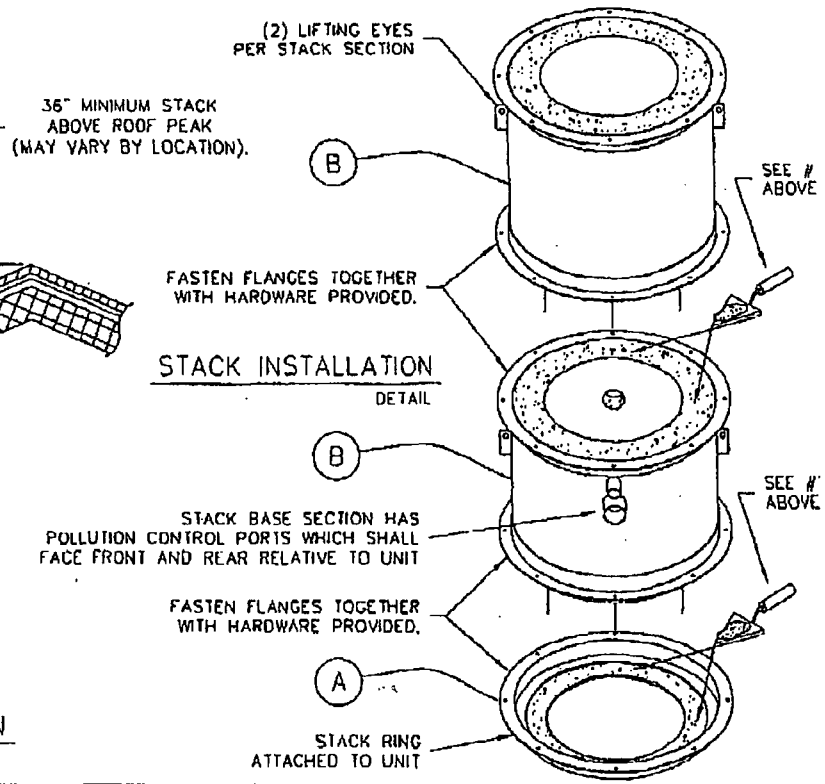
AIR: LOUVER NEAR THE REAR OF THE UNIT CAPABLE OF PASSING 2,500 CU FT/MIN [70.8 CU M/MIN] OF FREE AIR (36" X 36") [914 mm X 914 mm].

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" [76 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

POWER-PAK II

STACK DETAILS, CLEARANCES & INSTALLATION INSTRUCTIONS. REFRACTORY STACK DETAIL

DATE:	08-18-05	SCALE:	1/2"=
DRAWN:	JG	PLOT SCALE:	1:2
APRVD:		SHEET: 2 OF:	2
DWG FILE:	PPII-MarketingStockRef52R		
DWG #:	000014		

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April 21, 2006

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"
   B. Maximum Length ..... 14' - 6½" (4.43 m)
   C. Maximum Width ..... 6' -5" (1.96 m)
   D. Maximum Height ..... 8' - 4" (2.54 m)
   E. Chamber Loading Opening ..... 25 3/4" H x 39" W (655 mm x 990 mm)

3. Weight ..... 24,000 lbs. (11,000 kg)

4. Utility/Air Requirements
   A. Gross Gas Input, Natural or LP Gas ..... 2,000,000 BTU/hr. (2,100,000 kJ/h)
      2,500,000 BTU/hr. (2,600,000 kJ/h) if equipped with preheat burner
      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 ..... 150 lbs./hr. (68 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. 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

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

SPECIFICATIONS- Model Power-Pak II

D. Outer Refractory Wall ..... 5" (127 mm) insulating block
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

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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 ..... 64 cubic feet (2.0 m^3)
    B. Secondary Chamber ..... 74 cubic feet (2.0 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 ..... > 1 second

19. Ash Removal ..... Door functions as a heat shield. Sweep out beneath front 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
    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

SPECIFICATIONS- Model Power-Pak II

for incinerator use.

23. Ultraviolet Flame Detection..... Ultraviolet flame detection has proven to be t most reliable means of flame safety. The syste is completely sealed in a quartz capsule eliminate problems, caused by moisture a dust created in the cremation process, whi 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

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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

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.

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CREMATOR MASS BALANCE

Matthews Cremation Division
(formerly Industrial Equipment & Engineering Co.)
Model IE43-PPII (Power-Pak II) Ultra
Crematory Incinerator, Fired on Natural Gas

18-Oct-08

THESE CALCULATIONS HAVE BEEN PREPARED TO EVALUATE THE COMBUSTION PROCESS IN THE POWER-PAK II CREMATORY INCINERATOR
Firing Rate 150 lb/hr = 100 % of 150 lbs/hr Rated Capacity)
Excess Air 65 %
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)	5.0	145.0

SPECIFICATIONS		
PRIMARY BURNER FUEL CONSUMPTION (MMBTU/HR)	0.45	0.7 MMBTU /HR UL RATING
PRIMARY CHAMBER VOLUME (CU.FT)	64	
HEARTH AREA (SQ.FT)	26.4	
SECONDARY BURNER FUEL CONSUMPTION (MMBTU/HR)	1.2	
ADDITIONAL COMBUSTION AIR SUPPLIED		
THROAT AIR (SCFM)	200	3 " w.c. @ test tap
HEARTH AIR (SCFM)	100	4 " w.c. @ test tap
SEC. CHAMBER OPERATING TEMPERATURE (°F)	1800	
SECONDARY CHAMBER VOLUME (CU. FT)	74	
SEC. CHAMB. CROSS-SECTIONAL AREA (SQ. FT)	2.7	
FLAME PORT AREA (SQ. FT)	2.8	
MIXING BAFFLES AREA (SQ. FT)	1.4	

1. TOTAL FLUE PRODUCTS

A. PRIMARY BURNER NATURAL GAS USAGE

$$\frac{450000\ \text{BTU/HR}}{1000\ \text{BTU/CF}} = 450\ \text{CFH} = 8\ \text{CFM}$$

B. COMBUSTION AIR FOR PRIMARY BURNER

$$\frac{450\ \text{CF}}{\text{HR}} \times \frac{2\ \text{CF O2}}{\text{CF}} \times \frac{1\ \text{CF AIR}}{0.21\ \text{CF O2}} = 4327\ \text{CFH} = 72\ \text{CFM (Stoichiometric)}$$

$$1658.5 \times 5.3\ \text{SI} \times 0.97 \times \sqrt{0.5} = 6029\ \text{CFH} = 100\ \text{CFM (Actual)}$$

C. SECONDARY BURNER NATURAL GAS USAGE

$$\frac{1200000\ \text{BTU/HR}}{1000\ \text{BTU/CF}} = 1200\ \text{CFH} = 20\ \text{CFM}$$

D. COMBUSTION AIR FOR SECONDARY BURNER

$$\frac{1200\ \text{CF}}{\text{HR}} \times \frac{2\ \text{CF O2}}{\text{CF}} \times \frac{1\ \text{CF AIR}}{0.21\ \text{CF O2}} = 11538\ \text{CFH} = 192\ \text{CFM (Stoichiometric)}$$

$$1658.5 \times 5.3\ \text{SI} \times 0.97 \times \sqrt{2.25} = 12790\ \text{CFH} = 213\ \text{CFM (Actual)}$$

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E. PRODUCTS FROM TYPE 0 WASTE (CONTAINER)

0.95 LBS/LB BURNED x 5 LB/HR BURN RATE = 5 LBS/HOUR
= 63 CFH
= 1 CFM

F. PRODUCTS FROM TYPE 4 WASTE (TISSUE)

0.95 LBS/LB WASTE x 145 LB/HR BURN RATE = 138 LBS/HOUR
= 1833 CFH
= 31 CFM

G. ADDITIONAL COMBUSTION AIR (HEARTH & THROAT AIR)

12000 CFH = 200 CFM
6000 CFH = 100 CFM
= 150 CFM/CREMATION

H. TOTAL FLUE PRODUCTS = 523 SCFM

2. VELOCITY AND TIME CALCULATIONS

A. TOTAL PRODUCTS ACFM @ 1800 °F

$\frac{2260\ °RANKINE}{530\ °RANKINE}$ x 522.8 CFM = 2229 ACFM

B. RETENTION TIME

$\frac{74\ CU.FT}{2229\ ACFM}$ x $\frac{60\ SECONDS}{1\ MINUTE}$ = 2.0 SECONDS

C. VELOCITY IN FLAME PORT

$\frac{2229\ ACFM}{2.8\ SQ.FT}$ x $\frac{1\ MINUTE}{60\ SECONDS}$ = 13.3 FEET/SECOND

D. VELOCITY AT MIXING BAFFLES

$\frac{2229\ ACFM}{1.4\ SQ.FT}$ x $\frac{1\ MINUTE}{60\ SECONDS}$ = 26.5 FEET/SECOND

E. VELOCITY IN SECONDARY CHAMBER

$\frac{2229\ ACFM}{2.7\ SQ.FT}$ x $\frac{1\ MINUTE}{60\ SECONDS}$ = 13.8 FEET/SECOND

STACK CONDITIONS	
STACK EXIT DIAMETER (INCHES)	20
STACK EXIT AREA (SQ. FT)	2.18
FLUE GAS TEMPERATURE (°F) (Secondary chamber exhaust)	1800
INDUCING AIR TEMPERATURE (°F)	70
INDUCING AIR QUANTITY (CFM)	15000

5. STACK CALCULATIONS

A. STACK GAS TEMPERATURE

523 (T - 2260) = 250 (T - 530) = 1240 °FAHRENHEIT

B. STACK GAS VOLUME (STACK CONDITIONS)

$\left(\frac{523}{60} + \frac{250}{SEC/M}\right)$ SCFM x $\frac{1700}{530}$ = 41 ACFS
= 2479 ACFM
= 773 SCFM

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C. STACK EXIT VELOCITY

41 ACFS / 2.18 SQ. FT = 19 FEET PER SECOND = 1137 FEET PER MINUTE

D. PERCENT WATER VAPOR (Volume Conversion)

0.1 lb/lb waste Type 0	X	29 Mol Wt. Air / 18 Mol. Wt. Water	=	0.16 lb/lb waste Type 0
0.85 lb/lb waste Type 4	X	29 Mol Wt. Air / 18 Mol. Wt. Water	=	1.36 lb/lb waste Type 4
0.16 lb/lb waste Type 0	X	5 LB/HR BURN RATE	=	0.8 lb/hr
1.36 lb/lb waste Type 4	X	145.0 LB/HR BURN RATE	=	198 lb/hr
2.25 lb/lb fuel (NG)	X	69 LB/HR BURN RATE	=	156 lb/hr
			=	355 lb/hr total
			=	116 SCFM
			=	15 % Water Vapor (Theoretical)

E. PERCENT O2 & CO2 @ CREMATOR TEST PORT (Theoretical)

1650 CFH CH4

5786 CFH O2
27819 CFH AIR
1650 CFH CO2
3300 CFH H20

15 LB AIR / 10000 BTU	8500 BTU / LB	0.85 LB / LB	5.0 LB / HR	54 LB/HR AIR - Type 0 721 SCFH
15 LB AIR / 10000 BTU	1000 BTU / LB	0.1 LB / LB	145.0 LB / HR	22 LB/HR AIR - Type 4 289 SCFH

Stoichiometric Air = 16876 SCFH
281 SCFM

Excess Air = 10942 SCFH
182 SCFM

Total Flue Products: 523 CFM
- 116 CFM MOISTURE
407 CFM GAS

CO2	2802 CFH	=	47 SCFM	=	11 % CO2
O2	2276 CFH	=	38 SCFM	=	9 % O2

F. PERCENT O2 & CO2 @ STACK TEST PORT (Theoretical)

Total Flue Products (adding inducing air to total flue products): 773 CFM
- 116 CFM MOISTURE
657 CFM GAS

CO2	2802 CFH	=	47 SCFM	=	7 % CO2
O2	5396 CFH	=	89.9 SCFM	=	14 % O2

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EMISSIONS TESTING REPORT

PERMIT NO. 0950126-005-AG

IE43-PPII, POWER-PAK II CREMATOR

PREPARED FOR:

BALDWIN FAIRCHILD

ORLANDO, FLORIDA
MAY 5, 2005

PREPARED BY:

ATC

AIR TESTING & CONSULTING, INC.
333 FALKENBURG ROAD, SUITE B-214
TAMPA, FLORIDA 33619

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ATC

AIR TESTING & CONSULTING, INC.

333 FALKENBURG ROAD, SUITE B-214
TAMPA, FLORIDA 33619

To the best of my knowledge, all field and analytical procedures comply with Florida Department of Environmental Protection requirements and all test data and plant operating data are true and correct.

Kenneth E. Given

Kenneth E. Given, P.E.

5-10-05

Date

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1.0 INTRODUCTION

On May 5, 2005, Air Testing & Consulting, Inc., conducted the following tests on Baldwin Fairchild's Human Crematory Incinerator located at 301 N. Ivanhoe Blvd. in Orlando, Florida:

(1) Particulate Emission (EPA Methods 1 – 5)
(2) Carbon Monoxide (EPA Method 10)
(3) Visible Emissions (EPA Method 9)
(4) Oxygen (EPA Method 3A)

These tests were performed at the request of Mathews Cremation Division to prove compliance on the Power Pak II crematory incinerator. Orange County, Environmental Protection Division, representatives, Gregory Bryant, Ilka Bundy and John Casper audited the test.

2.0 SUMMARY OF RESULTS

The results of the emission testing are presented in the Test Summary. The Particulate emissions averaged 0.0549 grains per dry standard cubic foot (gr/dscf) and CO emissions averaged 2.2 parts per million (ppmv), each corrected to 7% O_2. Opacity, highest six-minute average, on the stack, was 0%.

3.0 SUMMARY OF TEST DATA

PLANT : BALDWIN UNIT : POWER-PACK II RUN NUMBERS :1, 2, 3

TEST DATE : 5/5/05	#1	#2	#3	AVERAGES
DATE	5/5/05	5/5/05	5/5/05	
START TIME	10:32	13:05	15:27	
END TIME	11:50	14:09	16:29	
STACK DIAMETER (INCHES)	19.5	19.5	19.5	
NOZZLE DIAMETER (INCHES)	0.550	0.550	0.550	
TEST TIME (MINUTES)	60	60	60	
NUMBER OF TEST POINTS PER RUN	24	24	24	
STACK GAS TEMPERATURE (°F)	850.0	991.8	1128	989.9
STACK GAS MOISTURE (%)	12.51	9.76	6.56	
STACK GAS MOLECULAR WEIGHT	28.50	28.83	29.21	
STACK GAS VOLUME SAMPLED (CUBIC FEET)	34.375	36.840	40.110	37.108
VOLUME SAMPLED (SCF @ 68°F)	34.585	37.020	40.270	37.292
STACK GAS VELOCITY (FEET PER SECOND)	18.14	17.30	19.75	18.39
STACK GAS FLOW RATE (ACFM)	2257.0	2152.2	2457.7	2288.9
STACK GAS FLOW RATE (DSCFM @ 68°F)	801.7	711.5	769.2	760.8
OXYGEN, %	16.0	14.0	14.5	
PARTICULATE CONC (GR/DSCF) @7% O_2	0.0359	0.1122	0.0165	0.0549
PARTICULATE MASS RATE (LBS/HOUR)	0.0871	0.3396	0.0500	0.1589
CO CONC @ 7% O_2, ppmv	1.42	2.01	3.26	2.23
CO MASS RATE (LBS/HOUR)	0.00175	0.00310	0.00503	0.0033
ISOKINETIC SAMPLING RATE, %I	90.4	109.0	109.7	

FIELD DATA AND SAMPLES UNDER THE CONTROL OF: TIM CAPELLE

LABORATORY ANALYSIS UNDER THE CONTROL OF: ATC

BREWER & SONS

FUNERAL HOMES AND CREMATION SERVICES

A FAMILY OWNED SERVICE COMPANY

Se Habla Español

FAX TRANSMITTAL

TO: Dickson Dibble

FROM: Tammy

NUMBER OF PAGES: 19

The information contained in this fax transmission is personal and confidential.
If you receive this transmission by error contact us at (813) 887-4991

Comments

Papers for Crematory permit

Thanks

Tammy

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FEB 09 2010

Bureau of Air Monitoring
& Mobile Sources

Toll Free: 1-800-722-4991

Reply to:

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www.brewerfuneral.com

Dibble, Dickson

From: Dibble, Dickson
Sent: Thursday, February 04, 2010 1:21 PM
To: 'tammy@brewerfuneral.com'
Cc: Ajhar, Rebecca
Subject: Human Crematory Air General Permit Registration Form
Attachments: 0530039-003-AG;FamilyOwnedServicesCorpdbaBrewer&SonsFuneralHomes.pdf

Dear Ms. Tolbert,

Thank you for returning my initial telephone call.

It was a pleasure to talk with you this afternoon regarding Family Owned Services Corp's renewal of their Human Crematory Air General Permit Registration.

As we discussed, the original form as submitted, did not include page nine (9) of the form and until it is received, we are unable to consider it as a complete application.

I have attached a pdf copy of the form as submitted and included a blank page nine (9) for you use. I have also highlighted the areas on page nine (9) that should be addressed. The request for information about your crematory facility is fairly specific and calls for identifiers for both the process equipment and processes, as well as details regarding emission control equipment and pollution control measures.

Once page nine (9) is complete, you may scan a copy and send it back to me via e-mail and I will attach it as an addendum to your original submittal.

If you have any questions, comments, or concerns please e-mail or call.

Please, once again pass my apologies on to your father, as I am truly sorry for calling your home in error. As it was I called the number as listed on the form thinking that it was the number for Mr. Barry K. Brewer.

Thank you for your time and consideration.

Have a great day!

Sincerely,

Dickson E. Dibble

Dickson E. Dibble, ES III
FL Dept of Environmental Protection
Div. of Air Resource Management
Bureau of Air Monitoring & Mobile Sources
Air General Permit Program
Tel. (850) 921-9586
FAX (850) 922-6979
ICG-#345

Dickson.Dibble@dep.state.fl.us

COMMUNICATE
in plain language

Please note: Florida has a very broad public records law. Most written communications to or from state officials regarding state business are public records available to the public and media upon request. Your e-mail communications may therefore be subject to public disclosure

BREWER & SONS
FUNERAL HOMES AND CREMATION SERVICES
A FAMILY OWNED SERVICE COMPANY
Se Habla Español

January 20, 2010

Department of Environmental Protection
3804 Coconut Palm Dr.
Tampa, FL 33619

To whom it may concern:

This letter is to notify you that on February 5, 2010, at 10:00 am, we will be having our Visible Emissions test for permit number 0530039-002-AG performed by Clean Air Consulting, Inc. This is giving your office 15 days notice, however, if we can perform the test earlier, please contact our office at 813-887-4991 and we will do so to get into compliance.

Should you need further information, please do not hesitate to contact my office.

Sincerely,

Tammy M. Tolbert

Toll Free: 1-800-722-4991
Reply to:

SOUTH TAMPA
3328 S. Dale Mabry
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(813) 835-4991
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ATC

AIR TESTING & CONSULTING, INC.

333 FALKENBURG ROAD, SUITE B-214
TAMPA, FLORIDA 33619

To the best of my knowledge, all field and analytical procedures comply with Florida Department of Environmental Protection requirements and all test data and plant operating data are true and correct.

Kenneth E. Given

Kenneth E. Given, P.E.
12-22-04

Date 5/10/05

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APPENDICES

1.0 INTRODUCTION

On December 9, 2004 Air Testing & Consulting, Inc. conducted emissions testing on the Mathews Cremation Division Model IE43-PPII, Power-Pak II. The unit is located at Baldwin Fairchild., 301 N. Ivanhoe Blvd, Orlando, Florida:

(1) *O_2 - EPA METHOD 3A*
(2) *SO_2 - EPA METHOD 6*
(3) *NOx - EPA METHOD 7E*
(4) *CO - EPA METHOD 10*
(5) *VOC – EPA METHOD 25A*
(7) *PARTICULATE/ HYDROGEN CHLORIDE – EPA METHOD 26A*
(8) *VE - EPA METHOD 9*

These tests were performed at the request of Mathews Cremation Division. The burn rate during the testing averaged 82 lbs/hr. On May 5, 2005, at the request of Orange County, Environmental Protection Division, a test for PM, CO and a VE were performed.

2.0 PROCESS DESCRIPTION

The IE43-PPIi, Power-Pak II cremator has a multiple chamber with a 100 pound per hour normal burning capacity. Human remains are loaded into the primary chamber. The afterburner ignites and heats the secondary chamber to the required temperature. The secondary chamber temperature of 1600 ^{O}F is maintained by a process controller that automatically modulates the gas flow to the afterburner. After the secondary chamber has been heated sufficiently, the cremator burner ignites and the cremation process is initiated. A typical cremation takes from 1 to 2 hours, but the time may vary depending on the body weights and various other factors.

3.0 SUMMARY OF RESULTS

The results of the emission testing are presented in the Test Summary and the Summary of Test Data. The particulate emissions averaged 0.0231 grains per dry standard cubic foot (grs/dscf), CO emissions averaged 2.96 parts per million (ppmv), SO_2 emissions averaged 47.67 ppmv, VOC emissions averaged 1.61ppmv, NOx emissions averaged 292 ppmv and HCL emissions averaged 43.43 ppmv, each corrected to 7% O_2. A visible emissions test was conducted over a 60 minute period. Opacity, highest six-minute average, on the stack, was 0%.

During the May 5, 2005 test, particulate emissions averaged 0.0549 grains per dry standard cubic foot (grs/dscf) and CO emissions averaged 2.23 parts per million (ppmv). A visible emissions test was conducted over a 60 minute period. Opacity, highest six-minute average, on the stack, was 0%.

P.007/008
(FAX)
01/22/2010 16:21

TEST SUMMARY
BALDWIN FAIRCHILD
CREMATORY INCINERATOR
DECEMBER 9, 2004

RUN #	% O_2	PARTICULATE GR/DSCF @ 7% O_2	HCL ppmv @ 7% O_2	CO ppmv @ 7% O_2	SO_2 ppmv @ 7% O_2	VOC ppmv @ 7% O_2	NOx ppmv @ 7% O_2	PROCESS RATE LBS
1	10.0	0.0237	31.2	6	35.7	0.87	250	190
2	12.0	0.0298	65.0	1	45.9	1.05	250	140
3	12.0	0.0158	34.1	2	61.4	2.92	375	150
AVG	11.33	0.0231	43.43	2.96	47.67	1.6	292	160

SUMMARY OF TEST DATA

PLANT : BALDWIN FAIRCHILD UNIT : POWER PAK II RUN NUMBERS :1, 2, 3

TEST DATE : 12/9/04	#1	#2	#3	AVERAGES
DATE	12/9/04	12/9/04	12/9/04	
START TIME	10:38	12:46	15:04	
END TIME	11:40	13:47	16:05	
STACK DIAMETER (INCHES)	19.5	19.5	19.5	
NOZZLE DIAMETER (INCHES)	0.750	0.750	0.700	
TEST TIME (MINUTES)	60	60	60	
NUMBER OF TEST POINTS PER RUN	24	24	24	
STACK GAS TEMPERATURE (°F)	1223.6	1196.9	1241	1220.3
STACK GAS MOISTURE (%)	12.64	14.86	14.68	
STACK GAS MOLECULAR WEIGHT	28.48	28.22	28.24	
STACK GAS VOLUME SAMPLED (CUBIC FEET)	45.500	39.180	38.340	41.007
VOLUME SAMPLED (SCF @ 68°F)	45.560	39.121	38.320	41.000
STACK GAS VELOCITY (FEET PER SECOND)	14.24	14.19	14.37	14.27
STACK GAS FLOW RATE (ACFM)	1771.8	1765.9	1788.4	1775.4
STACK GAS FLOW RATE (DSCFM @ 68°F)	487.7	481.3	476.0	481.7
O_2	10	12	12	11.33
PARTICULATE CONC (GR/DSCF) @7% O_2	0.0237	0.0298	0.0158	0.0231
PARTICULATE MASS RATE (LBS/HOUR)	0.0777	0.0787	0.0414	0.0659
CO CONC @ 7% O_2, ppmv	6	1	2	2.96
CO MASS RATE (LBS/HOUR)	0.01064	0.00126	0.00208	0.0047
NOx CONC @ 7% O_2, ppmv	250	250	375	292
NOx MASS RATE (LBS/HOUR)	1	1	1	1
VOC CONC @ 7% O_2, ppmv	0.9	1.0	2.9	1.61
VOC MASS RATE (LBS/HOUR)	0.0023	0.0022	0.0061	0.0035
HCL CONC @ 7% O_2, ppmv	31.2	65.0	34.1	43.44
HCL MASS RATE (LBS/HOUR)	0.1	0.1	0.1	0.080
SO_2 CONC @ 7% O_2, ppmv	35.68	45.91	61.41	47.67
SO_2 MASS RATE (LBS/HOUR)	0.136	0.141	0.186	0.154
ISOKINETIC SAMPLING RATE, %I	105.3	91.6	104.2	

FIELD DATA AND SAMPLES UNDER THE CONTROL OF: TIM CAPELLE

LABORATORY ANALYSIS UNDER THE CONTROL OF: ATC, STL LABORATORIES

BREWER & SONS
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